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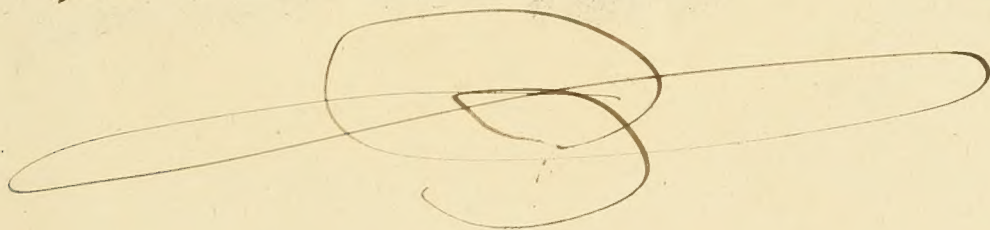
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JAMES DICKSON and SONS, Newton Nurseries, Chester.

To the Trade—Seed Catalogue.

H. and F. SHARPE beg to announce that their **SEED CATALOGUE** has been posted to all their customers. Any one not having received it will oblige by applying at once to

Seed Growing Establishment, Wisbech.

TODEAS.—Healthy young plants of **T. superba** and **T. hymenophylloides** (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or less quantities, on application.

ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

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H. CANNELL has now a great quantity of the following, in fine condition, which will be sure to give satisfaction:—**PRIMULAS**, showing flower, 5s. to 7s. per dozen; **CALCEOLARIAS**, Spotted, 2s. per dozen by post, established 6s. per dozen; **CYCLAMENS**, 5s. and 10s. per dozen, full of flower-buds; **HYACINTHS**, two in a pot, 6s. to 12s. per dozen; **TULIPS**, three and four in a pot, 6s. per dozen. Special prices for large quantities.

Economy in Gardening.

TO PURCHASERS OF LARGE QUANTITIES. Asylums, Unions, Hotels, and Public Institutions.

SUTTON and SONS are prepared to place purchasers of large quantities on favourable terms.

Apply stating quantities required, to **SUTTON and SONS**, The Queen's Seedsmen, Reading.

To the Trade.

EAST LOTHIAN STOCK.—A splendid sample of Pure White, very fine, grown apart from all others; also **Scarlet Brompton**; and **Dr. Masters Pelargonium** and **New Coleus**. Prices on application. Railway Nurseries, Ardleigh, Colchester, Essex.

JAMES FARRAR and CO. beg to announce the publication of their Wholesale **CATALOGUE of SEEDS** for the present season, which will be forwarded post-free on application. Seed Warehouse, 86, Golden Lane, Barbican, London, E.C.

KENTISH FRUIT TREES of every description, in 300 varieties, including some dwarf **Pyramid Fruiting APPLES** suitable for windy districts, at extraordinarily low prices. Before purchasing elsewhere send for **Special LIST** to

T. EVES, Gravesend Nurseries.—Established 1810.

FOR SALE, CHEAP FOR CASH.—Green and Variegated **HOLLIES** from 1 foot to 4 feet, **YEW** 1 foot to 6 feet, **LIMES** 5 feet to 7 feet, **Portugal LAURELS** 2 feet to 5 feet, 2-yr. **APPLES**, and other **NURSERY STOCK**. Also **Sutton's Magnum Bonum POTATOS**, warranted true. **W. TRIGG**, Hook Hill, Woking Station.

East Lothian Stocks.

TODD and CO., SEEDSMEN, Maitland Street, Edinburgh, offer **SEEDS** of these splendid Stocks, saved from very carefully selected strains, in the following colours:—Crimson (very superb), Purple, Rose, Scarlet, White, and White Wallflower-leaved, in packets at 1s. and 2s. 6d. each. Amateurs' packets 6d. each.

Planting Season.

E. BURGESS begs to offer the following: Strong Standard **APPLES**, **PEARS**, **ROSES**, Standard and Dwarf **Trained APRICOTS**, **Turkey** and **English OAK**, **English** and **Scotch ELMS**, **LIMES** up to 12 feet, **BEECH** up to 7 feet, **SWEET BAYS**, **APPLE STOCKS**, and a general **NURSERY STOCK**.

Prices on application.

The Nurseries, London Road, Cheltenham.

To the Trade.—Immense quantities of extra fine **SEEDLINGS** and **TRANSPLANTED PLANTS**—Quicks, Scotch Firs, Alders, Fruit Trees, Shrubs, &c. For Descriptive **CATALOGUE**, apply to **LEVAVASSEUR and SON**, Nurserymen, Ussy, Calvados, France; or to their Agents, Messrs. **R. SILBERRAD and SON**, 15, Harp Lane, Great Tower Street, London, E.C.

To the Trade.

LIMES, 4 to 6 feet, 20s. per 100; 6 to 8 feet, 30s. per 100. **ASH**, Mountain, 4 to 5 feet, 30s. per 100. **WALNUTS**, 6 to 8 feet, 30s. per 100. **PINE**, Weymouth, 2-yr., 2-yr. out, 25s. per 100. General Nursery **TRADE LIST** on application. **W. P. LAIRD and SINCLAIR**, Nurserymen, Dundee, N.B.

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One Penny Each.

GLADIOLUS BRENCHLEYENSIS.—The finest scarlet **Gladiolus** in cultivation, also **FLORIBUNDUS**, nearly pure white, fine sound Flowering Bulbs, any quantity, from 1 to 10,000, at the above price. A few thousand Smaller Bulbs, mixed, at 5s. per 100. Also **HOLLYHOCKS**, fine seedling plants, at 3d. each, 2s. 6d. per dozen, 1s. per 100. Double **DAISIES**, Red, White, and **Hen-and-Childrens**, 5s. per 100; Double **dark Crimson**, 6s. per 100. **CATALOGUE** for 1879, containing 500 Illustrations, post-free for 12d.

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To the Trade.

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Canes of most of the leading sorts, 30s. and 36s. per
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To the Trade.

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Fruit Tree CATALOGUE gratis.

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AZALEA AMENA CALDWELLII, well set with buds,
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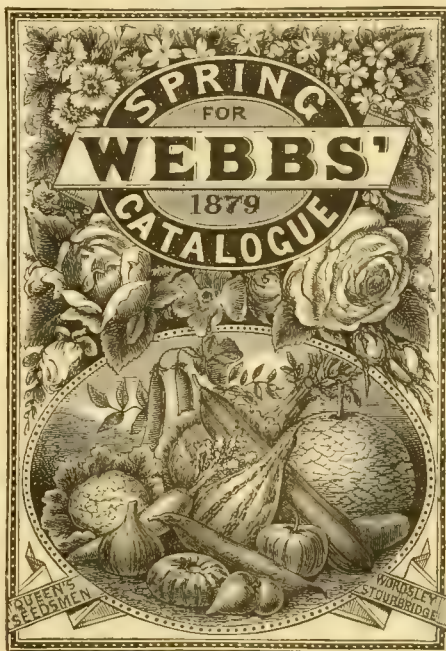
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Extra fine mixed Seed from the best named varieties,
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ACUBAS, 50,000, 1 to 3 feet.—For price

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To the Trade.

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| Large Purple-top | Giant Scarlet |
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| Green-top Yellow | from large flowers. |

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Wandsworth Common and Garrett Lane Nurseries,
beg respectfully to call attention to their large and varied Stock
of HARDY, ORNAMENTAL, FOREST, FRUIT TREES
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those Trees, &c., which are most suitable for growing in or near
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DECIDUOUS PLANTS, FOREST TREES, &c. All are
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The following list comprises a few of those Trees, of which they
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| FOREST TREES. | LAUREL, common, 2 to 2½ |
| Acacia, 3 to 4 and 10 feet. | feet |
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| Chestnut, 2 to 4 feet. | feet. |
| Pinus Laricio, 1 to 2 feet. | " obovata, 1½ to 2 feet. |
| Pinus austriaca, 1 to 1½ | " latifolia, 1 to 1½ feet. |
| foot. | " Portugal, 1½ to 2½ feet. |
| Scotch Fir, 1 to 1½ foot. | " 3 to 4 feet. |
| Spruce, 1½ to 2½ feet. | HOLLY, Green, 1 to 1½ foot |
| Weymouth, 3 to 4 feet. | " hybrid, 1½ to 2 feet. |
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| CLEMATIS, IVIES, and other CLIMBING PLANTS, | |
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| FRUIT TREES.—Pyramid Apples, Pears, Plums; Trained | |
| Apples, Apricots, Cherries, Nectarines, Pears, Peaches and | |
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MANETTI ROSE STOCKS, clean grown and well
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60,000 extra strong SEAKALE, fit for immediate forcing, 80s.
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Sceaux, near Paris, has to offer the following:—
Roses, Fruit Trees, maiden or trained; Ornamental Trees and
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RETINOSPORA PLUMOSA AUREA, 2 feet, 20s. p. doz.

CUPRESSUS LAWSONIANA LUTEO, 2-yr. grafted,

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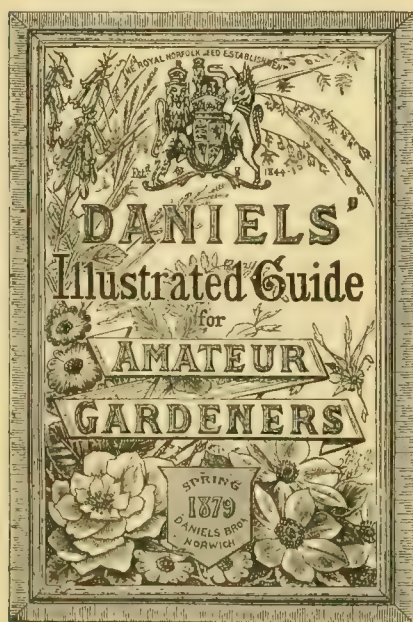
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FLOWER SEEDS,

SEED, POTATOS, &c.,

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Price 1s. post-free.

Gratis to Customers and intending Purchasers.

Should be in the hands of every one having a Garden.

DANIELS BROS.,
Royal Norfolk Seed Establishment,
NORWICH.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that
his stock of VINES is this year unusually fine, and
comprises all the leading kinds, including "Alnwick Seedling."
For descriptions and prices, see B. S. W.'s BULB CATA-
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Victoria and Paradise Nurseries, Upper Holloway, London, N.

The Largest Black Grape in Cultivation,
GROS GUILLAUME (ROBERTS' VARIETY).
W. TAIT AND CO. can now supply planting
Canes of this wonderful Grape, which is quite distinct
from the old Gros Guillaume and Barbarossa. For particulars see
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are from eyes taken from Mr. Roberts' parent Vine at Charleville.
Planting Canes, 7s. 6d. each, stronger, 10s. 6d. each.
W. TAIT AND CO., Nurserymen and Seedsmen, Dublin.

SPECIAL TRADE OFFER.—50,000
Dwarf ROSES on Manetti, finest plants in the Trade,
my selection, all first-rate sorts; 30s. per 100, £12 10s. per
1000. 50,000 Strong SEAKALE, for Forcing, 40s. per 1000.
100,000 Giant ASPARAGUS, 1-yr. 7s. 6d. per 1000, 2-yr. 13s.
per 1000, 3-yr. 20s. per 1000. 100,000 1-yr. cultivated seedling
BRIERS, fine, 20s. per 1000. For cash with orders.
RICHARD LOCKE, Alexandra Nurseries and Rose Farm,
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Special Offer.

W. BALL AND CO., Bedford Road
Nursery, Northampton, having a very large Stock of
the undermentioned Trees, &c., in fine condition for removal,
have much pleasure in offering them at the following low
prices:—

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" 3 to 5 feet, fine, 25s. per 1000
BERBERIS, Aquifolia, 1 to 1½ foot, very good, 12s. per 1000
CHESTNUT, Horse, 6 to 8 feet, fine heads, 60s. per 100
" Scarlet, 6 to 8 feet, fine heads, 100s. per 100
ELMS, Canadian, 8 to 10 feet, stems, with good heads,
100s. per 100
" English (upright), 6 feet, stems, with good heads, 100s.
per 100
GORSE, single, 10s. per 1000, 1½ to 2 feet, strong.
HORNBEAM, 2 to 3 feet, very good, 20s. per 1000
LIMES, 6 to 8 feet, very fine, 50s. per 100; 9 to 10 feet, very
fine, 70s. per 100
POPLAR, Black Italian, 5 to 6 feet, fine, 8s. per 100; 8 to 10
feet, fine, 12s. per 100
" Lombardy, extra fine trees, 8 to 10 feet, 30s. per 100
PRIVET, common, 2 feet, bushy, 10s. per 1000
" ovalifolium, 3 to 4 feet, 50s. per 1000
WALNUTS, extra quality, 6 to 8 feet, 60s. per 100
CHERRIES, Morello, dwarf trained, 6 to 7 shoot, extra fine
20s. per dozen
APRICOTS, Moor Park, dwarf trained, 6 to 7 shoot, strong,
24s. per dozen
ROSES, extra fine Standards, with large heads, fine varieties,
4 feet stems, own selection, 70s. per 100
APPLES, fine Standards, in variety, own selection, 60s. per 100
PEARS, fine Standards, in variety, own selection, 75s. per 100
CATALOGUES of General Nursery Stock on application.

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WINTER and SPRING BEDDING PLANTS.

AURICULA, Alpine, fine strain, in 60-pots, 120s. per 1000, 15s.
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DAISY, Aucubæfolia, golden netted foliage, strong clumps,
30s. per 1000, 4s. per 100.
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" Rob Roy, fine red, ditto, 25s. per 1000, 3s. per 100.
" Bride, finest large white, ditto, 35s. per 1000, 4s. per 100.
MENTHA PULEGIUM, strong clumps, 15s. per 1000, 2s.
per 100.
MYOSOTIS DISSITIFLORA, true, well rooted fine clumps,
40s. per 1000, 5s. per 100.
PANSY, Cliveden Blue, fine healthy plants, 50s. per 1000,
6s. per 100.
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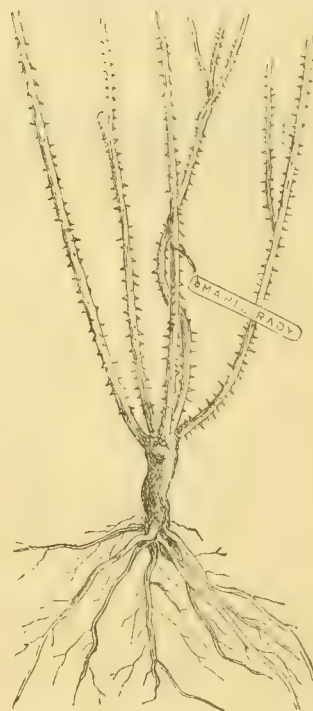
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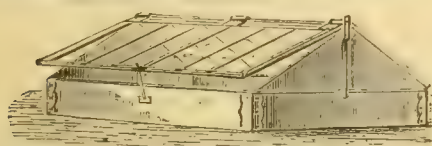
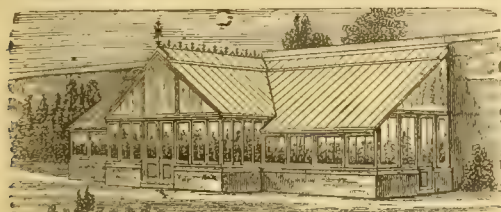
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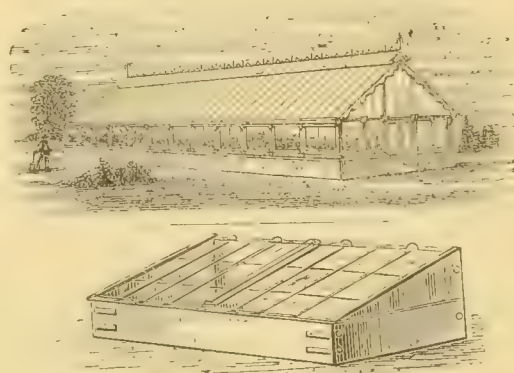
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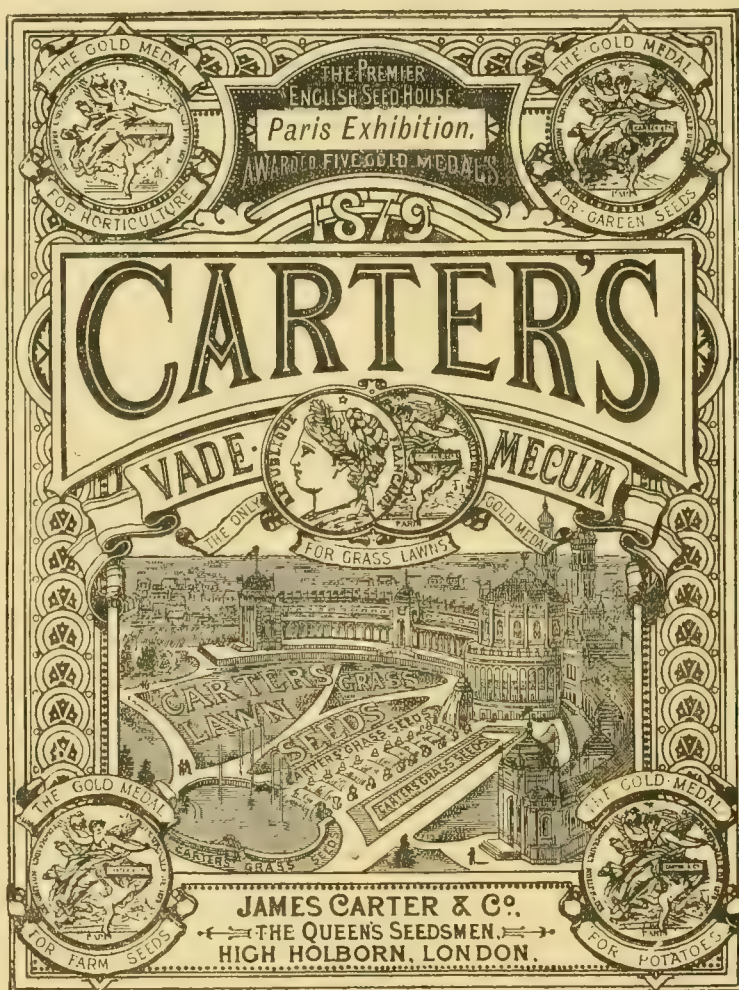
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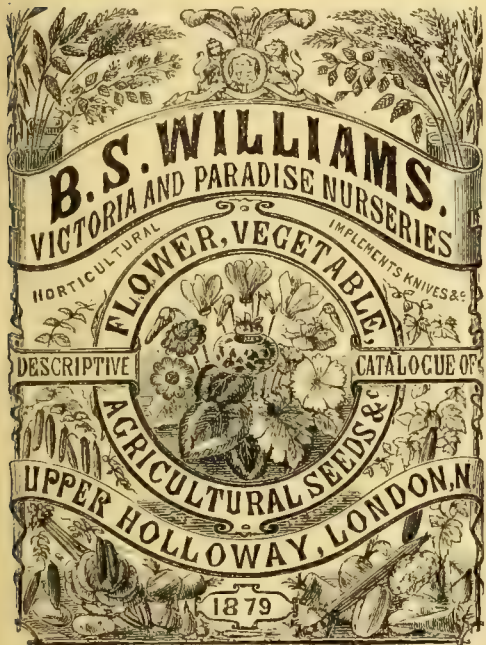
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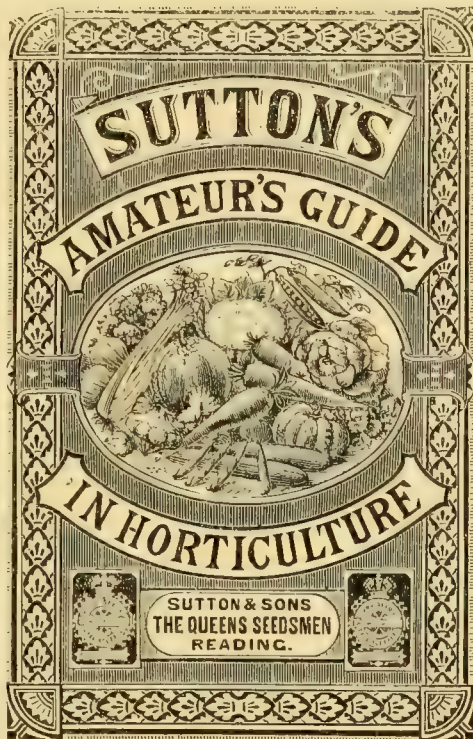
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SATURDAY, JANUARY 4, 1879.

THE NEW PLANTS OF 1878.

THE past year has been bountiful to us, in respect to the introduction of NEW PLANTS, as most of its forerunners have also been, and there is, as we hope to show, a ful modicum of quality amongst the subjects which have been made known to the horticultural world during 1878. Other treasures, we know remain behind, but we must not pry too closely into the future. In this paper, too, we leave out of view all the choice acquisitions of the past season amongst florists' flowers, which are by no means few, nor are they unimportant as regards the ornamentation of our flower gardens, or the pleasure to be spread over the land derived from their more disseminated cultivation when they pass out of the raisers' hands.

There can, we suppose, be no question that the most remarkable plant of the year just passed is the so-called *Conophallus Titanum*—so-called till the opportunity offers to decide its exact position, which will probably be in the genus *Brachyspatha*. True, our summary of the more prominent of the acquisitions of the year is supposed to recount those only which are already introduced amongst us, and this titanic Aroid is not yet actually present with us, but as it has reached Florence in a living state it may for all practical purposes be regarded as being already acquired. The description of this wonderful plant, with a reduced figure of it in the flowering state, has been already printed in these pages (*Gardeners' Chronicle*, n.s., x., 596, 781, 788, fig. 127), but we may here briefly repeat that its tubers are nearly 5 feet in circumference, and its leaf 45 feet in circumscription, on a stalk 10 feet high, while its campanulate spathe, measuring nearly 3 feet across, is of a bright black-purple, and its tapering spadix, of a dirty yellow at the base and livid towards the top, is nearly 6 feet long. *Godwinia* and *Corynophallus* must now hide their diminished heads; and it is the fortunate lot of Dr. Beccari to have been the medium through which we have learned to know this Anak of the vegetable race.

STOVE FLOWERING PLANTS.

This mention of the Sumatran Aroid leaves us amongst the stove-flowering plants, and we therefore take up with these the thread of our story. Perhaps the most valuable plant of the year is the *Ixora splendens*, a cross-bred seedling raised by Messrs. Cole, of Manchester. It is perfectly distinct from all others in its blunt-tipped foliage, and remarkable for its noble heads of large-sized brilliant carmine-scarlet flowers, and is certainly A 1 amongst *Ixoras*. Another, named *Ixora Duffii*, with looser heads of vermilion-red flowers shaded with crimson, has been introduced from the Caroline Isles, and is said to be very handsome, as no doubt it is, since the *Ixoras* generally possess that sterling quality. More strikingly novel and distinct perhaps, but a subject of which we are yet scarcely in a position to judge of its cultural capabilities, is the New Caledonian *Xcronema Moorei*, a very fine liliaceous perennial of Iris-like habit, with a most peculiar inflorescence of bright crimson flowers. The scape, which is from 1½ to 2 feet high, is bent abruptly into a horizontal position, a little below the raceme of flowers, which thus come to

stand erect on the upper side. If it flowers freely enough this will be a very showy plant. Both Messrs. VEITCH and M. LINDEN have introduced it, and we have published a wood-cut of it in our vol. x., n.s., p. 8, fig. 3. The Pavonias are rather interesting novelties, so distinct is their general aspect, and so pleasing is the colour of their flowers—a deep rose-pink—which are moreover of curious form, scarcely suggestive of the Malvaceous order, to which they belong, the epicalyx being coloured. *P. Makoyana* has recently been figured by Professor Morren, and is much in the way of *P. Wioti*, which latter, however, is identified by Sir J. Hooker with the *P. multiflora* of St. Hilaire. We may also point out that the *Anthurium Dechardi* noticed in our summary of last year, has been since then relegated to the genus *Spathiphyllum*, and identified with *S. cannaefolium*, where also other garden *Anthuriums*, as *floribundum*, *candidum*, *Patini*, &c., have to follow it. In *Ruellia acutangula*, *alias* *Arrhoxylum acutangulum*, we have a stout-growing soft-wooded under-shrub, with quadrangular branches, large elliptic-ovate leaves, and erect cymes of bright orange-scarlet flowers, whose unequally-lobed limb is 2 inches across and the tube an inch long. It is one of the more showy of the Acanthads, as also is *Eranthemum laxiflorum*, which is also half-shrubby, and free-flowering, with ovate-oblong leaves, and axillary cymes of large purple flowers, and comes from the New Hebrides. *Crossandra guineensis* is another Acanthad of very different character, but a very pretty introduction nevertheless. It is a low herb, with a few pairs of short-stalked elliptic-oblong leaves reticulated like the *Fittonias* with golden veins, while from their centre rises an erect dense spike of rosy lilac flowers. The Costa Rican *Alloplectus peltatus* is not only a showy Gesnerad, but also a plant of curious structure, unique in the order to which it belongs. It is of dwarfish sub-shrubby habit, with stout branches and opposite leaves, one of which is oval-oblong, six or more inches long, with a remarkable peltate base, while the opposite one is scarcely at all developed; the flowers are numerous in the leaf axils, Gloxinia-like in form, pale yellow streaked with orange in the throat, and having a deep crimson-purple calyx. Messrs. Veitch's *Chevalliera*, *alias* *Echmea Veitchii*, from New Grenada, is a very distinct and showy Bromeliad, of acaulescent habit, with lorate, saw-edged leaves, and a central, dense, erect, oblong head, of which the crowded recurved crimson bracts form the conspicuous portion. M. Morren reports that his plant of this *Chevalliera* commenced blooming in May, 1877, and has continued to blossom from the same inflorescence for a year and nine months. Amongst Amaryllids we have acquired three new species of *Hæmanthus*, namely, *rupestris*, *Mannii*, and *Kalbreyeri*. They are all West African plants, flowering before the foliage is developed, dwarfish in habit, and all have showy umbellate heads of crimson or crimson-scarlet flowers, which render them valuable as decorative plants. To the same group belongs *Crinum Macowani*, a plant nearly allied to *C. latifolium*, and which comes from No-man's Land, near the south-western frontier of Natal. This is remarkable for its large umbel of blush-coloured Lily-like flowers.

STOVE FOLIAGE PLANTS.

In this group we feel inclined to give the first place to the Colombian *Dieffenbachias*. *D. Shuttleworthii* has upright leafy stems, the leaves a foot or more in length and about 4 inches broad, bright green, with a broad-feathered silvery band on each side of and including the midrib. The colouring is very striking and effective. *D. Carderi* has its leaves handsomely marked with yellow and green blotches, and is also a fine ornamental

kind. *Alocasia Thibautiana* is a noble plant in the way of *A. Lowii*, but probably finer; the leaves of a blackish green with white veins. *A. Johnstoni* apparently belongs to a different race, and it has been suggested that it is a species of *Cyrtosperma* or *Lasia*. It has a very distinct character, the stems being mottled with red and blackish green, and spiny, and the blade arrow-shaped, with reddish veins. The first is Bornean, the second is from the Solomon Isles. A handsome plant of this class is the *Cespedesia Bonplandii*, introduced by M. Linden from tropical America; the tongue-shaped crenulated leaves attain a length of 3 feet, and render it a magnificent object as a foliage plant. It belongs to the *Ochnaceæ*, and, when it blossoms, bears panicles of large bright orange-yellow flowers. Of the *Crotons* or *Codiaeums* many forms continue to appear. *C. Mortii*, a broad-leaved form of compact habit, with yellow variegation, is one of the effective sorts. So is *C. Williamsii*, which has similar shaped leaves, with a red variegation. *C. roseo-pictus*, a densely leafy variety, has also pretty yellow and rosy variegation, and *C. Rex* has dark green leaves and red veins. *C. Katoni* is one of the trilobed section, and has the leaves thickly dotted with yellow spots. These are all fine plants, but there are others perhaps as good which our limited space forbids us to name. The *Massangeas*—a race of *Tillandsias*, with curiously inscribed leaves—are cropping up, and are rather taking plants of their kind. *M. Lindenii* is one of the handsomest, its broadish semi-erect leaves being marked with numerous transverse irregular broken lines of a deep brownish purple, looking, as one might think, like some old-world inscription, the marking being sufficiently abundant to be attractive. Finally, in *Davidsonia pruriens* we have a bold and distinct-looking plant, figured when first imported in our volume for 1877, n.s., vii., p. 819. This has very large unequally-pinnate leaves, which are of a bright red while young; the hairy leaflets, eleven to thirteen in number, are biserrate and connected by a narrow wing, which is also doubly-toothed. It has something the aspect of a gigantic *Agrimony*, is apparently half-shrubby, and has been referred to the *Saxifragaceæ*. *T. Moore*.

(To be continued.)

EPHING FOREST.

(Concluded from page 810, vol. x.)

THERE is no doubt but that in sheltered parts some of the half-hardy plants of the South-east United States, such as *Cassias*, &c., would flourish. *C. corymbosa* has stood the past two winters, but they have been so mild as hardly to make the experiment a test.

Passing to the second zone—the trees of Western America, they seem from the experience gained to be perfectly at home. A *Pinus macrocarpa*, 40 feet to 50 feet high, stands by the roadside at High Beech, and at Epping was at one time the finest (it is believed) *Wellingtonia* in England. Of course in the nursery the trees of the Conifers of that region are of comparatively small growth—what would have been fine specimens having passed to congenial permanent homes, such as the *Picea* or *Pine* woods of Pampisford (where actual woods of these, with the shelter of deciduous plantations to protect them in the young state, have been formed); but sufficiently large plants still remain to show they adapt themselves in more developed stages to the necessarily greater exposure. The Silver Firs, from the noble *P. nobilis* to the latest discovered *P. concolor*, all grow freely and with perfect foliage.

The long-leaved Pines, not only of the harder northern kinds, but also those of the more southern Mexican habitats, are a success. Roetz's introductions, *Pinus Devoniana*, with

its strikingly long vivid green needles, *P. macrophylla*, Don Pedro, the beautiful *P. Hartwegii*, glaucous, long-leaved, finest of Pines, are in vigorous health and stand our hardest winters. *Picea bracteata*, too, rarely thriving in the valleys, on the hilltop here stands uninjured. We cite these in preference to the hardier kinds, such as *Lambert's* or *Jeffrey's* Pines and *Lawson's Cypress*, the *Douglas Spruce*, and the *Thuja gigantea* and *Craigiana*, which do everywhere, as showing how large-embracing a collection might be formed.

Almost indigenous are the two free-growing trees of this zone, the *Pinus insignis*, which Mr. Wallace speaks so highly of as the grass-green *P. insignis*, and *Lambert's* glorious *Cypress*—both, alas! often shortlived in the frost-suffering valleys.

The deciduous trees of this zone are few, but the Liliaceous plants, such as *L. pardalinum*, *californicum*, and *Humboldtii*, with their creeping rhizomes, all thrive well here under the shade of the trees.

Approaching the third zone, that of Eastern Europe and Western Asia and the Mediterranean coasts, we have a somewhat limited choice. To select again, the sorts which have been found to thrive exceptionally may be mentioned. To begin with Conifers, we have the Silver Firs of Spain, Greece, and of the Crimea, *Picea Pinsapo*, *P. Apollinis*, *P. cilicica*, and *P. Nordmanniana*, the Cedars of Lebanon and the Atlas Mountains, the latter when established growing like a Larch. Then we have the Pyrenean Pine, and the *P. austriaca* and *P. Laricio* of the Austrian empire. Of the other trees quoted by Mr. Wallace the *Laburnums*, the large family of the Brooms or *Genistas*, would from experience form a splendid underwood with the evergreen *Arbutus Andrachne* of the Levant, and the Portugal Laurels and the varied forms of the common Laurels and Bays, with *Arundos* or such-like grasses. The upright *Cypress* and Stone Pines of Italian gardens, the *Pinaster* and maritime Pines of the south-eastern French coast, we had omitted to say, like the sandy soil and exposure. The *Gladioli* and many bulbous plants of the Cape might be included in this zone, since they stand out uninjured in the winter here.

When speaking of the trees of the fourth zone, those of Western Asia and Japan, Mr. Wallace hopes for many further introductions, but we are already rich in variety here. The *Camellia* has (as he ventures to anticipate it would do) passed some winters uninjured here, and it is almost certain the Tea tree would do so. The Japanese Conifers are splendidly at home here—the dry clear air seems to approach nearer to the Japanese climate than in many other parts of England. Almost every one of the forty-five species of Conifers succeeds, from the glorious Golden Larch of China to the Umbrella Pine of the Sacred Mountain of Japan. The *Cryptomerias*, *Retinosporas*, the distinct special species of the zone, grow with tree-like vigour.

The *Sophoras*, in the valleys tending, here stand unscathed—the Japan and Indian *Daphnes* grow out-of-doors, and with the glorious *Azalea mollis*, *Privets*, *Berberis*, Indian *Azaleas*, *Raphiolepis*, Himalayan *Rhododendrons*, such as *Russelianum*, and *Magnolias* (*M. Campbelli* of the Himalayas has stood two winters out), would form an evergreen flowering underwood—a perfect winter garden.

Many flowering trees are here: the common English Crab, which in the Forest attains 40 to 50 feet in height, guarantees the well-doing of the beautiful forms of Japanese and Chinese Crabs, *P. spectabilis floribunda*, and other flowering rosaceous trees.

Of the Himalayan Conifers, the *Cedrus Deodara* would probably prove longer lived than it has done in many parts of England. The *P. Webbiana*, amongst Silver Firs, passes with the

glorious drooping Spruce of those mountains, Abies Khutrow mostly uninjured by the spring frosts. Cupressus Goveniana grows freely and finely, and doubtless many other plants of this zone might be named.

Lastly, the plants of the south-eastern hemisphere are to be grouped. "Nowhere," one of our best Conifer growers remarked, "have I seen the Araucarias so green a green as here!" The Libocedrus and Podocarpus, the representatives of the Yews—like the above from Chili—the Dacrydium Franklini from Tasmania, the jointed Yew (Athrotaxus selaginoides) from Van Diemen's Land, Fitzroya from Patagonia, are all hardy here. With the several herbaceous plants and beautiful climbers of this region the Lapagerias would form a choice, even though limited section.

It is to be hoped that while these foreign forests are formed, our English forests will also be cared for. Our glorious Hollies number some sixty to one hundred distinct varieties, our many forms of Yews and Junipers will compare favourably in the way of variety with some of the so-called species of other countries. We think that we have shown that Mr. Wallace's scheme, at least in the sites he proposes, has every chance of success; and we quite agree with him that the expense need not be excessive. Most of the plants are plentiful and reasonable in price, in a state ready for planting, in existing nurseries.

It is to be hoped that care will be taken to preserve the natural state of the Forest. Many beautiful native plants exist besides those named by Mr. Wallace. The Ivy-leaved Campanula grows with the Drosera in the bogs; here are the Sphagnum mosses, and fungi in great variety; Ferns are nearly extinct, but the Butcher's Broom, Lily of the Valley, Achillea Ptarmica, and the Red Willow-herb, are plentiful, and have survived the browsing of cattle, the destruction of the woods, and other injurious influences. *George Paul.*

New Garden Plants.

ENCEPHALARTOS ACANTHA.

The Cycad which Dr. Masters described under this name in the last number of the *Gardeners' Chronicle*, is one which we have had under our notice at Kew for the past year and a half. Had I known that he intended publishing a description of it I think I could have satisfied him that, although a species of some rarity in cultivation, it was not really new to either horticulture or science. Four of the specimens in the collection of the Royal Gardens came from the same source as those in the possession of Mr. Bull. They were all obtained by the energetic superintendent of the Botanic Garden at Grahamstown, Mr. Tidmarsh. The exact locality where they were found cannot be ascertained, but it was in the division of Queenstown, and therefore some distance inland and to the N.E. of Grahamstown. The stems which Mr. Tidmarsh, with most praiseworthy zeal for the botanical headquarters of the mother country, sent to Kew are very striking objects and of considerably larger dimensions than those which subsequently passed into Mr. Bull's possession. These latter in the first instance were in the hands of Messrs. Thyne, of Glasgow, in whose nurseries I recognised them on a chance visit in the autumn of 1877. Mr. Bull was much interested in the Kew specimens of the new Cycad, and on hearing from me of those I had seen at Glasgow, with his characteristic energy and enthusiasm for a fine species which was new to him, lost no time in acquiring them from Messrs. Thyne.

The striking features about the plants received at Kew were in the first place their great girth compared with their height; hence the tendency of the stocks to be subglobose, as noted by Dr. Masters. But the circumference, instead of being 4–6 inches [a misprint for 46 inches] reaches to almost as many feet—that of the largest specimen can hardly be less than 5 feet. The other point is the copious investment of their upper part with a coarse woolly tomentum, which is rather perhaps pale brown than "ash-coloured."

None of the plants at Kew have at present thrown up crowns of foliage, but a small offset taken off from the base of one of them has produced some leaves, and the examination of these led the present

intelligent foreman of the Palm-house to point out to me the probable specific identity of the Grahamstown plant with one which had long been in the Kew collection, and which bore the name—erroneous as it now turns out—of *Encephalartos brachyphyllus*. The largest of our plants, however, produced a whorl of five female cones. These, owing to want of activity of growth in the plant, were never thrown up clear of the stock, but after a time began to decay, and as Mr. Smith and myself had little doubt that this decay involved the growing tissues of the crown, we dug out the whole of the cones for the sake of securing a perfect specimen, and with little hope of saving the plant itself in which the cones were still buried some 5 to 6 inches. It is a curious instance of the immense tension under which the new structures must be developed at the growing apex of Cycadaceous plants, that the whole of the immense wound which the removal of the cones left was gradually closed up during the night by the contraction of the surrounding tissue, so as to leave not the smallest trace of its previous existence the following morning. The apex of the plant has since remained perfectly firm, and we are not without hopes that in due time it may develop a crown of leaves.

The cones were oblong-ovoid, about 9 inches long, and covered with a dense pale brown tomentum. They leave no room for doubt that the plant producing them is the *Encephalartos Friderici-Guilielmi*, of Lehmann, who described the species with stiff but characteristic figures in his *Novarum et minus cognitarum stirpium. Pugillus sextus* (1834). The mode in which this species has been dealt with by the two recent monographers of Cycadaceæ, Alphonse De Candolle and Regel, deserves some remark. The former, on the authority of Miquel, identifies Lehmann's plant with *Zamia cycadifolia* of Jacquin (= *Encephalartos cycadifolius*, Lehm.). In a very wide conception of a species this may be correct, but nothing superficially could be more different in appearance than the glabrous female cone figured by Jacquin (*Fragmenta*, tab. 25), and the densely woolly one of Lehmann's plate and of the Kew plant. Regel, on the other hand, identifies with *Encephalartos Friderici-Guilielmi*, E. Ghellinckii, of whose cones I know nothing, but which has a very different looking stock, and an extremely different habit, owing to the strongly-marked revolution of the leaf-segments. E. cycadifolius, E. Friderici-Guilielmi, and E. Ghellinckii, are, in my judgment, three nearly allied forms, but with marked differences of habit, at any rate from the point of view of the horticulturist.

A further point which requires to be mentioned is, that the plant now known to horticulturists as *Encephalartos cycadifolius*, and of which Mr. Bull has a large stock, from which with great liberality he has supplied me with male and female cones, is by no means that species, but E. brachyphyllus, Lehm. It is well figured under this name by De Vriese in the third volume of the *Flore des Serres*, 1847; and it is further to be identified with the E. Verschaffeltii of Regel, figured in the *Gartenflora*, tab. 822. W. T. Thiselton Dyer.

LELIA ANCEPS ALBA.

When the glorious variety Dawsoni had appeared (see *Gardeners' Chronicle*, 1868, p. 27) we believed we were at the end of this old, well-known plant. The fresh variety, Mr. Lowe's introduction, Mr. Tucker's discovery, had creamy white flowers, the lip marked with purple streaks and some yellow ones. The excitement of orchidists was very great, and the demand for the beauty could never be well answered. Now I have at hand a new chaste beauty, a very unexpected one. It is of the purest white, the column light green, the disk of the lip yellow. Just as Dawsoni, it belongs to the blunt-shaped variety. To say a word to recommend such a variety might be like "carrying owls to Athens," viz., doing something quite superfluous.

Mr. W. Bull is the lucky importer and possessor of a small stock of this novelty. See also our columns, December 14, p. 756. H. G. Rehb. f.

SPANISH ORANGE WINES.—From a French consular report we learn that only four varieties of Orange wine have hitherto been obtained in Spain, where for some years experiments on a small scale have been carried out for the purpose of ascertaining what can be done in this direction, in case the phylloxera should invade the Spanish vineyards. These wines are named Imperial, Dry, Mandarin and Sparkling. It has been proved that slightly unripe fruit is better than fully ripe fruit for making wine, though rather nearer perfect ripeness, it would appear, than they generally arrive in this country. The wines called Imperial and Dry are made in January, from the season's fruit; and Mandarin is manufactured from fruit gathered in April. These three varieties of wine are of a colour agreeable to the eye, perfectly bright, of a soft slightly acid flavour, and contain about 15 per cent. of alcohol. With regard to the Sparkling wine, which undergoes a special process to render it so, it contains only 12 per cent. of alcohol.

BERRIED PLANTS FOR WINTER DECORATION.

BEAUTIFUL as these are at all seasons they are doubly valuable during the winter, when flowering plants are so scarce, and even were they plentiful there are few that will compare with the former for table decoration just at this time—a purpose for which they are specially adapted, associating as they do so well with the dessert, with which they seem to form a sort of connecting link. One of the greatest favourites is the well-known *Solanum Capsicastrum*, the best variety of which is Weatherill's hybrid, or rather improved forms that have since originated from it, for like most other plants continuously raised from seed, some or other of them are sure to be of superior merit; and by always selecting the best, much may be done to perpetuate good strains of any particular kinds, and even to get great advances on them. Any berry therefore showing increased size should be marked for saving, especially if the plant bearing it appears to be of a prolific character, as then the gain is both ways, and the beauty of *Solanums* depends much on the crop they bear.

To have nice little specimens of them at this time next year, seed should be sown at once in light soil in heat, where they will soon germinate, and when up, the best position for them is near the glass in a stove or other warm house where they can get plenty of light to keep them from drawing. Potted and nursed on in this way they form good plants by May, after which time they do far best planted out on a warm border, where they can get plenty of sun and be well attended to with water during the whole summer months, as dryness at the roots is fatal to success, by causing them to shed their blooms instead of setting them in the free manner they ought. Besides causing them to shed their flowers, dryness brings on red-spider, which so disfigures the foliage as to give the plants a very shabby appearance. Syringing overhead is the best remedy against these pests, and if the water used has soot steeped in it it is more potent and has a stimulating effect on the roots.

Solanums, like most berried plants, look best as standards of various heights, with clean straight stems, and in order to get these they should be trained up to neat sticks and have all the side shoots rubbed off as they show till they get sufficiently tall, when by nipping out the tops nice symmetrical heads will soon be developed. It sometimes happens, however, that stray branches take the lead, but by stopping these the balance of growth may be easily maintained. It is the practice with some to plunge their *Solanums* in pots instead of planting them out, but the danger of doing so is that they are apt to suffer from want of water, owing to the very small quantity of soil they have to live on, but if kept wet enough there can be no question that plants so treated are shorter jointed and more floriferous, which if they set result in a better display. I always find it a good plan to mulch over the border they are planted in, as then the moisture they get is altogether more uniform, which is much in their favour. To get fine large heads it is necessary to keep the plants on from year to year and cut them hard back in the spring, when if placed in gentle heat they soon break, and may then be planted or plunged out like the others and allowed to remain till the middle or end of October, when it will be high time for lifting and potting as the berries are rather susceptible of injury by frost. A north house or frame where they can be kept close and syringed is the best place for them for a month or so till they get hold of the fresh soil, after which they will stand the sun and air without flagging, and be then available for the winter.

Capsicums Prince and Princess of Wales are also grand decorative subjects at this season, and have a most striking effect used in conjunction with the above-named, the rich polished yellow of the pods of the one showing up in the most pleasing contrast with the bright coral-red of the other. A centre plant of Capsicum Prince of Wales and a *Solanum* at each end, or *vice versa*, is simply perfection for table decoration, as is also the former associated with *Rivina humilis*, that bears racemes of berries in the greatest profusion. To grow these Capsicums well the seed should be sown not later than the middle of March, as it takes a long time to colour the pods. A Melon or Cucumber frame is a good place to raise them, but any stove or house where they can get moist heat will

do till the middle of June, when a pit answers well for the summer, as there they may be plunged and heavily syringed so as to ward off red-spider, which is their great enemy, and generally assails them if grown in a dry atmosphere. Eight-inch pots are quite large enough even for fine specimens, and once these are well filled with roots liquid manure is of great help in maintaining the foliage in a fresh healthy condition. As they are somewhat tender the plants require artificial heat after the end of September, from which time a temperature ranging from 55° to 65° is as low as they will bear without showing signs of distress.

Both Capsicums and Solanums strike freely from cuttings, but seedlings always make the cleanest and best stemmed plants, and are therefore preferable when standards are required, as they soon run up to any height desired, and the same may be said of Rivina. This most useful stove plant may be had in fine condition at almost any season of the year by simply resting a portion of the stock for a time, and then cutting them back a little, when all the young growth they make comes laden with bloom, to be afterwards clothed with long strings of berries resembling bunches of Currants. The graceful way in which these hang renders a plant a very striking object when standing above a white cloth, and as they can be so easily grown the wonder is they are not more cultivated. Almost any soil suits them, although fibry loam answers best, in which the potting should be done firmly so as to induce a short-jointed, stocky habit, and this may be aided by a free and full exposure to light. J. S.

EGYPT AND ITS FLORA.

WITH our present issue we present to our readers an Almanac in chromo-lithography, which has been designed for us by Mr. Fitch, the eminent botanical draughtsman. Mr. Fitch's pencil was apparently inspired by the upraising of the obelisk, called Cleopatra's Needle, on the parapet of the Thames Embankment. Egyptian plants and Egyptian fruits are accordingly made to form a floral framework for the monthly calendars.

For the most part the flora of Egypt is that of the Mediterranean region. Southward it passes into the flora of the desert region on the one side, and into the highland flora of Abyssinia on the other. Culturally the land of Egypt depends on the rise of the Nile, and on the power of irrigating by canals and by mechanical means. The rainfall is far too small to produce a rich vegetation, and so it happens that outside the relatively narrow slip of the Nile valley we meet with a scanty and peculiar vegetation, such as extends right across Africa from the Canary Islands to the Persian Gulf, and so on to Afghanistan. The Date Palm seen to the left in our illustration is characteristic of this region, and is a tree of the utmost value. Its deeply penetrating thick roots enable it to secure and store up water to a degree beyond that possessed by other plants. Thorny Acacias and Carob trees, spiny plants with scanty foliage, and Cucurbits, are among the peculiar features of the desert flora. Along the Nile a richer vegetation occurs—subtropical in its character. The Doum Palm shown to the right in the background in our illustration is the characteristic Palm of Egypt. Its branching stems are quite unusual among Palms, and give a peculiar aspect to the tree. Big Aroids and Colocasias, Water Melons, Gourds, and Grapes—these are found in similar situations elsewhere, but the Cotton-plant (the colour of whose flowers has not been quite satisfactorily rendered) is of special value in Egypt, whose commercial prosperity depends in no small degree upon the success of its plantations. The war in the United States did much to develop the culture of Cotton in Egypt, as also in India. The sorts commonly grown are varieties of *G. barbadense* and *G. herbaceum*. The Nelumbium of the Nile is often called the Lotus, but the true Egyptian Lotus is the blue *Nymphaea*. The Nelumbium shown in our sketch is, however, found in Egypt, and its representation is to be found on many Egyptian monuments. It is, in fact, nearly as much connected with the religion and mythology of Egypt as with that of India.

The Papyrus shown to the left in the background is now, we believe, nearly extinct along the Nile. It is simply a tall Sedge, with a triangular stem full of white pith and surmounted by a crown of elegant drooping branches and fine foliage.

Other plants in common cultivation in Egypt are the Sugar-cane, the Maize, the yellow-flowered Lupin, the blue Flax, the Onion, the Opium Poppy, and Hemp, all crops of hot countries. Less commonly known are the Henna, used for dyeing, as also Indigo and Madder.

Among fruit trees, in addition to the Vine already mentioned, are the Pomegranate shown in our sketch, the Fig, and the Prickly Pear (*Opuntia*), the Lemon, and the Orange. Nor are the fruits of more northern climes absent—the Peach, the Plum, the Apricot, the Mulberry, all are cultivated in Egypt, ripening their fruits at an earlier season than with us. Such, in brief, are the main features of Egyptian vegetation.

The remaining portion of the Almanac is devoted to recording the dates, so far as known up to the time of going to press, of the principal horticultural exhibitions and meetings of scientific societies throughout the kingdom for the present year. In addition to the usual calendarial matter is a carefully constructed table of mean temperatures for London, based on the observations for forty years in the neighbourhood of London (Chiswick), and which will serve as a useful guide to cultivators in other districts, who will know how to make the necessary allowances for the differences between the climate of the locality in which they practise, and that of London.

THE GROSVENOR GALLERY.

THERE can be little doubt that the exhibition now open of drawings by the Old Masters and water-colour drawings by artists of the British school, is one of the best, if not the best exhibition of its sort ever held in London. A visit to this remarkable collection of pictures is likely to prove more pleasant and instructive than a visit to all the other water-colour exhibitions in London put together. Out of the 1150 pictures and sketches now displayed at the Grosvenor Gallery, there is scarcely one that will not well repay careful and prolonged study. The large portraits of vulgar nobodies and the roughly executed "pot-boilers," which so commonly deface the walls of the Royal Academy and some other exhibitions are conspicuous by their absence. Amongst the landscapes will be found a large number of the very best works of Boyce and Hunt. There are three excellent pictures by Wolf, one by E. H. Corbould, and five by Sir John Gilbert. In fact most of our best English water-colour artists are well represented, some by large numbers of pictures; for instance, there are seventeen pictures by A. W. Hunt, twelve by E. J. Poynter, seven by J. D. Watson, ten by G. Fripp, eight by G. Dodgson, and six by Walter Crane.

Amongst works of deceased artists there are eighteen original sketches by Flaxman, three by Reynolds, and two by Gainsborough. There are fifteen works by Michel Angelo, fourteen by Titian, sixty-eight by Rembrandt, twenty-three by Correggio, and seventy-five studies, sketches and paintings by Ingres. Last, and by no means least, may be mentioned Sir Coutts Lindsay himself, who is represented by one work, and Lady Lindsay by five.

Distributed about the rooms are a large number of photographic reproductions of the Windsor drawings, together with various works of art in pottery, tiles, &c. It will be seen from the above that it is simply impossible for us to do any sort of justice to this admirable exhibition in this week's *Gardeners' Chronicle*. We shall take an early opportunity of returning to the subject, and in the meanwhile we advise every one interested in true art to pay a visit to the exhibition, which is undoubtedly one of the very best displays of high-class pictures and valuable sketches and studies ever brought together in London.

"THE ITCH OF WRITING."—Under the title of "Hints to gardeners on articles for gardening periodicals," a contributor to *Der Deutsche Garten* gives some capital advice to persons having the "itch of writing." It is so good that some of it will well bear repeating, although we have often had occasion to give similar advice. One of the principal things is brevity without loss of clearness. A beginner is very apt to go out of his way to exhibit the whole range of his knowledge, so that what might and ought to be expressed in a few sentences is lost in a maze of subsidiary and irrelevant questions. The writer who goes straight to the point and does not wander from it is safe to keep within reasonable limits, consequently his articles are soon printed, and, what is more, they are actually read.

THE ANEMONE.

ONE of the most charming floral sights witnessed last spring was a bed of mixed Anemones of various colours and of double and single flowers. It would be difficult to enumerate the variations of colour this very gay spring flower assumes. So sportive is its nature that there is a great diversity of the mixing of white with the various shades of scarlet, carmine, rose, red, violet, blue, slate, &c., especially in the case of seedlings, and from seed can be had the double, semi-double, and single varieties. The particular bed under notice had no special attention bestowed on it, but a number of roots in a dry state, having been kept within-doors for something like four years, were planted out to test their vitality. It is worthy of remark that while nearly every dried root of the Anemones grew, not a single one of *Ranunculus*, of the same age and similarly planted, germinated. Perhaps this was in consequence of the wet and cold character of the ground, and the somewhat rough and ready way in which the bulbs were planted.

Years ago the Anemone was a leading florist's flower; but it has almost ceased to be regarded as a fit subject for exhibition. But all its old beauty and winsome attractiveness remains, the neglect of florists notwithstanding, and it can scarcely cease to be a popular plant, for it is early to flower, free and continuous to bloom, easily cultivated, and displays colours peculiarly its own.

The Anemone is an accommodating plant, in that it will grow in almost any garden soil, especially doing well when it is of a sandy quality, and possessing what the old florists used to call a "tolerably good heart," meaning thereby something rich and invigorating, and on which the roots could feed. It used to be held that a stiff and retentive soil tended to rot the roots in winter, and probably this was particularly true in the case of the higher bred and choicest varieties. The old growers were very precise as to the composition of their soil:—"Take maiden loam from the surface of a pasture, the top spit, turf and all; to every load of this add one of cow-dung and half a load of sea or drift sand; blend the whole together and form it into a ridge, in which let it remain a year at least, turning it over once in two or three months." One need not wonder that such splendid flowers as were seen thirty and forty years ago were produced by these men.

The best way to enjoy the varying beauty of the Anemone is to plant a bed of them, and prepare it thoroughly at the outset, so that the plants shall have every encouragement to do well. How to prepare a bed was well set forth some years ago by one who made this flower a special study. "About the beginning of September is the proper time to prepare the bed for planting; if the soil be wet the beds should be raised about 6 inches above the paths or surface of the ground, laying at the bottom some of the coarse rakings from the heap of soil prepared for the purpose by way of drainage; but, if the soil be a dry one, 3 inches will be sufficient. The compost intended to plant the roots should be about 1 foot thick, therefore the planter should remove some of the garden earth to make room for it. The bed should be made up at least two or three weeks prior to planting, in order that the soil may settle. Before planting is commenced the surface of the bed should be stirred to a depth of 3 or 4 inches, then, raking it to a level each way, plant the roots in the centre of the squares, which will keep them in line and at a uniform distance."

Planting is best done by means of a small trowel, or by making a hole in the soil with the fingers—it matters little which, so that the roots be properly planted. The proper depth is some 2½ inches, and the roots are placed in position; the soil can be drawn over them to the depth required, and the soil pressed gently down.

For an early bloom planting can be done about the middle of September, and for a middle bloom in October; finally, for still later flowering, others may be planted in December, and, though considered somewhat late, in most seasons these bloom exceedingly well, but do not produce such fine increase. I have planted as late as the end of February, and the flowers were much better than might be imagined.

As a second row in a mixed border, the Anemone comes in well; but the clumps need to be marked in some way, so that they be not disturbed during the time the foliage has died away. Such permanent clumps should be planted in good soil in the first

instance, and they will bloom finely for a few years if treated to a little top-dressing in winter.

The double and single scarlet Anemones are very useful and effective for this purpose; and most bulb catalogues contain a select few named varieties that are exceedingly pretty. Mixed selections of both double and single varieties furnish good and attractive flowers. The new French Anemones are charming things; generally of dwarf growth and fine and varied colours. All are very useful to cut from, indeed the plants supply a large number of blooms that are valuable in many ways for decorative purposes.

Of the early flowering hardy species mention must be made of the pretty bright sky-blue *A. apennina*; *A. blanda*, the rich vermilion *A. fulgens*, *A. ranunculoides*, yellow; and *A. sylvestris*, white,

1849, p. 580, and a further descriptive notice will be found at p. 542, 1872. It was introduced from Malacca, and is remarkable for its cylindrical crimson pitchers.

Florists' Flowers.

SEASONABLE NOTES: AURICULAS.—The treatment of these will depend to a certain extent upon the weather. All dead or decaying leaves should be removed, and the lights should be drawn off whenever the weather will admit of it. It is not desirable that the plants should be quite dried up for want of water, but on no account give the pots water in frosty weather, and if it is necessary to give water, pour it carefully into the pots—wet not the foliage nor allow any to run over. If the soil in the pots is quite dry

and flowers. They may be observed feeding at night, with a lamp, and can be picked off and destroyed. If they are very numerous take the plants out of the frames, and dust the surface of the soil in the frame over thickly with quicklime. The flower-buds will be formed and begin to open towards the end of the month if the weather is favourable.

HOLLYHOCKS.—Early in the month place the choice and scarce varieties into a temperature of about 50° at night. This will excite them into growth, and as soon as the shoots are long enough cut them off with a heel, and pot each singly in a small pot, using light soil, and some sharp white sand just at the base of the cutting. Plunge the pots in a gentle bottom-heat, and cover with hand or bell-glasses. Water very sparingly: too much water or steam from a dung frame will rot the cuttings.

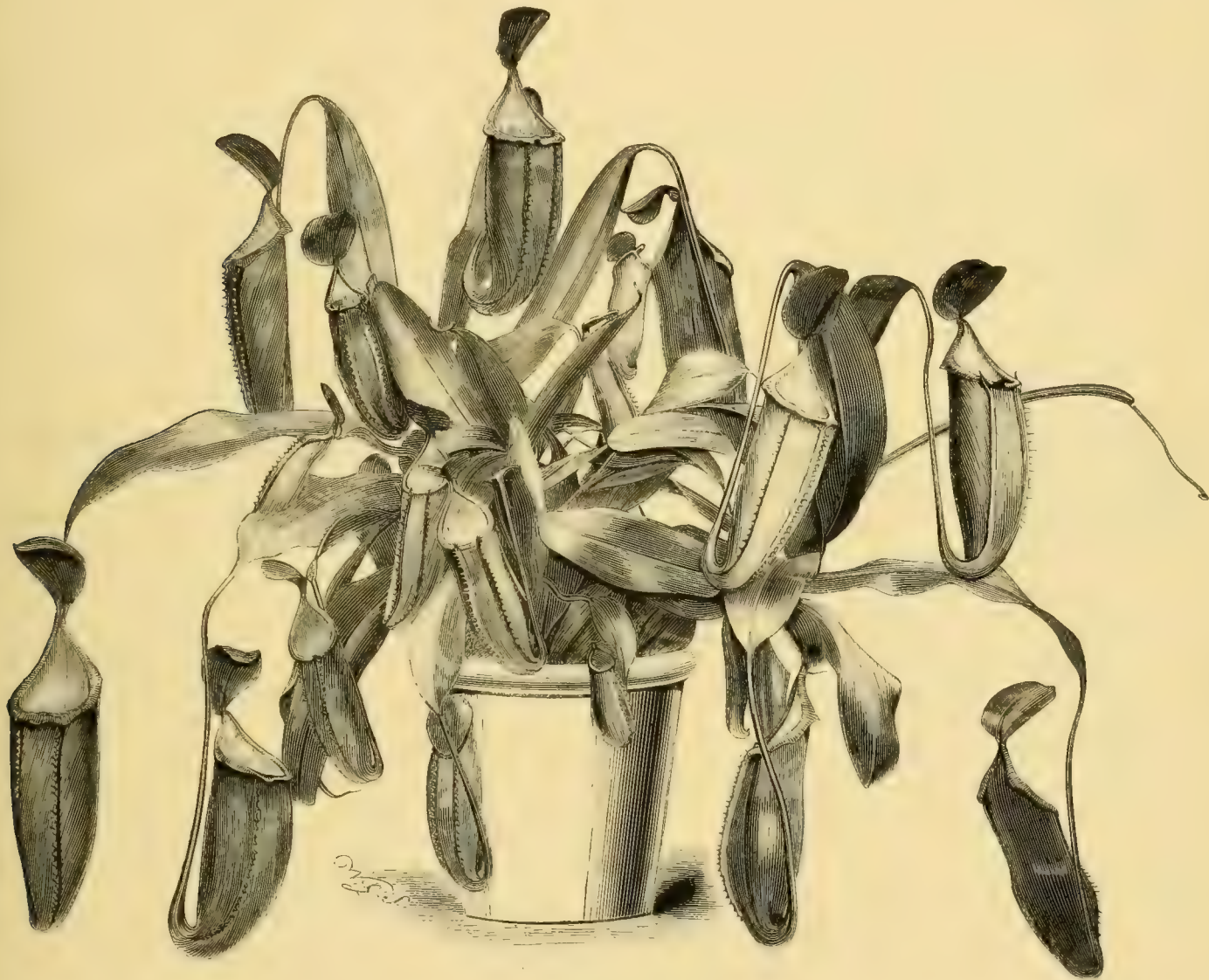


FIG. 1.—NEPENTHES SANGUINEA.

These are all of great value in borders and in warm nooks; the uses to which they can be put are as varied as the tints they furnish when in flower. *R. D.*

NEPENTHES SANGUINEA.

IN his account of Mr. O. O. Wrigley's rich collection of Orchids, &c., at Bridge Hall, Bury, Mr. Douglas, at p. 494 of our last volume, alludes to a magnificent specimen of this rare Pitcher-Plant, an illustration of which (fig. 1), prepared from an admirable photograph kindly placed at our service by Mr. Wrigley, we are now enabled to place before our readers. Mr. Douglas described the plant as having twenty-four pitchers upon it, twelve of them very large ones, and the largest of all measuring 12 inches in length and 9 inches in circumference. The species was first described in our columns by Dr. Lindley in

and the weather mild I apply water once in this month. Fumigate the frames with tobacco smoke if there is any greenfly on the leaves. If the frost is very severe place mats over the glass lights at night.

CARNATIONS AND PICOTEEES.—These require somewhat similar treatment to Auriculas, but the mould in the pots must not be allowed to become quite so dry: the frames may be fumigated at the same time as the Auricula frames. Any leaves that become yellow or severely spotted should be removed with a pair of scissors, nor should green mould or weeds be allowed on the surface of the soil. The plants do not suffer from frost if unaccompanied with damp.

PANSIES in beds do not require much attention. See that none of the plants receive any injury. After a frost it may be necessary to press the plants into the ground with the fingers. Those in pots must also be looked over occasionally. Slugs will get into the frame, and they are remarkably fond of the leaves

DAHLIAS.—If it is intended to get up a good stock of any particularly choice or scarce varieties the roots should be potted and placed in the same heat as the Hollyhocks. Use moderately moist soil for potting with, but do not water it for a few days after potting, and apply water sparingly until growth is made; keep the plants as near the light as possible: the cuttings may be taken off when 2 inches long, they strike root very freely in a little bottom-heat.

PHLOXES AND PENTSTEMONS.—In mild weather, if these or any other similar hardy subjects require to be potted it may be done. Those planted out in beds or in the open border will require no other attention than to be kept clean, the surface of the beds to be stirred; slugs and other marauders to be destroyed. This will also be a convenient season to forward the work by getting all the appliances ready. Sticks may be made for Carnations and Picotees from 2 feet to 2½ feet in length; for Pinks 15 inches to 18 inches.

All other sticks may be prepared of the required lengths and thicknesses. Pegs may be made for Pansies and for layering Carnations. Exhibitors must see to the repairing, painting, and varnishing of their stands, travelling-boxes, &c., and have everything looked over and made ready for use at the required time. Pots should also be washed and placed neatly together in the different sizes ready for use.

CHRYSANTHEMUMS.—Except a few of the very late-flowering sorts, the flowers of these will be over, and as soon as they are all cut the stems can be cut over close to the ground, unless it is intended to grow plants of the large flowered sorts, with a single stem. Some of the stems may have a tuft of young shoots with a clear stem under it. If these plants have the soil shaken from the roots, they will be the best for specimens to flower early next season. It is best to take cuttings from root suckers, as they would not be likely to flower prematurely, as stem cuttings sometimes do. When the plants are cut over they may be placed close together, either in a cool greenhouse or cold frame, and as soon as the cuttings are ready they may be taken off and potted. Those intending to grow fine large blooms for exhibition, must plant each cutting singly in the centre of a small pot.

GLADIOLUS.—In order to have an early bloom, a few of the earliest flowering sorts should be potted, a single bulb in the centre of a 5-inch pot. Place the pots in a cold frame, and they should be plunged in cocoa-nut fibre refuse. The soil used to pot the bulbs should be good loam, to which is added a fourth part of leaf-mould. A little clear silver or river sand should be placed under and over the bulbs. *J. Douglas.*

Forestry.

A NEW, important, and extensive field of orest work has been opened up within the last few weeks, and one, moreover, which foresters neither invite nor enjoy, namely, the protection and preservation of trees and shrubs from ground game. Having a fair average amount of such work to perform it may be of some interest to those concerned to know how this is most successfully performed, and what the results are.

Amongst the first things to be done after a fall of snow is to set as many hands to work as possible to smear or paint all the most valuable and exposed trees and shrubs within the domain with the composition named below. The trees most preferred and usually first attacked by game are the Laburnum, Holly, common Ash, Bay, Portugal Laurel, Yew, Laurustinus, &c. It is difficult, however, to predict which species of tree or shrub will be first attacked, since much depends upon the exposure of the plant, the number of game in the locality, and the scarcity or abundance of other kinds of food within reach.

The composition is sold by R. Davidson & Co., Scottish Colour Works, Leith, in 1 cwt. casks, 36s. 6d. While the work of anointing single trees and shrubs is in progress, this material is carried about in paint tins or small pails, and is applied by means of a medium-size hair paint-brush. In frosty weather the composition is too thick for convenient application, hence the necessity of mixing with it a little turpentine or paraffin, the latter being preferable, both on account of its dissolving property and cheapness. Comparatively small plants should be smeared all round the stem, and to the height of about 2 feet, and large trees, to which it would be impracticable so to apply it, should have all the broken parts dressed, extending the composition a few inches over the whole bark in order to prevent more extended ravages, and the trees thus dressed should be looked over daily to see that no new injury is inflicted during the storm.

Hedges, as well as trees and shrubs, are also liable to injury, and when of an advanced class the stems of the plants may be dressed as above recommended for trees, &c. Where the hedges are, however, too young and the plants are too small for the painting, wire-netting may be put alongside them for temporary protection. Upon most game-preserved estates the only successful method of rearing young plantations for game covert and other requirements is by means of protecting them during the first ten or twelve years of their growth with wire-netting. No. 16 wire gauge, 1½ inch mesh, and 30 inches wide, galvanised, answers for all ordinary

purposes quite well, and will last for a great number of years. Netting of the above height, with 3 inches in the ground, is seldom leaped over by either hares or rabbits in ordinary weather, but when a considerable fall of snow occurs that buries the netting to any depth they are very apt to leap over it and destroy the plants. In order to prevent this occurrence it is necessary to have the snow removed alongside the fence. This usually is easily done, but until the storm becomes exhausted it often requires to be repeated. By whatever means and at whatever expense, the wire netting must be continually kept in a state of efficiency, and at every fall of snow or new snowdrift the fences must be examined and put in proper condition for resisting ground game.

In addition to these means of preventing destruction to trees there are others equally good and efficient in their way though widely different. One means is to go through all the coverts and game-frequented places and cut down suckers, inferior growths, and branches to such an extent as is thought desirable, and keep repeating the work as fast as the rabbits clean them of their bark; and the branches, after lying a few days, may be taken up and turned with the barked side down and the barky side up, to allow of access to them. Branches and undergrowths cannot, however, always be obtained, and when this is so Turnips and hay should be given them daily, and only a little at a time. All this entails expense, but the whole subject of game is that of pleasure and luxury, and those who delight in them are usually able and willing to pay for them. On some of the most extensively game-stocked estates in the United Kingdom things are so managed as to incur a very small amount of game damage to the woods, forests, and trees, and this is done by shooting the coverts and killing the greater part of the game before snow or frost occurs; before which there is comparatively little damage done to them. I do not agree with those foresters who advocate the entire destruction of ground game, for I always maintain that much of the life and true interest of forest life would therewith disappear. What really seems desirable and attainable is trees and game, but each in its own sphere, place and season. *C. Y. Michie, Forester, Cullen House, Cullen, Banffshire.*

Apiary.

WINTER MANAGEMENT OF BEES.—Somehow the management, or the wintering, of bees in the apiary is but little understood. Last winter I experimented with a single stock, but found the plan recommended a perfect failure. I was induced to close up the entrance during a month of very damp weather; at the end of the month I again gave them liberty, when I found the entire stock afflicted with dysentery, so that when they left the hive they voided a yellowish matter. Upon examination I discovered nothing but mouldy combs, and the few live bees all died soon afterwards.

First, cold weather need not be feared; we have always found our bees stronger, and certainly far more healthy, after a severe winter. Our experience tends to show they consume far less honey during a period of extreme severity than during mild open weather. The month most to be dreaded is April; far more stocks perish in this month from sheer starvation than in all the other months of the year combined. We cannot condemn too strongly the removal of stocks from the stands, which is far too often followed by some bee-masters. Sometimes they are taken to a more sheltered part of the garden; in this case only one result must be discovered sooner or later, for if a few sunny mild days should unfortunately prevail, the bees are only too glad to have an opportunity of flying abroad, and naturally return to the old stand; thus it often happens that a third of the stocks are destroyed, and every hive considerably weakened. Again, they are frequently tied up in a rough cloth and hung up in the tool-shed, or some outhouse; in some respects we would follow this method in preference to removal to another stand, especially if we could secure a thorough good ventilation; but we must expect the great drawback, dysentery—a disease we hope never again to see in our apiary.

Of course bees require as much fresh air in winter as in summer, and a good ventilation should be ensured above all things. In most of our hives—in fact in all the wooden hives—we open the plug on the top board, and thus give a constant current of air. It is a good plan to examine the hives frequently, and

never to allow any snow to rest upon or about the entrance. In large American apiaries it is not unusual to winter the stocks in a house built on purpose, where light is carefully excluded. The hives are inverted on a shelf, the floor-board removed; the bees are freely exposed to the atmosphere. We have not been able to learn the success of this method, but we have known bees which were kept the entire winter in a dry airy garret to do tolerably well.

Bees left on the stand all winter, if in common straw skeps, should be guarded against a very sly foe. We now refer to mice, who are only too thankful to find a home in the comfortably sheltered hive during the cold wintry weather. These enemies may to some extent be kept out by having the entrance made very small, though it is far better to place the hives on single pedestal stands.

Straw covers certainly look very picturesque and neat, but they are apt to decay when exposed to our variable climate. Good painted wooden covers are the best for all kinds of hives; panmugs are too heavy, and frequently flatten straw hives; on this account they ought never to be employed.

It has been asserted by our village bee-keepers that the honey after long-continued frost becomes hard and candied, or in a state unfit for the bees; our own experience is merely this: honey gathered during the previous season never goes hard if in sealed cells, but honey if two years old is liable to change, and become unfit for bee-food. We seldom leave more than a pound or two of honey in the hive; it is far more economical to remove it all by means of the extractor, and to give them syrup in its place. No apprehension need arise as to this candying, for when given to the stocks in large quantities it is quickly sealed up in convenient places for winter consumption.

Our advice is, Do not disturb your stocks when they have settled down for the winter more than is absolutely necessary. Ventilate all your hives freely, and never change their stands. *R.*

Garden Operations.

KITCHEN GARDEN.

Owing to the intenseness of the frost many of the out-of-door operations had lately to be entirely suspended. There were, however, certain matters to which under these conditions attention was directed, and amongst others the refuse heap. This valuable compound was turned over, and that part of it which was sufficiently decomposed was taken away to the place where it was required, and where practicable was scattered broadcast at once in order to destroy any insect pests which might be found in it, and in the process of turning a fair proportion of quicklime and dry soot, or wood-ashes, &c., which can be made by burning up any woody refuse which may be collected together here or elsewhere, was added to that which remained, and well mingled together. Another matter which was easily performed under such circumstances was the pointing of Pea-sticks and stakes of every description required; and beside these operations there was the labour which is involved in that annual and essential ordeal, the cleansing of the houses. In this way ample employment was found for suitable men for almost any period. While the frost existed it was necessary to see that a proper amount of protection was afforded to all subjects likely to need it, but if such precautionary measures as were indicated in a former Calendar were regarded prospectively, the stocks of half-hardy and tender subjects, as Lettuce, Endive, Broccoli, &c., will have been safely housed and their value much increased.

FORCING DEPARTMENT.—Here such choice kinds of edibles as Asparagus, Seakale, Rhubarb, Mushrooms, &c., are in perfection and highly esteemed at table. Wherever forcing operations are proceeding out-of-doors by means of fermenting materials the action of such a prolonged frost will have diminished the heat considerably if fresh materials have not been added in sufficient quantity to counteract its effects. Continue to sow fresh supplies of French Beans as required, and to pot and soil up those in more advanced stages of growth. Water these subjects copiously whenever they require it, and use weak manure-water for those coming into bearing.

MUSHROOM-HOUSE.—This should be sprinkled every day, and the beds in bearing should also be kept equally moist; temperature 50° to 60°. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD-HOUSE.—The Chrysanthemums have lasted long in beauty this year. We were able to cut armsful of them at Christmas, and, as the weather

has set in so very cold, we shall at once remove the trees into the house; the pots are quite covered over with cocoa-nut fibre, and the roots are quite safe. The house is thoroughly cleansed in the first place, the wood and glass-work being well washed. The paths and borders also need renovating, and here the question arises as to what is the best internal arrangement for an orchard-house. I have seen one where the pots were placed on a stage more than 3 feet from the ground-line; such an arrangement answered very well as far as the growth of the plants was concerned, and also the ripening of the fruit, the Nectarines being especially fine in flavour, although the Peaches were inclined to be woolly. I would not advise that the trees be mounted on a stage; they should be placed on the surface of the ground, or not more than the height of a brick above it. The paths ought to be of gravel or some similar material, and as a change from that the borders may be of cocoa-nut fibre refuse: the division between the borders and paths may be of neat tiles, as being more lasting than wood painted or varnished. Some cultivators recommend placing the pots on a border of rich loam, and in that case the holes in their bottoms are made very large, and a mass of roots are allowed to travel outside of the pots into the border. It seems feasible that nourishment supplied in this way would be quite as useful to the trees as that obtained in any other: in theory it looks well, but if it is continued during successive seasons it does not answer. Our plan is not to allow any roots to travel beyond the limits of the pots, and to supply most of the nourishment by three or four surface-dressings in June and July. We have now brought the trees in, and either placed the pots containing them on other inverted pots, or on two bricks in such a manner that the centre hole of each pot is between the bricks. No parasitical insects ought to be allowed to breed on the trees to their hurt; but it is unfortunately true that orchard-house trees are sometimes quite infested with red-spider, aphids, scale, or mealy-bug. If any of these pests are now on the trees they must be dressed with the mixtures frequently recommended for this purpose. It will not require much water to keep up the requisite amount of moisture in the soil, but that much should be given at the right time. Where heat has been applied to start the trees early, considerable caution is necessary as to maintaining an equable temperature, and I would rather allow the house to be cooler at night than that it should be too high; 55° at night ought not to be exceeded until the trees are in blossom. Whether the trees are in pots, tubs, or planted out in the borders, see that sufficient water is applied to the roots to saturate the mass of soil to the bottom, and not again until it is actually required.

ORANGE TREES IN POTS.—A printer's error or a slip of the pen makes me say in a recent number that the temperature of the house should be 95° at night: 65° it ought to be if the fruit is ripening. Should the fruit be ripe it will keep in a lower temperature. The trees may even be placed in a coolinery or in any house with a much lower temperature. Indeed it is worthy of notice that the trees succeed well in a Pine-house or Cucumber-house temperature, and any space to spare in such structures ought to be utilised by being furnished with such useful trees. Many persons complain that Orange trees are difficult to keep clean. In many cases when their growth has been attempted I have found the trees filthily dirty, and have heard great complaints of the difficulty in keeping them clean. Of course if time cannot be spared to attend to them it is better not to grow them, but it is no more difficult to keep Orange trees clean than it is to keep other plants in a healthy state. We must make up our mind to banish insect pests from our forcing-houses before we can be quite successful, and let us ever bear in mind this short sentence, that "prevention is better than cure." Trees that are much restricted for pot-room should, if the fruit is in a growing state, be well supplied with rich surface-dressings. *J. Douglas.*

PINES.—The continuance of severe weather has, notwithstanding that every means of resistance have been applied in the way of external coverings of the houses and pits in this department, and moreover although we have had only the minimum winter temperatures to sustain, has already rendered it necessary to employ considerable extra fire-heat. Should however the present external conditions continue, which is most probable, increased attention should be given to keeping the moisture in the houses in an equable state. Although it may not be actually necessary to syringe the plants overhead in small damp houses or pits, it will still be advisable to do so occasionally under existing conditions, in the case of plants in large or lofty structures where much hard firing is required. Under the present circumstances the pipes will have to be constantly kept in a highly heated state, a strict supervision of the state of the heat in the beds will therefore be essential, if they are heated by these means,

as too much heat will speedily become inimical if not destructive to the health of the plants. In shallow beds, where the base of the pots is in proximity to the pipes, the matter will require especial care, and so also will the watering of such plants lest they should become dry. Plants which are plunged in fermenting beds are now generally liable to such fluctuations, and therefore the watering of these should be pursued in the ordinary way. *G. T. Miles, Wycombe Abbey.*

PEACHES AND NECTARINES.—During the continuance of the severe frost that set in on the 6th it will not be advisable to increase the night temperature in early houses that were closed last month for forcing, notwithstanding the fact that the buds are swelling fast—a stage at which it is generally considered safe to make a slight advance, but with the nightly register of 12° to 20° of frost nothing can be gained; indeed, it is more than probable that many crops will be seriously injured by undue haste at this dead season, particularly where the roots are in external borders. A minimum temperature of 45° from midnight until daylight will be quite sufficient for the present, when it may be allowed to rise 10° more from fire-heat aided by the fermenting material, a portion of which should be turned over every day for the twofold purpose of setting at liberty heat and moisture, and so reducing the necessity for late syringing. In closely glazed modern houses a regular system of ventilation, just sufficient to change and sweeten the atmosphere, should be adopted from the first day on which fire-heat is applied, but as a matter of course the ventilators will be closed every day. Continue to secure a genial growing heat from the sun, which generally shows in clear frosty weather. At such time the last syringing should take place, but in proportion to fire-heat must, after damping of floors, paths, and walls, be followed up. Houses in which the very early kinds are forced, either in pots or planted out for the chance of a few dishes of fruit early in May, will soon be in flower, and will require daily fertilisation to insure a good set of fruit, as well as to increase its size, for this kind of work, although indifferent is the best fruit that is produced before the end of May—Hale's Early and Early Grosse Mignonne are perhaps the best Peaches, and Lord Napier and Hunt's Tawny are good Nectarines; but to succeed with these plunged in or placed over fermenting materials, kind young trees should be potted up early in the autumn, and started under forcing condition in January for one or two years to induce early habits before they can be depended upon for hard forcing. Where three or more structures are devoted to Peach culture, a second house for carrying on the supply should be closed about the end of the month. Conditions formerly laid down will apply until days increase in length, when a higher range by day may be indulged in. Take advantage of the present unfavourable weather for outdoor work by pushing forward the pruning and cleansing in late houses, in order that all may be finished before the buds begin to swell. Since the above was written we have registered 30° of frost. *W. Coleman, December 24.*

STRAWBERRIES IN POTS.—Since my last Calendar was written we have experienced weather of unusual severity, and much injury will, I fear, have been the result in cases where the stock has not been fully ripened, and where protection has been delayed till too late, trusting to the chances of past winters, when storms of any duration have been few and far between. We have had several hundreds of pots standing out-of-doors with a few inches deep of clean wheat-straw laid over them; the soil in the pots has been frozen down to the crocks, and on the litter being removed altogether to-day they look as fresh as possible. Other stock which had been covered over in pots for the last three weeks are also uncovered by degrees, and now that the soil has thawed it is in excellent condition, and both leaves and roots look the picture of health. During the next fortnight there will be general activity in this department in preparing plants for starting, owing to the fact that it requires from 300 to 500 plants to be started at this season in order to keep up anything like a uniform supply till the second batch is bearing fruit ready for use. Beginners will do well to bear this in mind, or there will be a blank in their succession. At the risk of repeating former advice I would again advert to the practice of starting Strawberry plants in bottom-heat, which I see is still recommended, but without any reason being given for the practice except to start them—a very vague definition. If the roots are in a healthy condition there is no need of this; what we do want is a genial warmth to draw up the flower-spike, which is already formed in embryo in the crown of the plant, and which requires plenty of time to develop itself in all its parts, and if forcing is carried on skilfully and systematically the flower-spike will appear simultaneously with the first appearance of young leaves. Daily syringings, closing with sun-heat and a night temperature not much above 50°, are the best means of battling with the present state of the weather. *W. Hinds, Otterspool.*

PLANT HOUSES.

ORCHIDS.—New Year's Day found us as regards Orchids in the middle of a period, during which the plants find our artificial treatment less agreeable to their welfare than in any other portion of the year. We might in all sincerity wish them a "happy new year," for at this time some of them have an aptitude to look anything but happy; particularly is this the case when snow covers the ground, fog obscures the sun, and the external atmosphere is at a temperature below the freezing point. How miserable a collection of Orchids looks under such circumstances to what it does when a gale is blowing from the south-west at a temperature of 50°. In the one case a sickly yellow tint pervades the foliage, in the other a healthy green; but there should be something more than foliage to look at in a good collection of Orchids during the first month of the year. From the time the grand old *Zygopetalum Mackayi* opens its flowers in November until the splendid *Odontoglossum vexillarium* fades in July there should be no lack of flower. To the more important of those now in bloom I will call attention in my remarks concerning the management of the various houses. Starting with the Masdevallia-house we shall find the fiery *M. ignea* in full beauty: only the best variety, named *ignea superba*, *alias ignea rubescens*, is worth growing, the inferior varieties are two dull in colour. *M. polysticta*, now opening, is very pretty and effective when well grown; it is very floriferous, throwing many spikes with several small flowers on a spike. I think it was the collector of this plant who said it reminded him of *Odontoglossum nævium majus*; the comparison was either far-fetched or else we have yet to learn how to cultivate it. The Masdevallia-house is an excellent home for the coolest growing *Oncidiums*, such as *O. macranthum*, *O. zebrinum*, *O. Carderi*, and *O. serratum*; these will all be growing fast: their young growths if healthy should be emitting a quantity of large fleshy roots, which must be looked after, or slugs and woodlice will soon reduce their number. Plants in this house will require a good watering at the roots every four or five days; damp the floor and under the stage every morning, and maintain a temperature fluctuating between 48° and 53°. Apply the same treatment to the *Odontoglossum*-house, which should now be bristling with spikes in all stages of development. Each spike should be made secure from slugs by encircling its base with a bit of cotton-wool; this not only saves the flowers, but by cutting off the enemies' supplies makes the baits for their destruction more tempting—the best baits are bran, sliced apples, and young Lettuce leaves, which must be examined every night. *Sophrontites grandiflora* and the round-bulbed *S. purpurea* will now be in flower, and must be well supplied with water, to enable the young growth carrying the flower to progress. I prefer growing these little favourites in suspended pots or baskets, allowing them an inch in thickness of peat and sphagnum to root in, with crocks and charcoal for drainage. A well-developed flower of either of the species named should measure 3 inches across. Healthy plants of *Odontoglossum Hallii* and *O. cirrhosum* which have made up their growth but are not pushing spikes should be kept dry for a fortnight or three weeks. This treatment will generally be found to cause them to flower.

I now come to the intermediate-house, which will probably contain representatives from all parts of the Orchid world, having one thing in common, viz., a constitution that will ill stand the heat of the East Indian-house or the coolness of the *Odontoglossum*-house. Amongst them will be *Cymbidiums*, *Celogynnes*, and *Dendrobiums*, from Northern India; *Trichopilia*, *Lælias*, *Bolles*, *Pescatoreas*, *Oncidiums*, and the warmer *Masdevallias* and *Odontoglossums* from Central America. Those that are growing will take water about once a week; the resting ones, such as *Anguloas*, *Mormodes*, and *Dendrobiums*, should be watered only often enough to prevent their bulbs from shrivelling and their roots from perishing. The following will probably be in flower:—*Masdevallia tovarensis*, *Barkeria spectabilis*, *Cypripedium insigne*, and *Lycaste cruenta*. Damp down slightly every morning, and keep the temperature at 52° to 58°. This treatment will suit the *Cattleyas*.

The East Indian-house, now gay with *Calanthes*, *Saccolabium giganteum*, and the earliest batch of *Dendrobium nobile*, will require great care as regards its atmospheric conditions. Maintain a temperature of 58° to 65°. Damp the floor and stages every morning so as to bring the hygrometer to the saturation point. Allow 5° of evaporation during the day. The floor should also be sprinkled on any very cold night, when an unusual amount of fire-heat is used. In all the temperatures given the lowest are for the hours of darkness, and the highest for the daylight; the slightest glimmer of sunshine will raise the temperatures a few degrees above those given. This little solar heat will be very beneficial to the plants; it is, in fact, the only thing (alas! barring insects) these beloved aliens have to remind them of their native home. *J. C. Spens, Orchid Grower to Sir Trevor Lawrence, Bart., M.P., Bedford Place, Portico.*

THE

Gardeners' Chronicle.

SATURDAY, JANUARY 4, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| WEDNESDAY, | Jan 8 | Sale of Plants from Ghent, Roses, Shrubs, Bulbs, &c., at Stevens' Rooms. |
| THURSDAY, | Jan. 9 | Sale of the Freehold of "Rollison's Nurseries," by Protheroe & Morris. |
| | | Sale of Libes and other Bulbs and Roots, at Stevens' Rooms. |

WHEN last we wrote, on Christmas Eve, we were plunged in winter of such exceptional severity that we quite expected the oldest inhabitant would be furbishing up his memory for precedents. Heigh, presto!—before our revered friend has had time to look over his old records the wind has changed, and we are all wondering as much at the unwonted mildness as a day or two ago we were speculating how much lower the thermometer would descend. The intense cold, the sudden change, the abnormally high temperature, are all very suggestive topics. What was the minimum temperature? Where was it experienced? How did this locality fare? How did that escape? And our poor plants—what of them? What is safe? What killed? These and similar questions crowd upon us in such numbers that it must take time before any orderly digest can be given, and so we must be excused for the present if we present a few random observations on the subject for the consideration of our readers.

And first of all, as to the accuracy of the thermometrical records. Although we shall have pleasure in publishing the details sent to us, yet it must be remembered that the greater number of such records as we get are not, cannot, be so accurate as the more precise information given week after week in our columns by Mr. GLAISHER, or as the summary issued by the Meteorological Office. Thermometers are like watches—no two go quite alike, and unless they are compared occasionally with standard instruments and the necessary corrections made, and unless all the circumstances of aspect, exposure, situation, &c., are known and accounted for, the mere comparison of thermometrical observations from different gardens is of little value. Gardeners do not pretend to be accurate meteorologists, but they have to watch and to note instruments in the shape of living plants whose indications to them are of far more consequence than the fluctuations of an inert fluid. In other words, it is of much more consequence horticulturally to have careful records of the effects of the frost on particular plants under known conditions of soil, exposure, and so forth, than it is to have a table of figures showing the variations of the thermometer. The letters before us prove this. One correspondent bewails his fate with loud lament, another writes cheerily to say that in spite of the severity of the frost but little harm appears to have been done to vegetation.

"This immunity from injury," in one correspondent's opinion, "is in a great measure owing to the calm state of the air during the whole time the sharp weather lasted, and to the gradual thaw that followed, thus affording an opportunity for the roots to get into play and feed the tender tissues of the leaves before decomposition set in. Dry scathing winds when the earth is ice-bound search every pore and empty the sap-vessels long before there can be any response from the roots to replenish the loss, and under such circumstances leaves of Broccoli and such-like things are made sport of and beaten to and fro by the blast like so many rags. Fortunately here they have escaped this so far, and it is to be hoped, now that we have had a spell of winter, that all vegetables will pass the remainder of the season in safety. The sun, by its rapid action, often causes much destruction among plants when it shines suddenly on them in a frozen state, but happily for their welfare this luminary did not find its way through the clouds till several days

after a rise in the thermometer took place, and as a thin drizzling rain followed and was immediately succeeded by a damp heavy state of the atmosphere, which continued for some time, nothing could have happened better to assist in saving much valuable food for the country. Even Couve Tronchuda, which is generally considered as one of the most tender among the Brassica tribe, looks as fresh and well as it did months back, and many large Lettuce and Cauliflower plants are little the worse for the cold. The mantle of snow has been a great protection, as it is the very best nonconductor Nature has at her service, and one that has on this, as on many other occasions, served us well."

Such are the observations, and such the practical inferences drawn by Mr. SHEPPARD, of Woolverstone Park. Another correspondent, writing from West Middlesex, notes that it will be interesting to learn what have been the effects on common hardy shrubs—Laurustinus, Bays, Rhododendrons—and specially upon the half-hardy plants that have of late years enjoyed amongst us comparative immunity during the winter season.

"The Eucalyptus has of late been rendered notorious, and its cultivation largely advised. Has it stood the recent severe frost generally, or only where sheltered, or has it stood at all? Mr. BOSCAWEN tells a sad tale of mischief done in his part of Cornwall, but we can well understand that in such a comparatively mild locality, where growth must be luxuriant and indifferently hardened by the influence of cold, that a sudden outburst of severe frost might do great injury. It would be specially interesting to learn how the Camellias have withstood the frost at such a place as Glen Eyre, Southampton. Also how that fine brace of Fortune's Palm—such a charming feature at Heckfield—have fared; and whether the Australian Dracenas and Blue Gums planted out there have been injured or otherwise. In this locality, where there is little to tell about semi-hardy plants, Wallflowers and Stocks have stood remarkably well, yet these have often suffered severely under frost not so hard. All kinds of half-hardy succulents such as often stand an ordinary winter have been killed entirely, but those sheltered by a piece of old carpet or other slight protection are safe. The Tropæolum tricolorum has proved its entire hardiness by coming out of the cold entirely uninjured; true, it had the protection of a cold frame, but the plants and soil were frozen for three weeks as hard as well could be; and when out of this ordeal it is found that the minute young shoots come entirely unharmed, it affords pretty conclusive proof that the plant is far harder than it is usually esteemed.

"It may not be uninteresting to point out that the frost of Christmas Eve and morning was an exact duplicate of that of Christmas morning of 1860, when so much mischief was done to hardy shrubs; there was the same misty atmosphere and hoar frost, probably the same intensity of cold, but it is not probable that the same disastrous results will have to be chronicled. We are now experiencing a change as great as it is possible to find in any year at mid-winter—on Sunday morning in the sunshine the thermometer standing at 40° higher than on the preceding Wednesday, the snow all disappeared, and the temperature like that of a pleasant day in April. Such are the rapid changes and vicissitudes of climate that vegetation here has to encounter. It would be curious if the old proverb should be realised—'When the ice bears a man before Christmas it won't bear a goose after.'"

It may be well to add the following particulars from the letters that other correspondents have sent us. At Solihull, near Birmingham, 2° below zero were recorded, i.e., 34° of frost. Escallonia macrantha and rubra, common Laurustinus, Ceanothus divaricatus, Jasminum revolutum, and Golden Queen Holly, are all recorded as having been severely injured. At Blenheim, Oxfordshire, Mr. CRUMP records 33° of frost on Christmas Eve, and states that common Laurels, Laurustinus, Lycesteria, and Broccoli, have suffered much. Echeverias, however, protected by 6 inches of snow, are unhurt. At Bromsgrove, Mr. WARD, gr. to Lord WINDSOR, notes 28° of frost in the kitchen garden, and 32° in the flower garden half a mile off. The shoots of the common Laurel are recorded by him as killed, while the white Azalea lost its leaves.

From Meath we learn that the thermometer after six weeks' hard frost, went down to 26° on Christmas Eve. From Glengariff we get a very different tale. A correspondent, in proof of the extraordinary mildness of that locality, even during the present unusually severe weather,

sends us a box containing flowers of Lophospermum scandens, Wallflowers, Stocks, Chrysanthemums, Periwinkle, Vinca major, and Rosa indica, together with leaves of Passiflora cœrulea, and Zonal Pelargoniums entirely unhurt, as also foliage and berries of the Arbutus.

At Kew the young shoots of Eucalyptus globulus look as if parboiled, but the more hardy E. polyanthemus is apparently only slightly hurt. From this and other gardens we hope shortly to have detailed accounts, though the full tale of killed and wounded cannot be given for some months to come.

— A NOVEL GARDEN STRUCTURE.—At the great poultry show held at the Crystal Palace in November last, Messrs. BOULTON & PAUL, of the Rose Lane Works, Norwich, exhibited what struck us as being a novel garden structure, and such an one as many of our readers would be glad to know something about. It is a combined fowl-house, aviary, dove-cote, and dog-kennel—an ornamental and serviceably-built structure, such as would prove most useful and convenient to those whose gardens are of limited dimensions, yet whose means enable them to indulge in the luxuries of new-laid eggs and roast chicken, if only a slightly habitation could be obtained to house the domesticated roosters. What nicer arrangement can any one have than that portrayed in fig. 2?—which is similar in design and construction to the structure shown at Sydenham, with its roomy yard for the Black Spanish or any other fowls, a snug loft for the sprightly Fantails, and comfortable quarters for the faithful dog, which will protect them all from thieves.

— TESTIMONIAL TO PROFESSOR BALFOUR.—On December 24 the presentation of a testimonial to Professor BALFOUR, Professor of Botany in the University of Edinburgh, which had been subscribed for by a number of his friends and former pupils, took place in the Court-room of the University. Lord CURRIEHILL said:—To know Professor BALFOUR as a Professor was to admire and respect him; to know him as a man was to esteem and love him; and to make one of his chosen walking parties of six or eight enthusiastic students at the close of the session, and to roam with him among the Grampians, now ascending Lochnagar and Ben Macdhui, and descending Glentilt, was not merely interesting and instructive in a botanical point of view, but was to their juvenile notions the very summit of human bliss. He had long been, and still was, a most valuable and useful member of the Royal Society, and as Dean of the Faculty of Medicine in the University for many years he had discharged the duties of his important office with credit to himself and with much advantage to his colleagues and the University. It was on these public grounds, as well as on account of the strong personal regard entertained for him by a large circle of friends, that it had been considered fitting that on the occasion of his retirement from the office of Dean he should be asked to sit for his portrait, in order that there might be within these walls a permanent memorial of one who had so many claims upon the regard of his friends and the University. They had been fortunate enough to obtain the services of the skilful pencil of the distinguished President of the Royal Scottish Academy, who had fixed on his imperishable canvas a speaking portrait of the Professor, worthy alike of the artist and of their friend. That portrait he now, in name of the subscribers, asked the Vice-Chancellor of the University to accept.—The portrait—a half-length, representing the Professor in the robes of the Dean of Faculty—was then unveiled.—Lord CURRIEHILL then, in a few appropriate sentences, presented to Mrs. BALFOUR a second portrait of the Professor, also painted by Sir DANIEL MACNEE, in which he is depicted clad in excursion garb of modest grey, with belt and spud, and holding in one hand a magnifier and in the other a small wild flower.—Professor BALFOUR, in reply, said it was not easy for him to express his feelings on an occasion like this. He felt highly honoured indeed by what had been done that day, and he was sensible that the compliment was more than he deserved. He had been zealous in regard to the University with which he had been associated for a long time. He began his early studies there so far back as 1821, and it was ten years after that before he got his degree. The only one of that group of distinguished men who

formed the Senatus of the University of Edinburgh in those days was Sir ROBERT CHRISTISON, who he was glad to see with them that day. His (Professor BALFOUR's) first lecture in botany, as a private lecturer, was delivered in 1840, and he took it as a great compliment that his old Professor, Dr. GRAHAM, came to hear it. His residence in Glasgow took him away from Edinburgh for a few years, but it was there he became acquainted with Sir DANIEL MACNEE, with whom again now, in sitting for his portrait, he had had much pleasant intercourse. As regards the position they had placed him in that day, they had in the first place presented to his old *Alma Mater* his portrait to be associated on the walls of the University with men of commanding eminence, of power and great ability—men with whom he could never

see what they are seeking, they would find that amongst other pests that prey upon the cultivated crops of various kinds, and which never at any season of the year, like the birds, do anything to counterbalance the destruction they effect, the large brown snails (the gentlemen who carry their houses on their backs we mean) were receiving especial attention. The blackbird, more wary, does not make so much noise when he finds one of these large fat fellows, but manages silently to break into his habitation; the thrush will be seen holding the shell by one side of the orifice and hammering away with it at the first stone he comes to. If the observer happens to be in a position looking through a window or anywhere near and out of sight, he will see that it does not take many strokes to completely demolish the

longer period they are doing that which much more than counterbalances the depredations they commit. We look upon it as far better to protect our soft fruits, and to cherish the soft-billed birds that for nine months in the year have little other food but the worst and most insidious insects that prey upon garden crops. We refer to this subject now, as during severe weather such as we have lately had there is often a good deal of thoughtless destruction of these silent, yet efficient garden workers.

— THE CURATORSHIP OF THE EDINBURGH BOTANIC GARDEN.—We have received further communications from Edinburgh with reference to this appointment. As personal questions are mixed up with these letters we do not think it advisable to publish

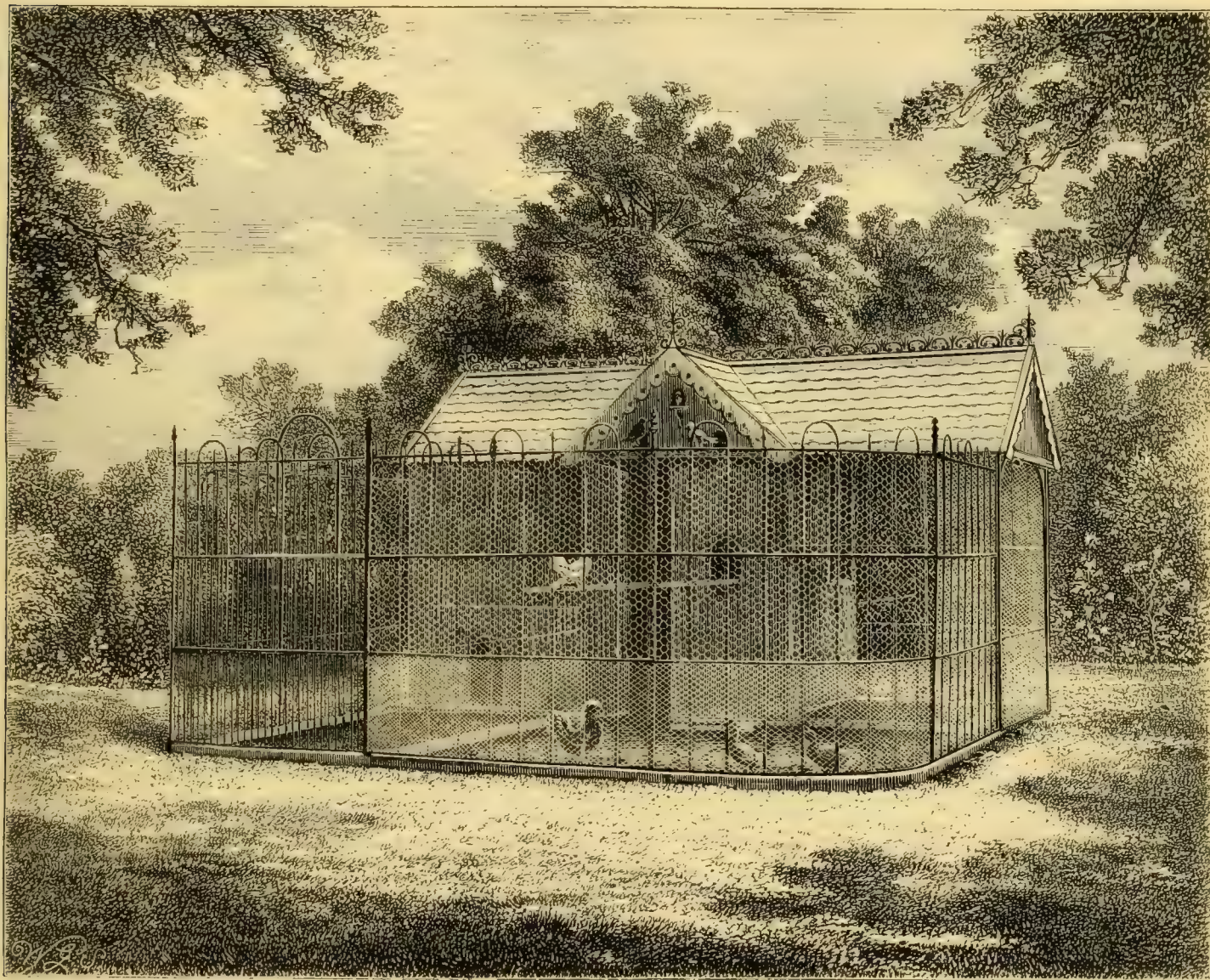


FIG. 2.—A COMBINED FOWL-HOUSE, AVIARY, DOVE-COTE, AND DOG-KENNEL.

hoped to be classed; and the honour done him in that respect he esteemed very great.

— THE WEATHER, THE BIRDS, AND THE SNAILS.—During such weather as we have lately had, when all the exposed surface of the earth is frost-bound, and the worms and grubs, acting in obedience to the instinct which Nature has given them, betake themselves deeper into the earth out of the way of the cold, as also out of the reach of their natural enemies the birds, we see the larger soft-billed species of birds, such as the blackbirds and thrushes are, busy at the bottom of the hedgerows, especially round gardens and similar places, picking out the decayed leaves. If those who advocate the indiscriminate destruction of these birds, which during the fruit season we admit have a provoking propensity for taking the finest Strawberries and Cherries, were to take the trouble to

shell, or many moments [afterwards to convey the inhabitant thereof to his crop, and to be again tearing away at the dead vegetable matter under which the snails shelter. If observation be directed to other of the soft-billed section of the feathered tribe, such as the tits, that sometimes act in a way to make us think they were scarcely satisfied with their share of a row of Peas, which often can be ill-spared towards the end of the season, these active little creatures may be now seen almost incessantly paying close attention to Roses or other shrubs that happen to have been infested during the summer with the maggot, or aphides, especially such as are on walls or in a sheltered position, where the insects or their eggs have escaped the frost of which they can bear very much more than their soft nature would lead us to suppose. If for two or three months in the summer these birds are troublesome, for the remaining much

them *in extenso*, but we may say that the general feeling among horticulturists is, that "the public have a right to expect that the post of the late Mr. MACNAB should be filled by some one who has had a thorough practical training." This is a point upon which we think there can be no difference of opinion.

— PROPOSED EXHIBITION AT HANOVER.—The Horticultural Society of Hanover (Northern Germany) intend arranging a grand exhibition of objects of horticulture in the summer of 1880. The preliminary arrangements have been made, but as it is not quite certain whether the project is likely to obtain the support of foreign horticulturists, and whether the character of the exhibition, in consequence, is to be specially German or European, horticulturists are requested to notify by post-card, in the course of this month, to Mr. A. METZ, Secretary to

the Horticultural Society of Hanover, at Herrenhausen, near Hanover, their willingness to support it. Particulars will be sent by letter as soon as fixed upon. At present it may be mentioned that at the end of the exhibition a public auction will be held of the plants and objects of horticulture sent in for sale. There are great hopes that the Government will grant a lottery of the objects exhibited, as well as a deduction of freight.

— **LIGUSTRUM SINENSE LATIFOLIUM ROBUSTUM** (see p. 752, vol. x.).—Under this name we published an illustration of a fine Privet received into English nurseries from the Continent. The misnomer is doubtless in some degree attributable to the fact that *L. lucidum* is popularly called Chinese Privet. M. DECAISNE and others have, however, pointed out that the species is clearly *L. lucidum*, not *L. sinense*. Unverified nursery names are among the opprobria of horticulture, and the evil in this case is all the worse because one unnecessary epithet has been applied. The plant is a broad-leaved robust form of *L. lucidum*, but either *latifolium* or *robustum* suffice for its designation. In most instances we take steps to verify the names of plants published by us, but it is not possible always to do so.

— **PRESENTATION TO MR. WILLIAM SUTHERLAND.**—MR. WILLIAM SUTHERLAND, who has occupied the position of general nursery manager with the Messrs. KER, of Liverpool, for the past five years, was entertained at a complimentary dinner on Friday evening, the 20th ult., at the Aigburth Hotel, by a large number of the leading gardeners of the district and other friends, on the occasion of his relinquishing his duties with Messrs. KER to undertake a similar post with Messrs. IRELAND & THOMSON, of Edinburgh. After the dinner MR. SUTHERLAND was presented with a handsome gold watch and appendages by Mr. HINDS, of Otterspool, on behalf of the subscribers. In making the presentation, Mr. HINDS referred in eulogistic terms to the past career of the author of the work on *Herbaceous Plants*, and to his other contributions to horticultural literature, as well as to the indelible mark of regard his geniality of character and disposition had made for him in the minds of his acquaintances and friends. Mr. FRANCIS presided, and Mr. FOWLER occupied the vice-chair.

— **A SEEDSMAN'S BILL OF FORMER DAYS.**—We print the following account of seed supplied to a Scotch laird in 1707, in which the quantities, names and prices are alike interesting, and the spelling, though capricious, is not worse than was prevalent in documents written by "people of quality" in those days.

An Account of Seed furnished to ye Laird of Niddery with their prices, by Wm. Miller the 24th Janr. 1707.

| | | |
|--|----|----|
| ½ pound of London Leeks | 12 | .. |
| 4 ounce of great flanders onion | 8 | .. |
| ½ pound of great turkey kidney beans | 9 | .. |
| 4 ounce of orange carrot | 12 | .. |
| 4 ounce of english parsnep | 10 | .. |
| 2 ounce of London Radish | 4 | .. |
| one pound hotspur peas | 6 | .. |
| ½ ounce black spanish Radish | 3 | .. |
| one ounce of beetroot | 3 | 6 |
| one ounce of dutch savoy cabadg | 6 | .. |
| one ounce of purslain seed | 4 | .. |
| ½ ounce of silitia Lattice | 9 | .. |
| ½ cabadg lattice | 2 | .. |
| one ounce of great dut. spinach | 1 | 6 |
| 4 dwts of calliflower | 1 | .. |
| ½ ounce Coacumber seed | 4 | .. |
| 4 dross sweet marjoram | 8 | .. |
| 2 ounce best sellery | 6 | .. |
| ½ ounce french honeysuckle | 5 | .. |
| 4 pound haisting pease | 16 | .. |
| 2 Appricock trees | 12 | .. |
| <hr/> | | |
| half hundred hors chesnuts | 10 | 1 |
| one ounce Lym tree seed | 4 | .. |
| 2 pound holly berreys | 8 | .. |
| <hr/> | | |
| | 12 | 3 |

Received full and compleat payment of ye above written account as witness my hand at ye Abbey ye 16 of Aprile 1707.
WILLIAM MILLER.

— **LOOK TO YOUR GOOSEBERRY AND CURRANT BUSHES.**—We think it desirable to call the attention of those who grow Gooseberries and Currants, particularly those who possess only a limited quantity and reside in the neighbourhood of towns where sparrows abound, to the necessity of taking means to prevent those birds from destroying the fruit-buds, to which they at all times are partial, but are more likely to attack during severe weather, when other food is scarce. It is not necessary to remind those who have given attention to the subject, but others there are who do not notice the mischief until it is too late, and not only the ensuing season's crop

destroyed, but the spurs that, especially in the case of Currants, and to a less extent with Gooseberries, should keep on bearing for years, are killed. The mischief is not long in being done; a very few days will often suffice for the birds to strip the trees, to prevent which there are two very simple methods. The first is to deter them by the old plan of twisting a few strands of white thread (the thicker it is the better) from point to point of some of the outside branches, not drawing it so tight as to prevent its moving with the force of the wind; their natural cunning appears to make them afraid of getting entangled in the thread. But this will only prevent the depredations of sparrows—the tits and bullfinches, where the latter exist, take no notice of the thread; to meet which it is necessary to make the buds unpalatable. For this purpose nothing is so effectual as a mixture of lime and soot—say two-thirds of the former to one of the latter—made into a thin wash that will pass through a very coarse rose of a syringe. A fine day must be chosen, so that the mixture will have a few hours to dry on, as it will do in a way that will prevent its being washed off by the rain for the greater part of the winter. A large number of trees can be syringed over in a very short time, and in this way rendered secure from these little marauders.

— **THE QUEEN OF FORAGE GRASSES.**—Dr. SCHWEINFURTH sends us from Cairo a note relating to the *EUCHLÆNA LUXURIANS*, which in warm climates bids fair to be a most valuable forage plant. The plant is not unlike Maize, but tufted. Although it produces even in Central France a large quantity of forage of excellent quality, yet, as the climate is not hot enough to enable it to produce seeds, it is not likely to come into use, but in Egypt, as also in some parts of India and tropical or subtropical Australia, the cultivation of the plant would be attended with excellent results. Dr. SCHWEINFURTH strongly recommends its culture in Egypt. A mode of treatment like that of the Sugar-cane is recommended. The stems attain a height of 6–7 metres. The leaves are 1 metre long, 3–4 inches wide.

— **RUSSIAN EXPLORATIONS IN CENTRAL ASIA.**—The Russians are extending their explorations in Central Asia in all directions. One of the most interesting additions to our knowledge of this little known region is afforded by PRZEWAŁSKY's journey from the town of Kuldsha to the lake Lob Nor, and the Altyn Tag mountains. PETERMANN's *Mittheilungen Ergänzungsheft*, No. 53, contains a narrative of the journey, from which we extract the following notes. To give some idea of the distance traversed by PRZEWAŁSKY out and back to Kuldsha, PETERMANN states that it is exactly as far as STANLEY's trip from Nyangwa down the Congo to Emboma. Fruit trees form a characteristic feature of the forests on the northern declivities and ravines of the Thian-Schan mountains, especially Apple and Apricot trees. The Apricots ripen in July, and the Apples at the end of August. The latter were of a yellowish-green colour, and of an agreeably sweet acid taste. The expedition arrived at Kung just as the Apples were ripe, and the ground was literally bestrewn with them, often to a considerable depth. For the greater part they were not larger than a small hen's egg, though some were seen much larger; and two trees were observed which bore red fruit. They are devoured by bears and wild hogs, which congregate in large numbers. *Picea Schrenckiana* is the most prevalent forest tree in the valley of the Zamma. It grows 70 to 80 feet, and is remarkable for its slender trunk, for its sugar-loaf-like outline, and for the density of its branches. The Juldus, a part of the Thian-Schan chain, is exceedingly rich in mammals, but there are now no inhabitants. The Lob Nor Desert is described as the wildest and most barren of all the deserts seen by the writer, including the Desert of Alaseba. Along the banks of the River Tarim was a narrow strip of forest of *Populus diversifolia*?, but nothing could be more desolate in aspect than these Poplars, as they were small, crippled, mutilated, and hollow-stemmed. Nearly the whole of the remaining vegetation consisted of *Eleagnus*, *Tamarix*, *Halimodendron*, and two other leguminous shrubs, *Asclepias*, *Typha*, and *Carex*. There were two or three Composites and *Astragali*. Of grass or flowers there was no trace. The inhabitants of the Tarim and Lob Nor bury their dead in their boats together with half of their fishing-nets. The boats are simply hollowed trunks of trees, but they handle

them with great skill and dexterity. The fibre from the stems of *Asclepias* is prepared and made into a rough material for clothing, and the root of the raw plant roasted takes the place of bread. They are beginning to cultivate a little Wheat and Barley. The Altyn Tag mountains rise to a height of between 13,000 and 14,000 feet, and are mostly characterised by extreme poverty in vegetation. Only in the elevated valleys and gorges a few salt marsh plants were seen; some Composites, and dwarf shrubs of *Potentilla*, *Ephedra*, &c. Dried flowers of *Statice* and a trailing *Euonymus* were rare. Tamarisk and Sedges grow in some of the moister places, *Lasiogrostis*, *Calligonum*, *Nitraria*, and the Poplar mentioned above. Notwithstanding the poverty of the vegetation locusts appeared in flocks, and devoured what there was. Wild camels, according to tradition, were formerly numerous at Lob Nor, but they are rare now, though the travellers were fortunate enough to obtain skins of a male and female, and a young calf. Of course it was impossible to solve the question, whether these camels had descended from an originally wild stock, or from escaped tame ancestors. On the borders of the lake Lob Nor, *Hippuris*, *Butomus*, and *Typhas*, were observed. The most important economical plant of the region is the *Asclepias* alluded to, which is very abundant on the lower Tarim, whither the inhabitants of the neighbouring regions resort to collect the stems and roots.

— **THE EUCALYPTUS AND THE FROST.**—The following letter from five Eucalypti growing in South Cornwall, to a congener who has been hard hit in his encounter with Jack Frost, in another part of the county, has found its way into our letter-box:—

"Dear Eucalyptus,—We, the Eucalypti of Menabilly, are profoundly moved to hear of your enfeebled state after the late encounter with Jack Frost, and we hope that there was not a conceited air of satisfaction in the inquiry after our health, as if we also had succumbed to his late desperate attack—according to a certain evil prophecy. But we will not think so uncharitably of you, now you are about to depart to the shades of brown. No! poor fellow! I am very glad to say we are not very bad as yet. One or two of our sisters (who had been growing very ambitiously when Jack Frost arrived) have lost their young shoots, yet we believe all the rest of us are better than we could have expected—the narrow small-leaved kind especially, and also the two eldest of our family. It has been an anxious time for our nurse and patron, but as he had selected good berths for us—'here we are,' and trust your nurse will pay us another visit soon, and then won't we pitch into her for prophesying no good about us, and for not trusting to our good nurse's judgment about our constitution and pluck. All our companions from Sikkim, New Zealand, and Australia, are looking well, except two kinds of *Metrosideros*—*tomentosa* and *robusta*—and a *Ficus* with large leaves, a species from Kew, where it had been brought up under glass. The twenty varieties of Mexican Pines, all new, and some 12 and 15 feet high, which arrived just after you left us, were planted out just before the frost came, but they also have resisted him manfully, and intend to do credit to Menabilly air and care; and *Pinus Grevilliae* and *P. Devoniana* said they would make your nurse at Lamoran very jealous. *Dracæna Draco* and *Tristania albicans* are rather drooping, but *Araucaria Cunninghamii*, 7 feet high, and *A. brasiliensis*, are as well as ever. How is your neighbour, *Lapageria rosea*? I hope great-grandfather *Chamaerops Fortunei* is still the pride of Lamoran. With best wishes for you, poor fellow! for your companions and your nurse—in spite of her evil prophecies—which we Eucalypti believe she thought (not hoped! oh, no!) would come true, and hoping you will, after all, recover after this soft rain, and get quite well, and hold up your head again, believe we are still your stalwart kinsmen, *Eucalypti of Five Species*."

— **ROYAL HORTICULTURAL SOCIETY.**—We are glad to note the appearance of a revised list of the Fellows, Honorary, Foreign, and Corresponding Members, &c., corrected to June 29, 1878. The Society has also lately issued its schedule of arrangements for the present year, which includes the list of prizes offered for competition at the great summer show, to be held at the end of May, when special prizes are also offered by Mr. William Bull for new plants; Messrs. Sutton & Sons for Peas, Melons, and Cucumbers; and by Messrs. Joseph Davis & Co. (a Royal Polytechnic Barometer) for nine tuberous Begonias. April 22 is fixed for the Auricula show, and June 24 for the Rose show, on which date Messrs. John Laing & Co. offer special prizes for nine tuberous Begonias; and Messrs. James Carter & Co. and

Messrs. Hooper & Co. for collections of vegetables, Peas, &c. The Pelargonium Society's show is announced for June 24, and the National Carnation and Picotee Society's annual display for July 22, on which date the exhibition of the British Bee-keepers' Association will also be held. On August 26 Messrs. James Carter & Co. offer prizes for Dell's Hybrid Melon, and on November 18 Messrs. Sutton & Sons invite competitions with Onions, Potatoes, and other vegetables.

— THE ISLAND OF ASCENSION.—When we wrote the notice of Mrs. GILL'S book (p. 754, vol. x.) we had not had the opportunity of perusing a valuable report on the island, by Captain (now Admiral) BARNARD, at one time in command at the island. The report is dated 1862, and gives a history, in brief, of the discovery of the island and of the means taken by Colonel NICHOLLS and others to procure water. In 1863 the population was 550, the water supply not having increased in proportion since 1824, when there were only 54 persons, so that the water supply was reduced to a gallon a day, per head, for six months. Captain BARNARD endeavoured to remedy this by damming up some of the ravines, and converting them into tanks. He also took steps to ensure a due collection of manure, and favoured the planting, especially of Wattles (*Acacias*), on the island in suitable spots. Captain BARNARD'S observations tally closely with those we previously published, but he further suggests that as the *Buddleia* and *Vitex* have done their work as pioneers, and aided in the formation of good soil, that Coffee and other tropical cultivation should be commenced. The Wattle has been a great success. "The Date Palm, Coffee bush, and Custard-apple look healthy and strong, and thousands of young shrubs and trees from the Peak down to the level of the home gardens are making rapid growth, while Furze, Bramble and other shrubs fill the deep ravines with luxuriant foliage." Captain BARNARD refers to the suggestions of Sir W. HOOKER, and Dr. (now Sir JOSEPH) HOOKER, and of Dr. LINDLEY, which he found in the records of the island. The Para-grass forwarded by Sir WILLIAM HOOKER thrived well, "increasing in the most wonderful manner, and growing down all weeds and inferior grasses wherever it is once established." Hundreds of acres could, says Captain BARNARD, be by its means converted into pasture-land. Commenting on Captain BARNARD'S report, the late Sir W. HOOKER says that he doubts "if there is any spot in the world where a comparatively barren rock, destitute of all natural useful vegetation, exposed to such terrific and injurious sea breezes, has been, or could have been, brought into such a state of useful cultivation."

— OUR HIGHWAYS.—Some time since we indicated in these columns a course of procedure relating to the dealing with the highways of the kingdom, as regards their maintenance, that was deserving the attention of the local government authorities. Our contention then was, that the removal of turnpikes and the falling in of trusts had thrown upon the various rural parishes through which these main roads ran very heavy burthens which other parishes did not share; that the administration of rural highways was irregular, and too often exceedingly defective, and that the most effectual remedy was to be found in the general conversion of Boards of Guardians into Highway Boards, in whom should be vested the maintenance of all main and ordinary highways in the Union area, and that by the appointment of professional surveyors the services of the present too-often incompetent body of persons who now are elected as surveyors should be dispensed with, and much of the jobbery and wasteful expenditure too common in some localities be in the future avoided. Since then the present Government has carried through Parliament a new Highways' Act, in which the subject of the old turnpike roads is specially dealt with. An enforced audit of all highway accounts by a Government auditor is to be the rule, and greater facilities are given for the formation of highway districts of prescribed areas. These latter will still be carried out under the old Acts of 1862–1864, and will not vest the government of these districts in the guardians, but taking in most cases the Union as the area of local management a special Board is appointed, and thus the old system of parochial surveyorships and governance is wiped out of existence. A curious and roundabout means of indemnifying parishes that have to bear

special burthens in the shape of old disturnpiked roads is found in the proposal to pay to each such parish from a county rate at least one-half the cost of maintenance of these main roads. This is robbing Peter to pay Paul, as each such subsidised parish must not only contribute its quota to the county rate, but must also largely increase its expenditure upon such main roads before they can pass the county surveyor. This is an exceedingly complex way of giving the ratepayers relief, and also of adding immensely to the cost of maintenance of all county highways. Our original proposal to let each highway area bear the entire cost of all its own highways by means of an equal rate would have been simple, and no doubt much the cheapest means of maintenance in the end. As showing the tendency of the Government to get rid of the old abominations of the parochial system, it is worthy of notice that it is proposed shortly to convert all the extra-rural parishes in Middlesex, that is, all those portions of the county not now under Local or Highway Boards, into several highway districts, so that in a few months parochial surveyorships will in that county become extinct. The parish representative on the board will be termed waywarden, and each parish will have to bear the allotted portion of cost of its own roads as estimated by the district surveyor; and as in all these districts certain portions of old turnpike roads exist, the maintenance of these up to a higher standard than has been done in the past will act inferentially upon the local highways, and thus a better and more equal state of road repairs will exist. Much as the recent Act lacks directness, it will doubtless tend in no small degree to produce improved management of our rural highways.

— BEGONIA NELLIE MAY.—It has been pointed out to us that in the list of new plants certificated by the Floral Committee last year, published at p. 782 of our issue for December 21, we have omitted to include *Begonia Nellie May*, one of the Chiswick seedlings, certificated on September 17. For the young lady's sake we are very sorry, and humbly beg her pardon.

— THE "GROUND FOREMAN" AGAIN.—Some of our readers may be interested to know that the "Ground Foreman," against whose fraudulent practices we have lately had occasion to caution nurserymen and gardeners in the Southern Counties, and whose sudden disappearance from Chichester we noted last week, has been caught at last, and safely lodged "in durance vile." He was arrested at the instigation of Mr. MAURICE YOUNG, of the Milford Nurseries, Godalming, at Chiddingfold, on December 26, and upon the evidence tendered by Mr. YOUNG'S foreman before the county magistrates at Guildford, last Saturday, he was remanded for a week. His assumed names were MILES, MAYNARD, and WYLD, but his real name is WALLER; and it would appear that after his experience at Chichester he thought it desirable to shave off his moustache, his face now being destitute of that adornment. Mr. YOUNG—whose name WALLER has used with most unwarrantable freedom—requests us to state that he will be glad to hear from any one who has been duped by the scoundrel.

— INSTITUTION OF SURVEYORS.—At the request of many members who desire to take part in the discussion on Mr. HEDLEY'S paper, and who will be absent at Quarter Sessions on January 6, it has been determined that a supplementary paper by Mr. HEDLEY on "Cartage and Station Terminals" be read at that meeting, and that the discussion on the two papers be continued on January 20.

— A CHANGE IN PROPRIETORSHIP.—We understand that the business of horticultural builders so long carried on by Messrs. HEREMAN & MORTON, formerly at Tichborne Street and Gloucester Street, and now of 43, Highgate Road, N.W., has passed into the hands of Mr. B. W. WARHURST, who was in the service of the late firm for over seventeen years.

— THE WEIGHTS AND MEASURES ACT, 1878.—This Act, to which we have previously referred, came into operation on the 1st inst., and is intended to secure uniformity of weights and measures. After specifying what are the imperial weights and measures, the Act goes on to say that trade contracts, sales, dealings, &c., are to be in terms of imperial weights

and measures, and that "no local or customary measure, nor the use of the heaped measure shall be lawful" (section 19); and further in the same section it is enacted "that any person who sells by any denomination of weight or measure other than one of the imperial weights or measures, or some multiple or part thereof, shall be liable to a fine not exceeding forty shillings for every such sale." From this, it would appear that dealers in Covent Garden Market, whose measures are not "imperial," but "local or customary," would be liable to a fine every time they made use of such measure; but this unsatisfactory state of things is annulled by the 22d section, which runs thus:—"Nothing in this Act shall prevent the sale, or subject a person to a fine under this Act for the sale, of an article in any vessel, where such vessel is not represented as containing any amount of imperial measure, nor subject a person to a fine under this Act for the possession of a vessel where it is shown that such vessel is not used nor intended for use as a measure." Now the sieves, punnets, junks, pots, kipes, pottles, hands, bundles, bunches, blooms, sprays, &c., in common use are not imperial measures, and their use would seem therefore still to be legal, provided they are not stated to be imperial measures. But this is a question for the lawyers. The same may be said of section 23, which specially applies to us, and to those of our contemporaries who give market reports. It runs thus:—"Any person who prints, and any clerk of a market or other person who makes, any return, price-list, price-current, or any journal or other paper containing price-list or price-current, in which the denomination of weights and measures quoted or referred to denotes or implies a greater or less weight or measure than is denoted or implied by the same denomination of the imperial weights and measures under this Act, shall be liable to a fine not exceeding ten shillings for every copy of such return, price-list, price-current, journal, or other paper which he publishes." This latter clause seems to us so stringent as not to be workable; at any rate, for our own part, we should gladly obey the law, if we could do so, but as we are not merchants, but are dependent on those who are, we can exercise no control over the weights and measures the dealers choose to use. We greatly regret the utterly unscientific character of the weights and measures in use in the several markets, and we should most gladly employ a more rational and uniform system, but it is clear to every one but the framers of the Act, that "persons who print" market reports must either print what is given them to print, or abdicate their functions altogether.

— THE WEATHER.—According to the report issued by the Meteorological Office for the week ending December 30, 1878, the weather was very unsettled; much snow at the commencement of the week, and considerable quantities of rain towards its close. Temperatures showing great changes; minima as low as 5° over England and Ireland on the morning of Wednesday the 25th, but maxima at the close of the week exceeding 50° in all districts and reaching 59° at Roche's Point and Loughborough on the 29th and 30th respectively. Rainfall more than the mean in all districts, the excess being inconsiderable in most parts, but amounting to twelve-tenths of an inch in the south-west of England. Heavy falls were reported at nearly all our western and northern stations on the 28th. Wind light and variable on the 24th; south-easterly breezes setting in on the following day, and strong south-westerly to southerly winds at the close of the week.

— SALE OF AN OLD-ESTABLISHED NURSERY.—Our advertising columns contain the details of the sale, by Messrs. PROTHEROE & MORRIS, on the 9th inst., of the freehold nursery at Tooting, occupied by Messrs. ROLLISON. The estate occupies about 5 acres, with dwelling-house, outbuildings, twenty-six greenhouses and numerous pits. The contents of the nursery will be sold by auction subsequently to the disposal of the freehold.

— GARDENING APPOINTMENTS.—Mr. A. LANCASTER, late foreman at Rendlesham Hall, Suffolk, has been appointed head-gardener to the Earl of LEICESTER, Holkham, Norfolk.—Mr. H. RUSSELL has resigned his situation as steward to E. LEIGH PEMBERTON, Esq., M.P., Torry Hill, Sittingbourne, Kent, and has been appointed steward and manager of the estates and gardens, &c., of Sir R. LEVINGE, Bart., Knockdrin Castle, Mullingar, Co. Westmeath. His successor in the management of the gardens at Torry Hill is Mr. RATCLIFF, late foreman at Brandon Lodge, Coventry.

JOSEPH DALE.

It is with great regret that we have to record the death, on Tuesday last, of Mr. Joseph Dale, so long and so honourably known as gardener to the Hon. Society of the Middle Temple. He left his residence, Pompon Villa, Church Road, Leyton, Essex, intending, as usual, to proceed to his charge in the city, and was apparently in very good health; but on reaching Leyton Station he had to wait for a train, and was sitting and talking to a neighbour, when he suddenly fell over on to his friend's lap, and expired of heart disease, without a moan. Mr. Dale was born on the 29th of June, 1815, and was therefore in his sixty-fourth year—singularly enough, the same age as his old colleague, "Sam Broome," who died in January, 1870. A gardener from his youth, and wonderfully fond of his calling, Mr. Dale was appointed gardener to the Hon. Society of the Middle Temple in 1843, previous to which he was, we believe, employed in a nursery famous in those days, and familiarly known as "Groom's of Walworth." From first to last, during the thirty-five years he had charge of the Temple Gardens, he gained and held the esteem and affection of a very wide circle of friends. Soon after entering upon his charge—a more onerous post than than from encroachments and other causes it has been of late years—town gardening became his hobby, and it was his discovery in the Temple Gardens of the adaptability of the Chrysanthemum for culture in towns that induced him to pay so much attention to the cultivation of that flower, and some years ago to publish a small book on the same subject. So far back as 1857, at a Special Parliament of the Bench of the Middle Temple "it was ordered that a testimonial be presented to the gardener, Joseph Dale, as a token of the great satisfaction which his very successful show of Chrysanthemums has given to the Bench;" and it was only in February last when he was presented with a handsome timepiece and a purse of fifty guineas "by friends who esteem his worth and appreciate his labours in the cultivation of the Chrysanthemum."

Mr. Dale always took a lively interest in the improvement, by planting with trees and shrubs, of the squares and churchyards of London, and many a handsome "Plane" bears witness to his labour of love. It was a custom of his at one time to freely distribute plants and cuttings to the charity children connected with the churches in the neighbourhood of the Temple, and in this way induced them to tend and ultimately to exhibit the plants at shows held in the parish school-rooms. For many years past he has acted as judge at most of the leading Chrysanthemum shows in the kingdom; and, full of enthusiasm for his profession and all belonging to it, and of a most kindly and sociable disposition, he was, take him all in all, a fine specimen of the old-fashioned English gardener, and one of the most worthy of men.

His funeral will take place in the churchyard of the old parish church of Leyton, to-day, at 12 o'clock.

Home Correspondence.

Liriodendron tulipifera.—It is strange that we see so few of this tree about conserved grounds in any place. Seeing that it is such a very hardy tree, and most ornamental with its peculiar cut leaves and fine scented Lily-like flowers, one would think that it would be found oftener than it is in mostly all such places. That it will assume large dimensions in this country is amply verified from what we have seen in places here and there, notably one at The Hirsell, Coldstream, the Earl of Home's seat. Here is a very remarkable specimen, some 20 feet or more in circumference and apparently quite 200 years old. It stands in the middle of the kitchen garden, and forms a very beautiful object in summer. It is not high—not more than 30 feet or so, but to all appearance it has been much higher. The wood is valuable, close grained, and highly prized for carved work. I am inclined to think that it is (where it is planted) placed in a too hemmed-in situation, surrounded by trees, and consequently gets too little sun. It should be planted always on a south aspect, and on a dry bottom. *Chevalier.*

The Maréchal Niel Rose on the Borders.—I had intended sooner to have offered what I think is the real explanation of the statement, which I have not the least doubt is quite true, of the Maréchal Niel Rose flowering at high elevations in the southern counties of Scotland. It is, what was said to me years ago, "There are two Maréchals Niel." I had been wondering at a Rose from one of the best of the great Rose nurseries, which grew enormously, and had flowers with the deep form and large smooth

petal of the Maréchal—like moderate-sized coffee-cups in fact; but the colouring approached to that of Gloire de Dijon, and was no more than that, the bright pure yellow of dead or frosted gold, which is the colour the Maréchal is supposed to be. I have since seen a Rose standing the winter in a situation not very different from those described, which was called Maréchal Niel, and which I was at first inclined to think was simply Gloire de Dijon, but I observed that it had not the perpetual habit at all, and seemed only to flower in summer, giving a fair succession of flower then, and that it attained to the tree-like growth of the Maréchal. The probability seems to be that one strain of Maréchal Niel—in fact a sort of sport at some time or other—has developed something of the colouring of what Reynolds Hole calls its hardier congener, Gloire de Dijon, and apparently something of the hardiness along with it. The facts are not without interest for botanists, as they certainly are of some importance to gardeners. I regret that the fine plant I mentioned before had not been planted out on a fruit-wall. Not being the yellow Rose wanted, it was not planted in the conservatory, and eventually died in a pot. The Roses mentioned as flowering in Roxburghshire at a considerable height near the sea were no doubt yellower than Gloire de Dijon. The foliage of the Maréchal is very distinctive. *J. M., December 30.*

The Weather at Kelso has been very severe and below zero on two nights since the 10th ult., and it has always been below 20° every night since till Wednesday, Christmas Day. I understand this winter to be more severe than that of 1860-61 in this part. The snow I anticipate to have been a great protection to many things, and in fact to everything that has more or less come within its fall. Roses especially, with perhaps the exception of standards, will have had a secure protection with the snow. It is to be hoped the storm will make its exit with less suddenness than it did its entry, and from all appearance it will do so. *H. K.*

The Pitcher-Plants of Borneo.—I have been pleased by your not relying on the correctness of a report of some paper on a lecture given by me. It is rather alarming to read in the papers what one is made to say. I gave some general remarks on Borneo and Kiri-Bala, stating that my knowledge was derived chiefly from Spenser St. John's *Life in the Forests of the Far East*, vol. i. (1862). Then I spoke of the Nepenthes, showing specimens, and explained their habitats at various altitudes from 9000—10,000 feet as far down as N. Veitchii and Rafflesiana. That was all, and I did not expect to see anything about it in the *Gardeners' Chronicle*. *H. G. Rehb. f.*

The Prizes for Market Gardens.—I am informed by a member of the Council that the *Gardeners' Chronicle* has twice, in commenting on the small entry of market gardens and garden farms, blamed the Council of the Royal Agricultural Society for this result, on account of the entries having been closed so soon, and also for making the offer of prizes so little known. It may be, of course, a matter of opinion whether the entries were closed too soon; but as regards making the prizes known, I wish to inform you that, in addition to issuing extensive advertisements, I sent forms of entry by post to over six hundred market gardeners in the district for which the prizes were offered. *H. M. Jenkins, Secretary.*

Salvia splendens.—Mr. Ravenhill condemns the planting-out system of growing this plant, and comes to the conclusion that the plants grown here must be similar to his own in grossness of growth and paucity of bloom. To ensure success by the planting-out method, the plants should be propagated in the latter end of April or the beginning of May, and planted out about the middle of July in poor soil, in a sunny position; give the plants a good watering, to settle the soil about the roots, and no more through the season, unless they show signs of flagging. About the end of August a sharp spade should be run round the roots to prepare the plants for removal into pots, which should be done a fortnight or three weeks after the operation. After potting, stand them in a cool house, shading them should the weather be sunny, and dew them over with the syringe three or four times daily till established, watering when necessary with tepid water only. By practising the above method the plants will at lifting time be studded with flowering shoots that will only require a little extra warmth to bring them out perfectly. There is nothing new in planting this *Salvia* out in summer, but it is new to me to hear of it producing black foliage, as it appears to have done with Mr. Ravenhill. I have seen and grown this plant successfully by planting out, and also in pots, and have seen many grown by the latter method that did not yield much return for the labour spent on them, being both shabby in foliage

and thinly bloomed. *J. Roberts, Gunnersbury Park Gardens.*

The Rogiera gratissima.—This fine old plant is worthy of the high encomium you pass on it at p. 759. Is has often surprised me it is not more generally grown. Doubtless one reason for this is that the umbelliferous-like cluster of bloom, more like a *Laurustinus* than any other well-known plant, soon tumbles to pieces when cut. This very much lessens its value for bouquet and vase work, but is no valid reason against its cultivation as specimen plants in tubs or pots, or planted out as is the fine specimen you describe. The *Rogiera* also flowers freely running up loosely against a pillar, or grown against a wall. It would be interesting, as well as useful, to know the temperature of the cool-house in which the *Rogiera* did so well at York, as the plant has generally been grown in the stove or intermediate-house rather than the conservatory. Cuttings root readily, and strong shoots show terminal flowers almost as soon as rooted. The fragrance is remarkably delicate and almost unique among flowers, as is also the soft pink colour. *D. T. Fish.*

A Reading-Room in the Gardens.—With the permission of my employer we have a reading-room in the gardens, which I must say is not only a pleasure, but a great benefit to all who are employed in the gardens. My idea is that where young men are employed in gardens, no such place ought to be without something approaching a reading-room, because, as I have said before, it is not only a pleasure to pass away the dull evenings of the long winter months in reading such valuable papers and periodicals as we have now offered to us at trifling cost, but it is also a great benefit to know something of the doings of the outer world; young men will go away from home to get such news as can be obtained, but often to their own detriment, not only of mind, but pocket. The cost of a reading-room, with the help of one's employer, is but trifling. Mine has arranged with me in this way: that all illustrated papers and periodicals that he subscribes to (which are numerous) are sent into the reading-room at the end of the week of their publication, and then we subscribe together for our own gardeners' periodicals and local daily paper, which costs twopence per week each person; by that arrangement we have all we desire to pass away a pleasant hour. Many large gardens that have no reading-room might have one in like manner. I know there are many gardens that have a valuable library and reading-room, but they are few and far between compared with the great number of large gardens we have in the United Kingdom. *H. S., Ringwood Garden.*

Winter Dressing of Peaches and Vines.—Is the winter dressing of Peaches and Vines with a mixture made to the consistency of paint beneficial or otherwise? The practice of first washing the main branches of Peaches and Vines with a solution of soft-soap or other powerful insecticide, and afterwards painting them with a mixture of cow-dung, sulphur, soot, clay, or other similar ingredients, is carried out by a great many gardeners of the present day, and most of them agree as to the necessity of the washing, inasmuch as if a strong solution be used, and well rubbed in with a stiff brush, it cannot fail to penetrate any crevices which may exist in the bark, thereby destroying red-spider, scale, or any other insect life which may exist therein; and what is more, it will cleanse the bark of any dust or dirt which may have been deposited since the time the syringing was discontinued, and which must have a beneficial effect, inasmuch as the bark, like the epidermis or skin of animals, is furnished with cortical pores or breathing organs, the uninterrupted action of which must have a beneficial effect upon the health of the plant. But this after painting I cannot understand. Surely it is not done because it is likely to prove more destructive to animal life. This cannot be, inasmuch as it will not penetrate so readily the small crevices which may exist in the bark, but on the other hand it is more likely to partially cover over the entrance of these crevices, thereby forming capital breeding places for red-spider during the ensuing spring; and what is worse, this paint must have a tendency to stop the cortical pores, and thereby to a certain extent impair the health of the plant. Rather than paint, I would recommend a second washing as being the more likely way to effectually destroy insect life. I think indoor fruit trees with clean healthy shining bark are a credit to any gardener; but this painting, if not an absurdity, is most certainly very unsightly. Perhaps some of our pomological friends will kindly give their opinion upon this subject. *J. Hughes, Chadwick, Temple Balsall, Birmingham.*

Extraordinary Flowering of a European Orchid.—We have now in the greenhouse a *Spiranthes autumnalis* just beginning to flower. It has flowered several times with us at the normal times. This plant was imported from Southern Europe last winter. *H. G. Rehb. f., Hamburg.*

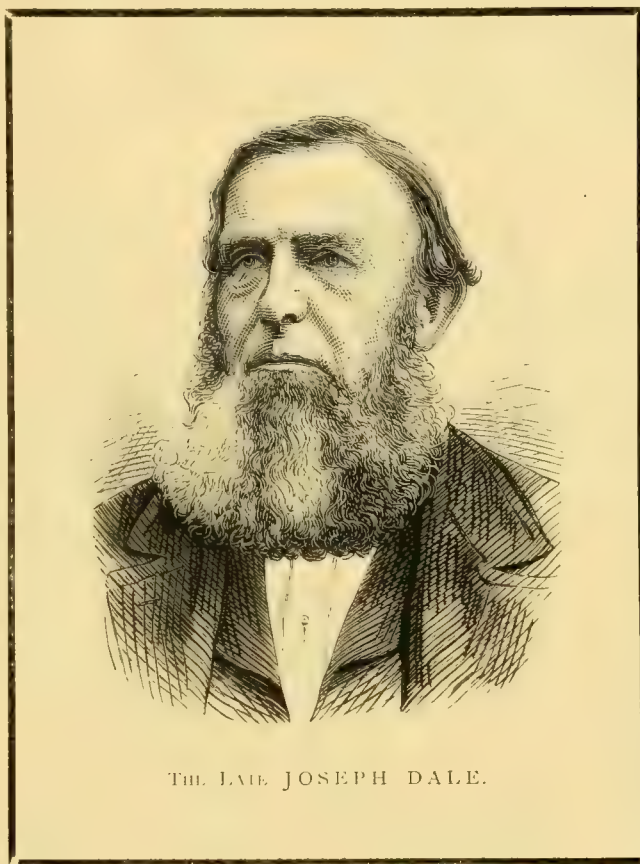
The Culford Vine Sport.—Those who have seen, handled, and tasted this sport may be well content to rest the fact of its reality on your able leader of last year, especially as you took the trouble to test it on the spot instead of doubting it from a distance, and I should not further trouble you on this subject but for the following two sentences in Mr. Thomson's letter: "Trebbiano has this much in common with Golden Champion, that if it is subject to an irrational mode of treatment its skin gives way, and it gets spotted and rots. This may have been the experience *some of the advocates of the sport had of Golden Champion, and they concluded rather hastily that as the bunch on the Trebbiano rotted also it must be Golden Champion.*" I have ventured to put these words in italics, and would crave your permission to add that Mr. Thomson ought to be the last man to indulge in a style of criticism so unfair and unjust as to be unusual in the pages of the *Gardeners' Chronicle*. There is the less excuse for this in full view of the unfortunate history and career of the Golden Champion Grape. It has caused sufficient trouble and annoyance to gardeners already without their being indirectly told, as in these sentences, that if it spots or rots these mishaps follow from irrational treatment. Then the Trebbiano does both at times under the most skilful treatment, but it has this advantage at least over the Golden Champion—that it spots after it is ripe; whereas the Golden Champion rots either before or abreast of maturity. Besides, the Trebbiano more frequently merely discolours than either spots or rots, and the writer has seen the examples of splendid bunches in this state in different gardens within a few weeks, where the treatment had been anything but irrational, and the Grapes were still fit for table. And thus any one reading the above extract would be led to the conclusion that the Culford sport had but one bunch—that that bunch rotted or spotted like the Golden Champion, and that, therefore—that is, on the spotting or rotting alone—the advocates of the sport rather hastily concluded that the sport was Golden Champion. Now no one knows better than Mr. Thomson how completely at variance such a statement and inference are with the facts of the case as recorded in the *Gardeners' Chronicle*: and as one of those concerned, not in advocating the sport as Mr. Thomson puts it—for there would be no motive nor room for anything like advocacy in such a case—but in recording and carefully testing an interesting natural phenomenon, I enter an earnest protest against such statements as advanced by Mr. Thomson. No little or unknown man would be permitted to make them in your paper, and neither should he whom most of us have long looked up to and loved as one of the leading gardeners in Scotland. The word "advocate" is twice used in the last paragraph, and if such terms are allowed in regard to the honest testimony of what competent witnesses saw and felt assured of at Culford, there cannot be a doubt that many cases of unusual development of growth will remain unrecorded, to the serious loss alike of horticultural science and practice. However painful, it seems almost necessary to add, that the knowledge of Grapes is really not wholly confined to the north of the Tweed, and that among the Culford witnesses to the fact that the sport of the Trebbiano Grape was indistinguishable in size, colour, flavour, form, and general character, from the Golden Champion, were men who know Grapes as well as Mr. Thomson, though they may perhaps neither grow them so well nor in such large quantities. As to the point that eyes from a shoot from the spur that bore the bunch of the Golden Champion the previous year, now show Grapes which are amazingly like, if not identical with Trebbiano—I have seen and tasted them. I agree with you that this is just what might have been expected, though the same spur, or at least one very near to it, if not the same, produced last year Golden Champion again; and such "facts are chieftains that winna ding," and cannot be successfully disputed by such criticisms as those that have been brought against the chronicler of the facts anent the Culford sport. *D. T. Fish.*

The Best Season for Planting.—In the several articles I have already written on transplanting evergreens I thought I had given abundant reasons and

stated sufficient facts to bear me out that spring is much the best time for the work. The old saying your correspondent, Mr. A. O. Walker, again quotes, of—"Plant a tree in the autumn and command it to grow, plant in the spring and entreat it to live," applies very well to deciduous subjects, but with evergreens the case is different, and the adage might well be reversed, as will be proved but too conclusively should we get a much longer continuance of the present weather, which will not only try those removed in the autumn, but will severely tax the enduring powers of old-established plants as well. I remember the sad havoc the winter of 1860-61 made among shrubs, and my experience always has been that those whose vitality is at the lowest ebb through being checked in removal are the first to succumb to the inclemency of the weather. I have during the last twenty years planted largely at both seasons, and have always met with by far the greatest success in the spring, especially among a certain class of evergreens, such as Hollies, Arbutus, Berberis, and Conifers, but all these should be taken just before growth commences, when, if handled carefully, they start away almost as if nothing had happened. In all vegetable life

so much more favourable, as that month is proverbial for sunshine and showers. *J. S.*

Plant Shading.—There are few subjects of greater importance to all concerned in gardening operations than this, and I am very pleased to see it again brought before the public, and trust it may be thoroughly discussed. I have read Dr. Wallace's remarks on the Bamboo shading, which seems to answer so well. I have no doubt as to its durability, but suppose there would not be a breadth of light of uninterrupted volume—I mean there would be lines of light and shade, from the fact of the Bamboo being opaque, which would to some extent diminish the light during the day; still, I have no doubt for many purposes the thing will answer well, but I do not think the Colchester plan is at all to compare with the plan we adopt here, as fully explained in former articles in this paper. I believe all outside shading is wrong. Rollers and their accompaniments are a nuisance which can be done without, and I do not hesitate to say that they will never be made use of again by any professional man after trying inside shading for a season; no outside shading can compare with it, and I am more than ever satisfied that inside shading has a most salutary effect on the atmosphere of the houses by retaining or economising the heat and humidity—two factors of the highest importance in the problem of developing and sustaining plant life, and which can only be produced efficiently and fully by shading inside. Tiffany is the best material I have yet found for this purpose; it is cheap, easily fixed by any handy man, is self-acting and suitable, it admits sufficient light to make solid and firm growth, and any amount of air can be given. A sweet and pure atmosphere may be continually kept without draught or current. We have no scorch, no weak growth, hardly any insects, such as thrips or red-spider, and an abundance of flower. I am alluding principally to Orchids so far. I attribute this satisfactory result to the favourable conditions in which the plants are placed during their growing season. While this method of shading will prove a boon to gardeners it will also be acceptable to amateurs, who will have their houses and plants safe from scorching, &c. Let air be given, and the floors be damped down in the morning; there will be little more to do during the day. We have this year used the shading more extensively than ever, and have grown greenhouse plants, both hard and soft-wooded kinds, most satisfactorily. Even such kinds as Calceolarias, Balsams, Begonias, &c., developed admirably, and kept strong and stocky and flowered abundantly. These are the results of our experience, without exaggeration. I trust this method will be thoroughly tested during the coming season. I have no fear of the results. *William Payne, The Gardens, Belmont, Taunton.*



THE LATE JOSEPH DALE.

the greatest root-action takes place with the advent of young leaves, and plants bear removal best when they have few old ones to support, which is the case with evergreens in spring, as then they cast a considerable portion of their foliage to make room for the new. April, then, to them is something like autumn to deciduous trees, and points to that season as the proper one for transplanting. Few have any idea of the great evaporation there is going on from every pore of the leaves of evergreens during a dry day in the autumn, and with most of the feeders severed or disturbed that supply them it is simply impossible that the rapid drain can be kept up, and the plants in consequence go on from bad to worse till winter with its scathing winds is upon them and finishes them up. Your correspondent gives the rainfall for September and October, and shows that it is greater than that in April and May, and therefore tries to prove that it is against me and in favour of spring transplanting, but he apparently forgets that in the first-named months the earth, when rain comes, is generally parched by the summer heat, and then takes a long time before it becomes thoroughly wetted, whereas in spring it is soaked by what we get during the winter. Again in the autumn the ground is fast losing its heat, while every day in April and after it is rapidly gaining more warmth, besides which the atmospheric conditions are then

The Oak at Boscobel.—I read the article by "H. E." on the above subject in your issue of December 14, which appears somewhat inconsistent, inasmuch as the combined evidence with which he begins certainly favours the idea of the original tree having disappeared; and yet the opinion, grounded on mere family tradition, which he afterwards produces, that the present tree is the identical Royal Oak, is made to override all. It certainly, however, is a very mysterious subject, and one which will most likely continue a matter of controversy for generations yet to come. I will not, therefore, attempt to offer an opinion of my own on this disputed point, but what I am writing for is to answer a question proposed by "H. E.," as to "what evidence there exists of the usual size of Oaks of 200 years old." To this, as no else has replied, I think I can give an answer which will be much to the point. There is now existing an Oak at the parsonage of Burton Overy in Leicestershire, which is known to have been raised from an acorn of the Royal Oak, in the year 1660, and under the following circumstances: During the inter-regnum, the then rector, the Rev. Theophilus Biddulph, being a staunch loyalist, was ejected, and one Thompson intruded; but at the Restoration in 1660 Biddulph was reinstated (as recorded in the parish register). In gratitude for this, and from feelings of loyalty, he then sowed an acorn of the Royal Oak, from which the tree in question was raised, and of which I had the following description

from the present rector in 1877:—"The Oak in my garden measures 11 feet 3 inches at the height of 4 feet from the ground. The tree, I am sorry to say, is fast withering. I have been obliged this winter to cut off four very large decayed boughs, as they were dangerous, if falling in a wind, which might have hurt any one coming to the house. I cannot help thinking that the tree was struck by lightning some ten or twenty years ago, and since then it has decayed away." This is certainly a strong proof as to what size an Oak will grow to in a given time, for Burton Overy is a family living, and the Oak there is known to a certainty to have been sown in 1660. If, therefore, this tree, in spite of the check it must have sustained from being struck by lightning, had in 1877 attained the girth of 11 feet 3 inches, while the present one at Boscobel had in 1857 attained that of 11 feet 4 inches, and is now 12 feet 3 inches, it may be left to the consideration of those interested in the subject how far it is possible for the latter to be the one described by Dr. Stukeley, in 1713, as "a thriving plant, growing close by the side" of the Royal Oak, while of the Oak itself he states "it is almost cut away by travellers." J. B.

Self-Reproduction of Trees.—There is, or was, a case of self-reproduction in a Spruce Fir at the Château de Pontchartrain, Seine-et-Oise. The tree was a very fine one, and stood near a piece of running water, not on a level, but some feet above it. It had only one rooted branch, which was ascending into a good-sized tree and forming regular symmetrical branches. I have also known cases similar in Birch, Alder, and *Platanus orientalis*, and, by-the-bye, Poplar. Is not the great Beech tree at Newbattle re-rooted too? If not, no doubt it soon will, for its branches on the ground are numerous and very healthy. H. K.

An Answer Concerning Pine-apples.—I should say the Pine-apple that would be the most useful to "T. W." would be the old Queen, or what the French call *Comte de Paris*. It is a free fruiter and will mature its fruit in less time and with less heat than any other Pine-apple with which I am acquainted. As is well known all the "blacks," which include Cayennes, Jamaicas, Montserrat, &c., take more heat and more time to mature than do the Queen sorts. There are several varieties of Queens, and the one called Ripley Queen is a good sort. It is very distinct in having a dark green ribby leaf, and it does not throw suckers so freely as the *Comte de Paris*. I had lost sight of it entirely till I got it amongst a few old Queen suckers from Mr. Ormiston, gardener to the Earl of Mar and Kellie, when I at once recognised my old acquaintance, which at one time used to be grown at Dalkeith. It is a well-flavoured Pine, like the old sort, and comes in at this season of the year nicely, being in fact a late-season Pine. It has a robust habit, and I believe it could be matured with less heat than any other Pine-apple; and this brings me to the crowns, for it has the smallest crown of any, except perhaps the old Globe, a narrow-leaved upright sort that also used to be grown at Dalkeith. Also another kind, Otahite, used to be grown there; this had a short, stiff, thick crown on a fruit as broad as it was long, in fact it was nearly round sometimes. I think it a pity so many are giving up growing Pine-apples, for after all the foreigners are not nearly equal in flavour to the home-grown Pine-apple: and if we contented ourselves with smaller fruit and looked less to growing large leafy plants, which require far too much heat to ripen them properly, I think Pine-apples of good flavour could be grown with less heat and in less time, especially those greener kinds, notably the *Comte de Paris*, which the French look to for maturing early amongst Pines as we do our Black Hamburgs among Vines. The fact is, we must not let foreigners beat us in flavour or quality, if they do in quantity; and as far as I have seen and heard they cannot do that any more than they can with Grapes or Bananas. My humble opinion is that if we kept to the Queen sorts in this country more than we do, producing Pine-apples would not be such an expensive piece of gardening as is too often misrepresented. Henry Knight, Floors.

—I think "T. W." might with considerable advantage make a much better selection of varieties of Pine-apple than the one he mentions at p. 760, vol. x. I question if the variety he describes does not, except under exceptionally good cultivation or in a house specially adapted to its culture, produce large crowns. It answers very much to the description of the variety we call here Montserrat, and which in the majority of cases (with us) produces crowns much too large to be convenient on the dinner-table, and we are in consequence of this discarding this variety as they fruit, to make room for more suitable kinds. But there are many ways of accounting for disproportionate sizes of crowns, and it frequently happens that varieties are blamed for what lies at the door of the cultivator or from causes other than that of the kinds grown; dark deep houses, over-potting, over-crowding, over or injudicious watering, or defects in or extreme fluctua-

tions of temperature—all tend to swell the size of the crown of the Pine-apple, invariably at the expense of its fruit. But apart from this, and under the most skilful management and in the best and most modern structures, among fine well-grown fruit with proportionate crowns large crowns are seen. Probably it is not of frequent occurrence, but when this does happen it most likely points to the variety as being at fault. In looking through a large house of Pines in this neighbourhood some weeks since, I was struck with the large number of fine handsome fruit, in various stages of development, it contained; most of the leading varieties were there, but with crowns scarcely higher than one's thumb. Yet among this fine lot there was one plant, and this similar to the one described by "T. W.," with an enormous crown; and yet this plant had received precisely the same treatment as its companions. The length of time requisite for the due development and maturation of a fruit must depend upon the treatment it receives, the structure in which it is grown, the heat at command, the season at which it first appears, and the kinds grown. Smooth-leaved Cayenne, Black Jamaica, Providence, and Montserrat, are much longer in maturing their fruits with us than the Queens—of which we grow the old variety, Moscow and Ripley: the two latter are much to be recommended on account of the handsome fruit they invariably produce, usually with the smallest possible crowns, and when well ripened they are of most exquisite flavour. I should certainly recommend the latter two to the notice of your correspondent, with the addition of the Smooth-leaved Cayenne; the latter, although it may take longer to ripen its fruit than the Queen, is all that "T. W.'s" employer can desire for symmetry and general excellence of quality. J. W. Silver, Knowle Hall Gardens.

When to Propagate Chrysanthemums.—In reply to your correspondent, "A. C.," I am pleased to note that he has discovered there is both a right and a wrong time for propagating Chrysanthemums. He has, however, omitted one of the main features of his case before he can become a successful grower, viz., that of selecting proper varieties for his particular purpose; for instance, some of the large-flowering varieties that attract most attention at exhibitions in a cut state would be comparatively useless for growing into specimen plants. These varieties require extra cultivation to have them at their best, and would not produce the requisite number of flowers of good form to make a handsome specimen. They grow freely enough, but the flowers, when they are grown in quantity on one plant, come with open centres, which is a great defect. I would therefore advise your correspondent in the first place to procure a number of suitable varieties of the "self-incurred" type, such as Mrs. George Rundle, George Glenny, Mrs. Dixon, Prince Alfred, Nil Desperandum, General Bainbrigge, Sir Stafford Carey, Barbara, and Mr. Gladstone. If "A. C." can secure his cuttings from the beginning to the middle of February he will have gained an important point already, because, as he himself observes, cuttings taken earlier in the season never produce either flowers or foliage equal to those that are not interrupted in growth which root and grow without check from start to finish. The cuttings should be inserted singly into small pots and placed in a temperature of 50°. Our plan is to have a propagating case within a house which is kept at the required temperature; the case is filled up with sand to within a few inches of the glass, and the cutting pots are plunged in the sand up to their rim: the cuttings are not excited at any time and they never become elongated or weak. They like an atmosphere on the damp side, but nothing approaching saturation. We keep them in small pots as long as possible, and it is surprising how soon they make up to earlier struck plants when once they start into growth with the fine weather. The fact is, whatever growth young plants make in winter is a dead loss—the foundation is neither so strong nor so healthy as those that are rooted and start into growth under the invigorating influence of increasing light, and the latter are more robust and carry better foliage with half the trouble at the end of the season. W. Hinds.

—To produce good plants the best time is the present. I have always found it the best to place the pots of cuttings in an exhausted Asparagus frame which contains a slight bottom-heat, though this is not at all necessary, as a frame where they can be excluded from frost will do. After they are struck they should be potted-off singly and grown on, and not be allowed to get pot-bound. For a fair sized specimen I find about three stoppings sufficient, the last at the end of May, but to produce large exhibition flowers the "strap bud" should be chosen and encouraged. It can be easily detected at the extremity of each shoot, where the laterals break by a small strap or narrow leaf by the side of the bud, which if grown on without a check will produce a well developed and good-shaped flower, the whole strength of the plant being thrown into the bud. I generally leave five on the large-flowering varieties. M. M. P.

—A considerable amount of discussion took place last season on this subject; but, so far as I have yet seen, the results of the system then under discussion (viz., autumn v. spring striking) have not been published: it would be very interesting to know from Mr. Hinds and Mr. Ollerhead the result of the past season's practice, and there are doubtless many others interested in the culture of the Chrysanthemum also anxious to know; little bits of banter and friendly discussions are frequently conducive to sound practice, and I hope we may find in this case they will bear fruit abundantly. I am as fully convinced now as when reading the letters referred to (and resting on the experience of another season), that for large finely-formed incurved blooms February or early in March is the best season for striking the cuttings, provided, of course, the old stools from which the cuttings are to be taken are judiciously cared for by protection from severe frosts, and the thinning out of the shoots to the requisite number, which will by the stated time have become well hardened, short-jointed, and better able to withstand the separation from the parent plant than when taken off in early winter. Autumn striking necessitates, in my opinion, a certain amount of coddling, which in plants grown for blooms only is neither requisite nor beneficial; the plants must either be wintered in a house in which sufficient heat must, of necessity, be used for the exclusion of frost and damp, in which case the plants will be kept in a growing state throughout the winter months, which is not required, or in a cold frame that would have to be protected from frosts, and thereby darkened, and a weak growth must be the consequence. I much doubt if cuttings subjected to either treatment would not be far behind those struck in February and March. A point of the first importance, then, is to strike at the season at which no heat and little protection is necessary for the safety of a cold frame so as to allow the plants throughout the whole season of growth to receive no checks from any cause whatsoever, and to give every individual plant the benefit of the full light and sun. In striking for specimen plants we always aim at early cuttings, October invariably being the month cuttings are taken off and inserted in small pots, and they strike and establish themselves before any very severe weather sets in. Large specimens require a long season of growth, and those taken off early will, I think, be far in advance of those struck in spring. Some growers of plants for exhibition shake out the old stools, and reducing the shoots to one report them in single small pots, and in this way some specimens of no mean order have this season been exhibited at some of our Midland shows. I fully endorse the remarks of your correspondent, Mr. Morgan, relative to the dressing of blooms, and trust it may receive that consideration it so fully deserves: decking blooms up with gum and petals from other blooms is altogether dishonest, deceitful, unnatural, illegal, and unfair to an opponent who brings a box of blooms only as Chrysanthemum blooms should be seen, i.e., exactly as they were cut, devoid of all obnoxious matter, and set up in cups used only as a support for the blooms. J. W. Silver, Knowle Hall Gardens, Dec. 23.

Pelargonium album multiflorum.—I am glad to see Mr. McKenzie, in his excellent paper on the early flowering Pelargoniums, adheres to a few of the old well-tried sorts such as Gauntlet and floribundum, with which in the red section few can vie both for colour and free-flowering qualities. But there is one—album multiflorum, which he has not put in his list, and whether it is an oversight or otherwise he will do well to add it if he has not got it. It belongs to the light section, and from its very uncommon colour I grow it extensively. It is white suffused with mauve, which is quite unique in colour, differing from any with which I am acquainted. I don't know its history further than that when Mr. Thomson went to Dalkeith first he introduced it there together with Red Gauntlet and floribundum. These three were the only early flowering Pelargoniums then grown largely there for cut flowers in spring, and certainly in my opinion there are still no three better suited for the purpose. What I always admired in floribundum was its bud before opening, which was so useful, and in the same way album multiflorum may be used in bud, for it shows colour before opening in the same manner. H. K., Floors.

The Privets.—At p. 365 of No. 247, Sept. 21, 1878, you gave a plate of "*Ligustrum sinense*, the Chinese Privet." I believe this to be *L. sinense nanum*, not quite evergreen. In a later impression you gave a plate of "*L. sinense latifolium robustum*." I have no doubt this is an erroneous name. It should be *L. lucidum latifolium robustum*. [Yes.] The "sinense" is simply a Continental misnomer of a variety of *lucidum* introduced to our English nurseries some eight years ago. Loudon in 1838 gives only two species of *Ligustrum* (besides *vulgare*) as having been introduced up to that time, viz., *L. spicatum* and *L. lucidum*, with two varieties of the latter; and he mentions two or more species as "not

yet introduced." Of these *L. sinense*, described as with lanceolate tomentose leaves, may possibly be the species figured by you at p. 365, though the leaves can scarcely be called "lanceolate." Another—*L. japonicum*—has been introduced some twelve or more years, and is now generally cultivated. I can enumerate the following:—

L. spicatum (Loudon: introduced 1823) I do not know.

L. lucidum, commonly called the Chinese Privet, introduced 1794.

L. japonicum.

L. sinense nanum, not quite evergreen.

L. lucidum latifolium robustum (whether imported or raised in Europe does not appear).

L. (?), a neat-growing evergreen shrub, which does not bloom till it arrives at a considerable size, indeed I have never seen the bloom, though I have cultivated it for thirty years.

L. (?), a beautiful tricoloured variety of the above, which is now in general cultivation.

C. L., Hounslow. [The most recent revision of the species of *Ligustrum* is given in the *Flore des Serres*, (1877, p. 4), by M. Decaisne. An abstract appeared in our columns in 1877, p. 654.]

The Sarsen Stones at Reading.—The author of the account of the Wilderness, near Reading, has incidentally started a theory of the origin of the boulders scattered over the Marlborough Downs, which though not a point of any horticultural importance, is so inadmissible as a matter of geology that I venture to think it may be worth while to state their real nature. He says that they were, "it is believed, floated to Marlborough Downs . . . from the Welsh Hills by means of floating masses of ice." I assume that the Reading stones are what are locally known as Druid stones, Sarsen stones, or grey wethers; and I quote the following passages from the *Memoirs* of the Geological Survey illustrating sheet xxiv. (pp. 41–44):—"On Marlborough Downs and the country to the south near Marlborough and Fyfield they are especially numerous, and the walls by the turnpike road are built of and the roads mended with them. Elsewhere on Marlborough Downs they are broken by the hammer into rectangular blocks for paving stones. . . . Over many large areas . . . they strew the ground so thickly that across miles of country a person might almost leap from stone to stone without touching the ground on which they lie. Many of these masses of grey grit are 4 or 5 yards across, and they are often about 4 feet in thickness." "It seems probable that the grey wethers belong to the more compact siliceous patches of the Lower Sandy Tertiary strata, and possibly they further hardened on exposure to external influences when the softer Tertiary material with which they were originally surrounded was denuded away." *W. T. Thiselton Dyer*.

The Arbutes.—Referring to the interesting article on the Arbutus in the *Gardeners' Chronicle* of November 30, I have the pleasure herewith of sending you specimens of the berries taken from trees growing on my property here. I have had some of them measured, and find they are over 7 feet in circumference, and from 35 to 40 feet in height. The berries I forward are as large as those pictured in your illustration on p. 689; but I could have sent you much finer specimens a fortnight ago, had it not been that the numerous birds of this locality feed on them voraciously. I also forward a few flowers growing in the open air, which will give you an idea of the extraordinary mildness of this place, even during the present unusually severe winter. There is also a remarkable feature connected with it, viz., that whilst the climate is so mild it is not relaxing, like Devonshire; it is, in consequence, greatly resorted to by invalids and others. I may remark, that the Arbutus also flourishes at the Lake of Killarney. *Geo. Preston White, The Eccles Hotel, Glengarriff*.

Moorhens.—In your impression of last week a correspondent suggests the "skinning of moorhens." While admitting the difficulty of "plucking" them by ordinary means, there exists no reason why they should be so treated, or depreciated in appearance and flavour. Fifty years since apprentices in the New Forest, Hants, were not fed on salmon, as Scotch lads [and Shropshire lads, too] once were during the season, but on bacon only during the week, with fatter pork on the Sunday as a change. As an apprentice at that time, all my belongings rebelled, I had no appetite at home. Being a good shot, one cold winter's day a moorhen dropped before my gun, and that same night I tried to pluck it. The feathers I managed to remove, but under these I found a sort of seal-skin down, that no industry on my part could remove, and it was not until I brought the power of thought to bear on the work before me that all difficulty vanished. I obtained a small knob of resin, crushed it between the folds of a sheet of brown paper, and after well dusting my bird with the powder I dipped it into hot—almost boiling—water. The down, to which your correspondents have referred, gave me no further trouble, but came off with the least pressure.

Glorious times were those, and but that I fear to trespass on your space I would inform you how I cooked my moorhens, hares, &c., after this, utilising the bacon and basting with a continuous jet of milk, that softened and kept every part from scorching. The power possessed by the clergy of this and other countries for good is very great, and I often, perhaps wickedly, think (in these times of distress) a little practical instruction, in combination with a good sermon, would tend to fill our churches with a class who desire to know how to live well during their allotted time, and dying ultimately acknowledging the benefit of the clergy. *George Jennings, Palace Wharf, Stangate, Lambeth, S.E., Dec. 30, 1878*.

Reports of Societies.

Edinburgh Botanical.—The Society met on December 12, Dr. T. A. G. Balfour in the chair.

The following communications were read:—

I. Addenda to the President's address delivered at the November meeting, viz., Obituary notices for 1877–78.

The deceased Fellows referred to included Professor Fries, Upsala; Sir William Gibson Craig, Bart.; James McNab, Andrew Murray, F.L.S., and Senhor Joaquin Correa de Mello.

II. On the Alpine plants of Loch Kander (*L. Ceann-mor*) Corrie, Glen Callater, Aberdeenshire. By Mr. John Sadler.

Mr. Sadler gave an account of a visit he had made to Loch Kander on August 8 last, and noted the principal alpine plants met with. He re-discovered *Carex frigida* in two new spots, and *Salix Sadleri*. These plants, which he originally discovered in August, 1874, in the same locality, were figured and described by Dr. Boswell (formerly Syme) in the *Trans. Bot. Soc. Edin.*, vol. xii., and in the *Jour. Bot.*, vol. xiii. He stated that the Rev. Mr. Leefe and Dr. Boswell, to whom he had sent a complete series of specimens, were now of opinion that the Willow was probably a hybrid between *S. lanata* and *S. reticulata*. Among the plants found associated with the *Carex frigida* and *Salix Sadleri* were the following:—*Salix arbuscula*, herbacea of large size, *lanata*, *Lappunum*; *Myrsinites* of several forms, *nigricans*, *phyllicifolia* and *reticulata*, *Hieracium chrysanthemum* and *anglicum*, *Mulgedium alpinum*, *Saxifraga nivalis*, *Veronica alpina*, *Vaccinium uliginosum*, *Carex rupestris*, *Cystopteris dentata*, *Polypodium alpestre*, and *Polystichum Lonchitis*.

In Loch Callater Mr. Sadler collected *Isaetes echinospora*, where it was discovered a few days before by Professor Dickson. Specimens of the plants referred to were exhibited.

III. On New Zealand and Australian Plants Growing in the Open Air in Arran. By Rev. David Landsborough, in a letter to Professor Balfour, dated November 14, 1878.

Dicksonia antarctica, growing in the open air at Corrie, Arran, is now abundantly covered with sporangia. It was planted in 1867, but in consequence of being twice transplanted it for five or six years made little progress, being inferior in size to a specimen of the common male Fern which happened to grow near. After this, however, it grew well, and has now fronds 5½ feet in length by 22 inches in width. Its stem is 15 inches in height and 22 inches in girth. On the bank above where the Fern is growing I have planted *Elæagnus japonica*, *Edwardsia grandiflora*, *Coccoloba vespertilionis*, and *Rubus australis*, all of which promise well. Through the kindness of Mr. Gray, gardener at Newfield, near Kilmarlock, who receives plants from a son at Christchurch, New Zealand, I have been able to place in the same garden other two Tree Ferns, viz., *Dicksonia squarrosa* and *Cyathea medullaris*. These fine Ferns were last year growing in a glen about 20 miles from Christchurch, New Zealand; this year they seem quite at home in the garden of Cromla, at Corrie. I hope they will succeed as well as the *Dicksonia antarctica*, which has never been protected in any way. *Dicksonia squarrosa* is overcanopied by a plant of *Acacia affinis*, which without protection has thriven for six years. This is the most hardy, as well as perhaps the most beautiful pinnate-leaved *Acacia* with which I am acquainted. In the same garden there is a plant, *Desfontainia spinosa*, nearly 6 feet in height, which flowers beautifully every summer. There is also a plant of a greenhouse *Rhododendron* and *Azalea amena*, which flower well. The double white *Camellia* also flowers, but not freely. I believe *C. reticulata*, which is a hardier species, would flower better. One in front of my house here (Kilmarlock) is at present clothed with flower-buds, and has not as yet been affected by frost. The Gum trees in the wood at Brodick continue to grow as well as I could wish. There are three kinds, the Blue Gum; a weeping Gum, whose leaves are alternate and are provided with petioles; and a second weeping Gum, whose leaves are sessile and opposite. The Blue Gum is about 24 feet in

height, and would have been much more had it not lost 12 feet two years ago by a storm. The others are about 16 feet in height: they were all raised by myself. The Blue Gum was sown in a greenhouse in 1870 and the other two in 1872. The weeping Gums are much more hardy than the Blue Gum, and would I believe grow in sheltered spots on the coast of the mainland. To test this I have sent seedling plants to Culzean and Craig in Ayrshire, where they were planted in the open air during the past summer.

IV. Miscellaneous communications:—

1. A letter was read from Mr. John Buchanan, dated Blantyre, Shiri Highlands, Central Africa, August 16, 1878, acknowledging the receipt of a box of plants from the Edinburgh Botanic Gardens, and stating that they had been planted and were thriving well. They included Tea, Coffee (*liberica* and *arabica*), and *Ipecacuan*.

2. Mr. Sadler exhibited and described specimens of a small dwarf Willow, which he collected near the summit of Ben Challum, Perthshire, in August, 1875. Dr. Boswell is of opinion that it is a hybrid between *Salix aurita* and herbacea.

August Wilhelm Eichler, Professor of Botany, Berlin, and Johannes Martin Lange, Professor of Botany, Copenhagen, were elected Honorary Fellows.



STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JAN. 1, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES, 6th Edition. | | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|------------|------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure from Average of 60 years. | Dew Point. | | |
| Dec. 25 | 29.72 | -.15 | 32.0 | 15.9 | 16.1 | 26.4 | -.11.6 | 24.3 | 92° S.S.E. | In. 0.00 |
| 26 | 29.26 | -.62 | 46.0 | 31.0 | 15.0 | 40.5 | +2.7 | 39.4 | 96° E.S.E. | 0.26 |
| 27 | 29.25 | -.65 | 44.8 | 36.0 | 8.8 | 40.3 | +2.7 | 39.6 | 98° S.W. | 0.14 |
| 28 | 29.37 | -.53 | 45.5 | 33.0 | 12.5 | 40.5 | +3.0 | 39.2 | 95° S.W. | 0.02 |
| 29 | 29.14 | -.56 | 47.0 | 32.8 | 14.2 | 41.3 | +3.9 | 39.5 | 94° W.S.W. | 0.10 |
| 30 | 29.35 | -.55 | 50.2 | 44.1 | 12.1 | 51.1 | +13.8 | 47.4 | 88° W.S.W. | 0.12 |
| 31 | 29.38 | -.51 | 54.8 | 48.8 | 6.0 | 51.3 | +11.1 | 46.6 | 84° S.S.W. | 0.13 |
| Jan. 1 | 29.52 | -.31 | 50.2 | 32.0 | 18.2 | 41.1 | +3.9 | 39.3 | 94° N.W. | 0.65 |
| Mean | 29.40 | -.49 | 47.1 | 34.2 | 12.9 | 41.6 | +4.1 | 39.4 | 93° S.W. | Sum 1.42 |

Dec. 25.—Overcast, dull and very cold throughout. Snow fell after 1 P.M. Rain fell at night, slight thaw commenced.

— 26.—Very mild, wet, and unpleasant. Dull and overcast. Rapid thaw. Snow disappeared.

— 27.—Fine morning. Overcast rest of the day. Very mild. Continued thaw. Rain fell frequently after 11 A.M.

— 28.—Generally fine but very cloudy. Mild. Little rain in early morning.

— 29.—Very fine and bright till 3 P.M. Overcast afterwards. Rain fell in early morning, and occasionally after 3 P.M.

— 30.—Overcast till 9 A.M.; fine till 2 P.M. Overcast afterwards. Rain fell in morning, and in evening. Very warm.

— 31.—Very fine and bright till 2 30 P.M. Dull after. Heavy rain fell from 3 to 4 P.M. Showery in evening. Very warm. Gale of wind.

Jan. 1.—A very dull cloudy day. Rain commenced to fall at 1.30 P.M., and fell heavily from 3 to 9 P.M., after which snow and rain fell. Temperature decreased rapidly from its highest point, viz., 50° 2, to 32° at midnight, and further to 28° 1 in the early morning of the 2d.

Note.—The long-continued period of cold weather reached sixty days on December 25 (Oct. 27—Dec. 25). The mean temperature of the air for these sixty days was 36°, being 6° 3 below the average of sixty years' observations. The mean temperature of the air for the twenty days ending Dec. 25, viz., Dec. 6—Dec. 25 inclusive, was 29° 6, being 10° 6 below the average of sixty years' observations.

The mean reading of the barometer for the thirty-nine days ending to-day, January 1, 1879, was 29.53 inches, being 0.27 inch below the average.

LONDON: Barometer.—During the week ending Saturday, December 28, 1878, in the vicinity of London the reading of the barometer at the level of the sea decreased from 29.87 inches at the beginning of the week to 29.77 inches by noon on the 22d, increased to 30.38 inches by the afternoon of the 24th, decreased to 29.41 inches by noon on the 26th, increased to 29.66 inches by noon on the 28th, and

was 29.51 inches at the end of the week. The mean daily readings were below their averages on every day in the week except one, viz., the 24th, on which day the reading was 0.31 inch above the average; the greatest departures in defect of the average were 0.62 inch on the 26th, and 0.65 inch on the 27th. The mean reading for the week at sea-level was 29.78 inches, being 0.27 inch above that of the preceding week, and 0.28 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 46° on the 26th and 45½° on the 28th, to 27° on the 24th; the mean value for the week was 37°. The lowest temperatures of the air were as follows:—22d, 26°; 23d, 21°; 24th, 17°; 25th, 15°; 26th, 31°; 27th, 36°; 28th, 33°; the mean of all was 25½°. The mean daily range of temperature in the week was 11½°, the greatest range in the day being 16° on the 25th, and the least 7° on the 22d. The mean daily temperatures of the air and the departures from their respective averages were as follows:—22d, 30°, -8°; 23d, 26°, -12°; 24th, 22°, -16°; 25th, 26°, -4°; 26th, 40°, +5°; 27th, 40°, +3°; 28th, 40°, +3°. The mean temperature of the air for the week was 32°; being 5° below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 59° on the 23d, 58° on the 28th, and 50½° on the 27th; on the 22d the reading did not rise above 36°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 12½° on the 25th, 13° on the 24th, and 18° on the 23d; the mean of the seven lowest readings was only 23½°.

Wind.—The direction of the wind was variable, and its strength moderately strong.

The weather during the first four days of the week was very cold, a rapid thaw set in on the 26th, and the weather was mild during the remainder of the week.

Snow fell on the 22d and 25th. Fog prevailed on the 22d and 24th, and was very dense during the night of the latter day. Much ice was seen in the Thames during the week.

Snow or rain fell on four days during the week; the amount measured was 0.67 inch.

ENGLAND: Temperature.—During the week ending Saturday, December 28, the highest temperatures of the air observed by day were 52° at Truro, 50° at Plymouth, 47½° at Brighton, and 46° at both Blackheath and Bristol; the highest temperature of the air at Nottingham was 35°, at Leeds was 36°, at Wolverhampton was 36½°, and at Bradford was 37½°; the mean value from all places was 42°. The lowest temperatures of the air observed by night were 5½° at Nottingham, 9° at Hull, 9½° at Leicester, 10½° at Wolverhampton, 12½° at Cambridge, 12½° at Liverpool, 14° at Bradford, 14½° at Sheffield, 15° at Leeds, and 16° at Blackheath and Norwich; the lowest temperature of the air at Plymouth was 25°, at Truro and Sunderland was 24°, and at Brighton was 23½°; the mean from all stations was 15½° only. The extreme range of temperature in the week was the greatest at Cambridge, 31½°, and the least at Sunderland, 16°; the mean range from all stations was 26½°.

The mean of the seven high day temperatures was the highest at Truro, 47½°, Plymouth 42½°, and Brighton 40½°; and the lowest at Wolverhampton and Nottingham, both 32½°, Leicester 33°, Hull 33½°, and Bradford 33½°; the mean value from all places was 36½°. The mean of the seven low night temperatures was the lowest at Nottingham, 20½°, Wolverhampton and Hull, both 22°, Leicester 23½°, Bradford 23½°, and Leeds 24½°; and the highest at Truro, 33½°, Plymouth 31½°, and Brighton 30°; the mean from all stations was 26°. The mean daily range of temperature in the week was the greatest at Truro, 14½°, and the least at Sunderland, 6½°; the mean daily range from all places was 10½°.

The mean temperature of the air for the week from all places was 31½°, being 7° lower than the value for the corresponding week in 1877. The mean temperature of the air was the highest at Truro, 40½°, Plymouth, 37°, and Brighton, 35½°; and the lowest at Nottingham, 26½°, Wolverhampton, 27½°, Hull, 27½°, Leicester 28°, and Bradford 28½°.

Rain.—The amounts of rain and melted snow measured during the week were the heaviest at Truro, 2 inches, Nottingham, 1.34 inch, Wolverhampton, 1.28 inch, and Leicester, 1.25 inch; and the least at Brighton, Liverpool, and Bradford, all about six-tenths of an inch; the average amount over the country was 0.96 inch.

The weather during the first four days of the week was bitterly cold, dull, and snow fell generally. A thaw commenced on the 26th, and the three remaining days were mild, with frequent rain. The frost on the 24th was intense, and the weather was painfully cold.

SCOTLAND: Temperature.—During the week ending Saturday, Dec. 28, 1878, the highest temperatures of the air observed by day were 39½° at Glasgow

and 38° at Dundee; at Perth the highest temperature was 36°, and at Edinburgh 36½°; the mean value from all places was 37½°. The lowest temperatures of the air observed by night were 17° at Perth, 18° at Glasgow, 19° at Dundee, 20½° at Edinburgh, and 21° at Leith; the lowest temperature at Greenock was 23°, and at Aberdeen was 22°; the mean value from all stations was 20°. The mean range of temperature in the week from all places was 17½°.

The mean temperature of the air for the week from all stations was 29½°, being 4° lower than the value for the corresponding week in 1877. The highest were 30½° at Greenock, 30½° at Glasgow, and 30° at Aberdeen and Leith; and the lowest were 28½° at Perth and 29½° at Edinburgh.

Rain.—The amounts of rain and melted snow measured during the week varied from three-fourths of an inch at Dundee to two-tenths of an inch at Greenock; the average amount over the country was half an inch.

DUBLIN.—The highest temperature of the air was 45½°, the lowest was 9½°, the extreme range was therefore 36°, the mean was 30½°, and the amount of rain and melted snow measured was 0.70 inch.

JAMES GLAISHER.

Variorum.

THE MANUFACTURE AND USE OF CAROB-BEAN BRANDY is becoming general. According to *El Comercio*, of Valencia, as quoted in a French consular report, is already prepared on a considerable scale in this country, and flavoured with juniper in order to make it a substitute for gin. Twenty-five parts of broken and macerated pods are added to sixty-five parts of water, and submitted to regular fermentation. The liquid obtained by separation from the lees is distilled and chemically rectified, and yields 10½ per cent. of spirit; and the precipitation from the first distillation yields another 1½ per cent., making a total of 12 per cent. Brandy of this kind has the odour and flavour of the bean itself, to which, it is stated, the palate soon becomes accustomed; or it may be disguised by juniper or anise-seed.

TEA AND COFFEE IN THE STRAITS SETTLEMENTS.—Attention has recently been drawn by a contemporary to our possessions in the Malay peninsula as a new outlet for English enterprise in the cultivation of Tea and Coffee. It is reported that recent experiments have been attended with gratifying success, and it is remarked that with a soil and climate so eminently suited for the purpose, it is singular that so little Tea and Coffee have hitherto been grown in different parts of the Straits settlements. Coffee trees grow in the fertile soil, and thrive and produce berries in profusion, without the slightest attention on the part of the natives who profit from their luxuriant growth; and where Tea has been planted it has produced regular and heavy crops. "Vast areas of low undulating hills, covered with fertile soil, lie ready waiting for the planter's care. The advantages of comparatively easy means of transport, of abundant and cheap labour, and regularly recurring seasons, which are possessed by the Straits settlements, are additional inducements to the investment of capital in the above industries." The trade of the settlements is stated to amount, outwardly and inwardly, to about £25,000,000 annually, about one-fifth of which is with this country. The exports consist chiefly of pepper, sugar, rice, india-rubber, gums, spices, and tapioca.

Answers to Correspondents.

BOOKS: *K. & F.* We know of no better guides than Brown's *Forester* and Grigor's *Arboriculture*. The former is published by Blackwood & Sons, and the latter by Edmondston & Douglas.

COLORADO BEETLE: *X.* Both the larva and the perfect insect feed on the leaves of Solanums, but the larva is the more voracious of the two.

FLORA OF MALTA: *X.* *Flora Melitensis*, by Johann Karl Grech Delicata; *Flora Dalmatica*, by Visiani. Mogridge, *Flora of Mentone* (coast from Marseilles to Genoa).

GARDENERS' ADDRESSES: *F. G. M.* Yes; the *Horticultural Directory*, published at 171, Fleet Street, E.C. Price 2s.

NAMES OF FRUIT: *Dolaeron.* The Pear is Josephine de Malines. The specimens of Apples sent do not appear to be in character, and we cannot recognise them.

NAMES OF PLANTS: *W. Adams.* 1, *Edwardsia microphylla*; 2, *Pittosporum undulatum*; 3, *Pittosporum Tobira*.—*G. F. P.* 1, *Justicia calycotricha*. The other is not recognised.—*S. J.* *Adiantum affinc.*—*C. H. W.* 1, *Gymnogramma javanica*; 2, *Microlepia platyphylla*.

PRIMULA SINENSIS: *Primula.* The trusses sent indicate a very fine variety, the flowers large, of great substance, and very much filled, the colour a pretty shade of rose-pink.

PROPAGATING THE MISTLETO: *H.* The best mode of propagating Mistleto on Apple and Thorn trees is to rub the berries on the smooth bark of the underside of

the branches until they will not easily slip. The object of placing them on the underside is to prevent birds from picking off the seeds. Put them on at once, or any time while the berries are fresh and not shrivelled up.

ROMAN HYACINTHS: *Douglas.* We much doubt if such small bulbs as those of the Roman Hyacinth would have stamina enough to bear forcing a second season. This is probably the reason why yours have failed to start, which fact alone shows that it is not safe to depend upon these old bulbs.

ERRATUM.—In my article on "Bottom-heat for pot and other Vines," p. 820, 1878, for "roots" read "rods." *J. S.*

CATALOGUES RECEIVED:—Messrs. Austin & M'Aslan (16, Buchanan Street, Glasgow), Descriptive Catalogue of Garden Seeds, Liliaceae, Gladioli, and Garden Requisites.—B. S. Williams (Upper Holloway, London, N.), Descriptive Catalogue of Flower, Vegetable, and Agricultural Seeds, Implements, &c.—Messrs. Downie & Laird (17, South Frederick Street, Edinburgh), Descriptive Catalogue of Garden, Flower, and Agricultural Seeds, Implements, &c.—Messrs. C. R. Freeman & Freeman (Norwich), The Economic Gardening Guide: a General Illustrated Descriptive Catalogue.—Louis Van Houtte (The Royal Nurseries, Ghent, Belgium), Catalogue of Gesneraceous Plants.—Messrs. H. & F. Sharpe (Wisbech, Cambridgeshire), Wholesale Catalogue of Seeds, and New Potato, Pride of Ontario.—Messrs. Dickson & Robinson (12, Old Millgate, Manchester), Descriptive Catalogue of Vegetable and Flower Seeds.—Robert T. Veitch (54, High Street, Exeter), Spring Catalogue of Garden and Flower Seeds.—Messrs. Stuart, Mein & Allan (Kelso, N.B.), Amateur's Guide and Seed Catalogue for 1879.—Messrs. Charles Sharpe & Co. (Sleaford, Lincolnshire), Spring Catalogue and Seed List.—Messrs. Daniels Bros. (Norwich), Illustrated Guide and Catalogue for Amateur Gardeners.—Messrs. J. C. Wheeler & Son (Gloucester), Little Book, or Illustrated Short Select Seed List.—Messrs. W. Wright & Co. (Airdrie, near Glasgow), Particulars, &c., of Wright's Endless Flame Impact Hot-water Boilers.—Messrs. W. H. Quick & Co. (Barnstable), Select List of Farm, Garden, and Flower Seeds.—Messrs. Todd & Co. (7, Maitland Street, Edinburgh), Catalogue of Garden Seeds.—H. Elliott (51, High Street, Maidenhead, Berks), Amateurs' Garden Guide and Catalogue.—Messrs. Thos. Methven & Sons (15, Princes Street, Edinburgh), Catalogue of Garden, Flower, and Agricultural Seeds, Implements, &c.

COMMUNICATIONS RECEIVED:—M. J. B.—C. N.—N. E. B.—W. N.—J. B.—R. McL.—C. G.—H. H. D.—G. N.—R. T. C.—W. W. S.—E. B.—J. D.—W. M.—Lector (next week).—J. S.—J. C. & Co.—E. S.—D. W.—J. C.—H. L.—J. B.—R. B., Sen.

Markets.

COVENT GARDEN, January 2.

This has been a broken week with us; supply and demand being at their lowest. Vegetables dearer. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

| s. d. s. d. | s. d. s. d. |
|--|-------------|
| Arum Lily, or Rich- ardia aethiop., doz. 24 | 0 30 0 |
| Azaleas, per dozen 24 | 0 60 0 |
| Begonias, per doz. 6 | 0 12 0 |
| Bouvardias, per doz. 18 | 0 24 0 |
| Camellias, per dozen 18 | 0 60 0 |
| Chrysanth., per doz. 6 | 0 30 0 |
| Cyperus, per dozen 6 | 0 12 0 |
| Dracena terminalis 30 | 0 60 0 |
| — viridis, per doz. 18 | 0 24 0 |
| Epiphyllum, per doz. 18 | 0 60 0 |
| Erica Caffra, per doz. 6 | 0 9 0 |
| — gracilis, per dozen 9 | 0 12 0 |
| — hyemalis, p. doz. 12 | 0 42 0 |
| Euonymus, var., doz. 6 | 0 18 0 |
| Ferns, in var., p. doz. 4 | 0 18 0 |
| Ficus elastica, each 2 | 6 15 0 |
| Foliage Plants, vari- ous, each .. | 2 0 10 6 |
| Hyacin., Rom., doz. 12 | 0 18 0 |
| Mignonette, per doz. 6 | 0 9 0 |
| Myrtles, per doz. 6 | 0 12 0 |
| Palms in variety, each .. | 2 6 21 0 |
| Pelargoniums, scar- lets, zonal, doz. 6 | 0 12 0 |
| Primulas, per dozen 6 | 0 12 0 |
| Solanums, ber., doz. 6 | 0 18 0 |

CUT FLOWERS.

| s. d. s. d. | s. d. s. d. |
|--|-------------|
| Abutilon, 12 blooms 0 | 6 1 0 |
| Arum Lilies, 12 blms. 12 | 0 24 0 |
| Azaleas, 12 sprays .. | 1 6 4 0 |
| Bouvardias, per bun. 1 | 0 4 0 |
| Camellias, per dozen 6 | 0 18 0 |
| Carnations, per dozen 1 | 6 4 0 |
| Chrysanth., per doz. 2 | 0 6 0 |
| — per 12 bunches .. | 9 0 18 0 |
| Epiphyllum, 12 blms. 1 | 0 3 0 |
| Eucharis, per doz. 10 | 0 18 0 |
| Gardenias, 12 blms. 12 | 0 24 0 |
| Heliotropes, 12 sp. .. | 0 6 1 0 |
| Hyacin., Rom., 12 sp. 2 | 0 4 0 |
| Lily of Valley, spray 1 | 0 2 0 |
| Mignonette, 12 bun. 0 | 6 9 0 |
| Narcissus, paper- white, 12 sprays .. | 2 0 6 0 |
| Pelargoniums, 12 spr. 2 | 0 4 0 |
| — zonal, 12 sprays 1 | 0 2 0 |
| Primula, double, per bunch .. | 1 0 2 0 |
| Roses (indoor), doz. 2 | 0 12 0 |
| Tropeolum, 12 bun. 2 | 0 6 0 |
| Tuberose, per dozen 3 | 0 6 0 |
| Violets, 12 bunches 4 | 0 6 0 |

VEGETABLES.

| s. d. s. d. | s. d. s. d. |
|--|-------------|
| Artichokes, English Globe, doz. 2 | 0 4 0 |
| — Jerusalem, bush. 4 | 0 .. |
| Asparagus, Fr. sprue, per bundle .. | 1 6 .. |
| — English, per bun. 3 | 0 .. |
| Beans, French, p. 100 2 | 0 .. |
| Beet, per doz. 1 | 0 2 0 |
| Brus. sprouts, bush. 10 | 0 .. |
| Cabbages, per doz. 1 | 0 2 0 |
| Carrots, per bunch 0 | 4 0 6 |
| Cauliflowers, per doz. 2 | 0 3 0 |
| Celery, per bundle 1 | 6 2 0 |
| Chilis, per 100 .. | 2 0 .. |
| Cucumbers, each .. | 0 4 1 6 |
| Endive, Batav. dozen 1 | 6 .. |
| Garlic, per lb. .. | 0 6 .. |
| Herbs, per bunch 0 | 2 0 4 |
| Horse Radish, p. bun. 4 | 0 .. |
| Lettuces, Cabbage, per doz. .. | 1 6 .. |
| Mint, green, bunch. 1 | 6 .. |
| Onions, young, bun. 0 | 4 0 6 |
| Parsley, per bunch. 0 | 4 .. |
| Peas, per quart .. | 12 0 .. |
| Potatoes, new, basket 1 | 0 .. |
| Radishes, per bunch 0 | 1 0 3 |
| — Spanish, doz. 1 | 0 .. |
| New Jersey, doz. 2 | 0 .. |
| Rhubarb, doz. .. | 10 0 .. |
| Shallots, per lb. .. | 0 6 .. |
| Seakale, per punnet 2 | 6 .. |
| Spinach, per bushel 4 | 0 5 0 |
| Sweet Potatoes, per lb. 0 | 6 .. |
| Tomatoes, per dozen 2 | 6 3 0 |
| Turnips, p. 12 bunch 3 | 0 .. |

The Potato market is quiet, and without alteration in prices.—Regents, 100s. to 130s.; Early Rose, 110s. to 120s. per ton.

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|--------------------------|-------------|------------------------|-------------|
| Apples, 1/2-basket .. | 1 6- 5 0 | Oranges, per 100 .. | 4 0- 8 0 |
| Cobs and Filberts, lb. 0 | 9- 1 0 | Pears, per doz. .. | 4 0- 8 0 |
| Grapes, per lb. .. | 2 0- 6 0 | Pine-apples, per lb. 2 | 0- 4 0 |
| Lemons, per 100 .. | 3 0- 10 0 | | |

* * * The quantities supplied to us are those in customary use in the market. The Weights and Measures Act, elsewhere referred to, contains no reference to such expressions as dozens, bundles, bunches, baskets, sieves, blooms, sprays, punnets, pottles, &c. We undertake no responsibility in the matter further than publishing the lists furnished us.

SEEDS.

LONDON; Jan. 1.—The opening market of the New Year, as was sure to be the case, was thinly attended, with but little business doing. Notwithstanding, however, the quiet feeling which has recently prevailed, the seed trade is, on the whole, in a sound and healthy condition, and a fair amount of activity may shortly be expected. It must be borne in mind that at the present time values all round, being at an abnormally low level, are perfectly safe, that the stocks of every description are unusually light; that this season's shipments of American Clover, instead of being overwhelming, as was once feared, have been on a most meagre scale—the actual exports from New York to the United Kingdom being only 395 tons; that there has fortunately been an absence of autumn speculation; and, lastly, that the purchases of the provincial seed houses have thus far been insignificant—consequently a good consumptive demand may this spring be confidently anticipated. Medium and low samples of English red offer freely, but large purple seed continues quite exceptional. Holders in the United States show no desire to press their seed on this market, their home and Continental demand quickly taking up all their receipts. In Trefoil the tendency continues adverse to the buyer. Alsike and white Clover are also both very steady. There is an inquiry for split Egyptian Lentils. Hemp, Canary, Rape, Linseed, Peas, &c., are without quotable variation. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Trade at Mark Lane on Monday was very dull, and prices for Wheat were easier where there was any pressure to sell. Barley was slow of sale, and except in the case of very fine malting produce, quotations favoured buyers. Malt remained without change. Oats and Maize both had a declining tendency. Beans and Peas were taken off sparingly, and a very limited inquiry was experienced for flour. Prices in each instance were nominally the same.—Trade was again dull on Wednesday, and quotations were almost nominal. In English Wheat the tone of business was flat. Foreign Wheat was fairly plentiful, and any pressure to sell was accompanied by a reduction in price. Fine malting Barley was well held, while other qualities were cheaper to sell. Oats and Maize and other descriptions supported previous rates with difficulty, the trade throughout being particularly slow.—Average prices of corn for the week ending December 28, 1878:—Wheat, 39s. 9d.; Barley, 38s. 3d.; Oats, 20s. 7d. For the corresponding period in the preceding year:—Wheat, 51s. 9d.; Barley, 43s.; Oats, 23s. 4d.

CATTLE.

At the Metropolitan Market on Monday there was a fair supply of beasts for the day. Choice descriptions were not plentiful, and for best Scots 6s. was reached, but our quotations represent a fair average of business transacted. The number of sheep was larger than expected. Trade was dull, and on the average prices lower. It was difficult to effect a clearance. Trade was dull for calves. Quotations:—Beasts, 4s. 6d. to 5s. 4d., and 5s. 6d. to 5s. 10d.; calves, 5s. 6d. to 6s. 4d.; sheep, 5s. 4d. to 5s. 8d., and 6s. 4d. to 7s.—On Thursday the supply of beasts was rather large for the day, and trade was dull at depressed prices. Sheep also were flat and weak. Calves and pigs were scarce.

HAY.

At Whitechapel on Tuesday there was a larger supply, the trade for which was flat at reduced prices. Prime Clover, 100s. to 108s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 38s. per load.—The supply on Thursday was moderate, and the trade rather better, as follows:—Prime Clover, 100s. to 108s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 38s. per load.—Cumberland Market quotations:—Superior meadow hay, 84s. to 92s.; inferior, 65s. to 72s.; superior Clover, 100s. to 112s.; inferior, 80s. to 92s.; and straw, 38s. to 42s. per load.

POTATOS.

We learn from the Borough and Spitalfields reports that there have been only limited supplies, and the condition of them unsatisfactory. No material change could be noted in prices, but trade was very slow. Kent Regents, 100s. to 115s. per ton; Essex ditto, 80s. to 100s.; flukes, 110s. to 140s.; Victorias, 110s. to 135s.; Champions, 80s. to 90s. per ton. The importation into London last week was upon a very moderate scale; 11,871 bags were received from Hamburg, while the arrivals from Antwerp and other Continental ports barely exceeded 3000 bags.

COALS.

At market on Monday the demand for house coals was somewhat dull, and prices fell 1s. per ton. Hartleys were also 1s. per ton lower. Wednesday's quotations were as follows:—Springwell West Hartley, 14s. 9d.; Walls End—Hetton, 19s.; Hetton Lyons, 16s. 9d.; Hawthorns, 16s. 9d.; Original Hartlepool, 20s.; South Hetton, 19s.; Thornley, 18s. 9d.; Tees, 18s. 9d.

CHARLES SHARPE & CO.

SHARPE'S INVINCIBLE.

New Long-Podded Blue Marrow Pea.

Price, per Quart, 2s. 6d.

Half-pint Packets, free by Post, 1s.

For TESTIMONIALS see "Gardeners' Chronicle" of Nov. 23, p. 671; Nov. 16, p. 644; and Dec. 7, p. 735.

Trade Price on application.

SLEAFORD

CHARLES SHARPE & CO.

RAUCEBY HALL MELON.

This splendid new Green-fleshed Melon has been raised by Mr. BROWN, the gardener at Raucemy Hall, and has during the past two seasons been exhibited seventeen times—in every case gaining a First Prize. It is hardy, a fine setter, and a very heavy cropper. The fruit is very beautifully netted, the flesh juicy, sweet, and melting, and of a very rich flavour. Altogether it is a variety of unquestionable superiority, and worthy a place in every garden.

Price 2s. 6d. per packet.

For TESTIMONIALS see "Gardeners' Chronicle" of Dec. 14, p. 766.

Trade Price on application.

SLEAFORD

EDELWEISS.

(GNAPHALUM LEONTOPODIUM, Jacq.)

CHARLES SHARPE AND CO., having received a small supply of SEED of the above lovely little Alpine Plant with woolly silvery-white bracts, can offer packet-post-free at 2s. 6d. each. Its cultivation presents no difficulty, and full instructions will be sent with each packet.

Seed Warehouse, Sleaford.

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CHARLES SHARPE AND CO.'S WHOLESALE AND RETAIL LISTS OF VEGETABLE AND FARM SEEDS ARE NOW READY, and will be sent post-free on application.

CHARLES SHARPE AND CO., Seed Farmers, Sleaford, and at 31, New Corn Exchange, Mark Lane, London, E.C.

To the Trade.—Seed Potatoes.

CAREFULLY SELECTED and FREE FROM DISEASE.

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Grown by themselves this season.

CHARLES SHARPE AND CO., having at much trouble and expense procured the choicest stocks of all the finest English and American varieties, can confidently recommend what they offer.

Ashleaved Potatoes.

SPECIAL OFFER

EARLY ASHLEAF, MYATT'S PROLIFIC, RIVERS' ROYAL.

CHARLES SHARPE AND CO. are prepared to make low quotations for the above, when large quantities are taken.

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Send for a PRICE LIST of BLAKE'S SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of Villages, Irrigation, Railway Stations, Mansions, Fountains, Farms.

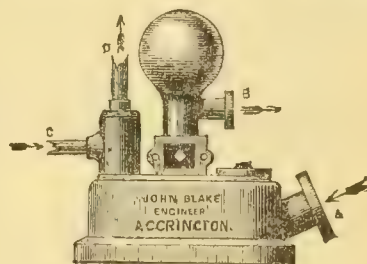
No Cost for Motive Power, which is obtained from the Stream of Water passing through the Rams.

NO OILING OR PACKING REQUIRED.

Made in sizes to raise from 300 to 100,000 Gallons per day.

WILL FORCE TO A HEIGHT OF 1500 FEET.

This advertisement will appear again on Jan. 18.



This Ram will raise a part of the same water that works it, or will raise pure water from a well whilst it is worked by a stream of impure water.

TESTIMONIALS.

From the Right Hon. T. SOTHERN ESTCOURT, *Estcourt Park, Gloucestershire, September 6, 1875.*

"You will be glad to hear, as I am to tell you, that your Self-acting Hydraulic Ram has worked exceedingly well and continuously since it was erected, more than twelve months ago. It is, in fact, perfectly successful."

(The delivery pipe in the above case is 4200 feet long, with 100 feet rise.)

From Captain TOWNSHEND, *Wincham, February 10, 1877.*

"In answer to your enquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long at the rate of 80,000 gallons per day, although you only promised 50,000."

From W. SCARTH, Esq., *Agent to His Grace the Duke of Cleveland, Raby Castle, Darlington, July 16, 1878.*

"The Hydraulic Ram you supplied to his Grace the Duke of Cleveland in 1875 is a complete success. It worked for more than two years without once stopping, and throws more water than promised."

Deerwater, *Wilmslow, November 20, 1873.*

"Dear Sir,—In answer to your enquiries respecting the Hydraulic Ram you supplied me with six months ago, I beg to state that I am more than satisfied with it, as it is in perfect order, sending up to the top of the house about 2000 gallons of water in the twenty-four hours, whereas you only contracted to deliver in that time 500 gallons. I have, therefore, every reason to be well pleased with your work, and more especially as I had a Ram supplied me by another maker which could not send up a single gallon of water to the height required, and a second maker informed me that no Ram with a fall of 3 feet could send up water to the distance required, namely, 120 feet. But yours is an accomplished fact, and does its work most effectually.—I am, yours truly, L. HAMMER."

From JOHN TAYLOR, Esq., *The Rocks, Bath, Aug. 22, 1878.*

"The Self-acting Hydraulic Ram you fixed here in March of last year continues to work well. It has only the same quantity of water and fall to work it as the water-wheel and pump which I used previously to force to a height of 294 feet, and yet the Ram sends up more than double the quantity of water than the wheel did to the same height."

From JOHN PENNINGTON, Esq., *Emmott Hall, near Colne, December 21, 1868.*

"Sir,—The Self-acting Hydraulic Ram you supplied me with nine months ago continues in excellent condition. It receives water from a spring through a 2-inch pipe, of which it forces 3500 gallons per day of twenty-four hours to a height of 90 feet, exceeding all you promised, and far surpassing the water-wheel and force pumps which it has displaced. Its cost is small, it occupies but little space (2 square feet), and in mechanical detail is simplicity itself. I have much pleasure in recommending it as a cheap and efficient method of raising water."

JOHN BLAKE,
ENGINEER, ACCRINGTON.

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Her Grace the DUCHESS OF WELLINGTON.
His Grace the DUKE OF ATHOLE.
His Grace the DUKE OF RUTLAND.
The Right Honourable the EARL OF GAINSBOROUGH.
Her Majesty's SECRETARY OF STATE FOR THE HOME DEPARTMENT.

And a vast number of other distinguished personages.

EACH READER of this Paper will be entitled to receive from THE NATIONAL FINE ART UNION, 35, Great James Street, Bedford Row, London, W.C., a copy (24 in. by 18 in.) of

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ENTITLED,

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THIS SPLENDID WORK, which at the present moment appeals so powerfully to all patriotic Britons, is an exact *fac simile* of the Original Painting, which cost Nine Thousand Guineas. It is produced in the very highest style of art by a patent process, and is acknowledged by all connoisseurs to be a perfect counterpart of an Oil Painting, which for faithfulness of colouring and truthfulness of outline is simply matchless. The unapproachable excellence of the original picture is thus for the first time placed within the reach of the public.

Now that our troops are in the full tide of AN AFGHAN WAR, it is felt (especially at this season of the year) that some memento of their brave doings is more than ever appropriate.

The scene is on the Battle Field. Away in the distance is just seen the dim glare of the Artillery, while our troops are hurrying to and fro in the highest state of excited courage. Suddenly one of our gallant Scots' Greys finds himself confronted by the enemy's mounted Standard Bearer, and this Picture depicts, with life-like reality, the terrible combat which ensues.

With his features sternly set, and with one hand grasping the enemy's standard, our gallant soldier carelessly throwing the reins upon his horse's neck, deals defeat all around him. The maddened horses rushing from the field, terrified with the sounds of Artillery, are all details which only Ansdall knew how to paint and which have never since been attempted.

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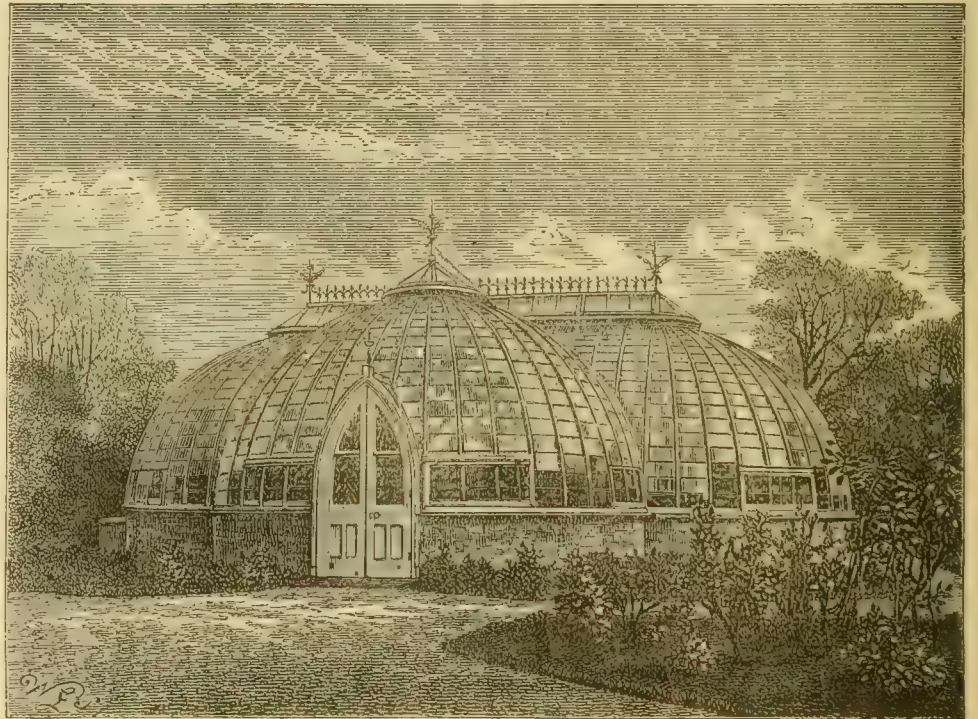
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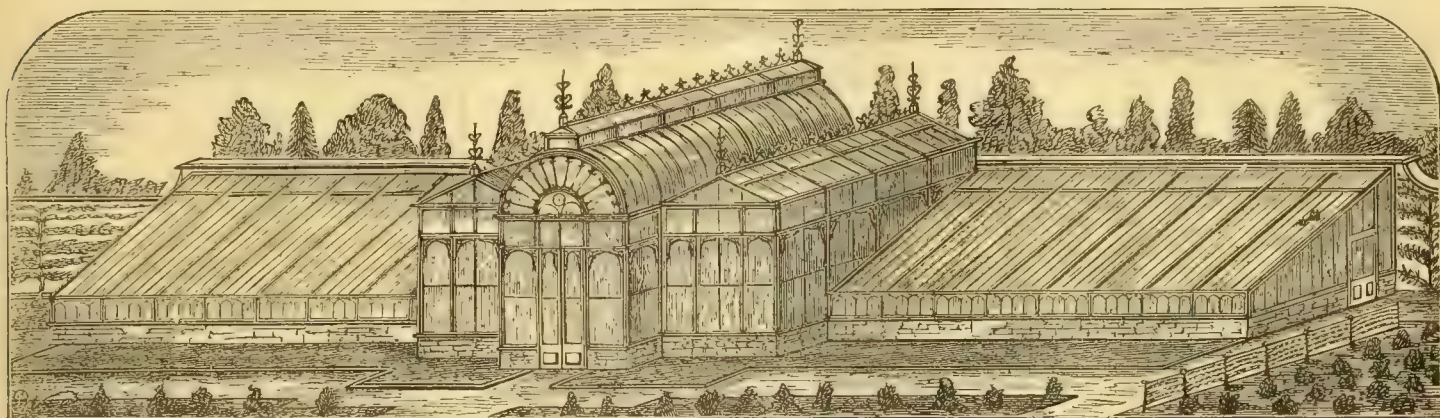
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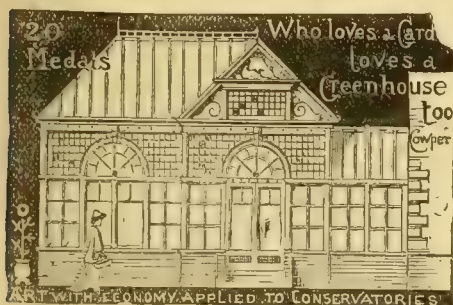
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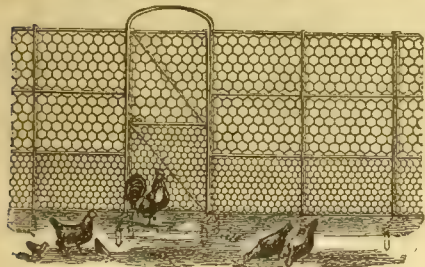
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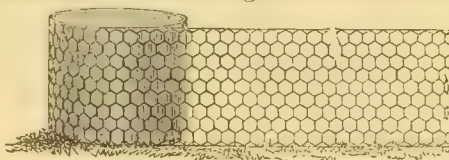
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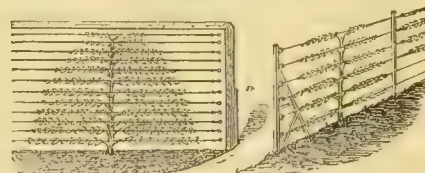
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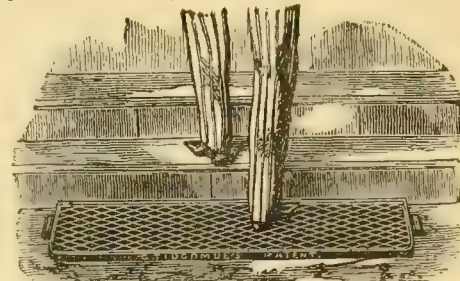
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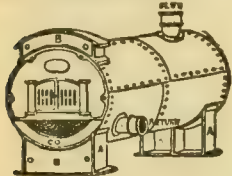
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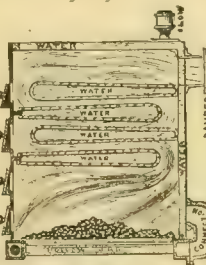
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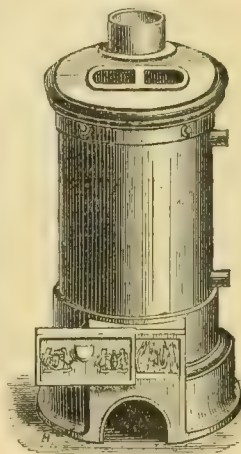
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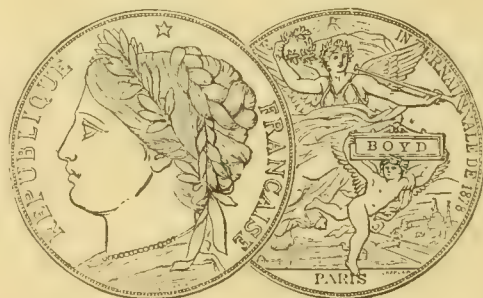
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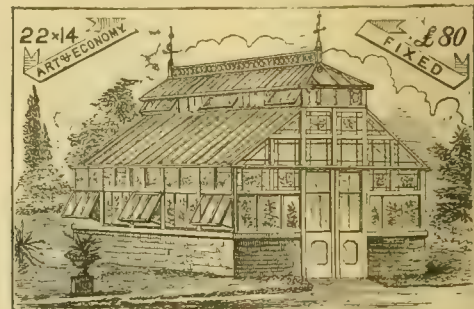
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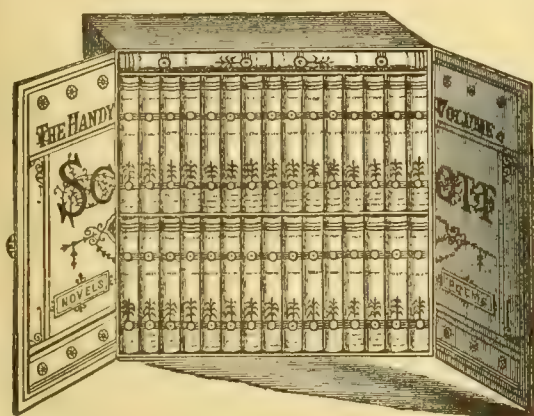
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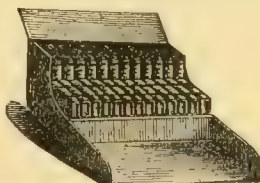
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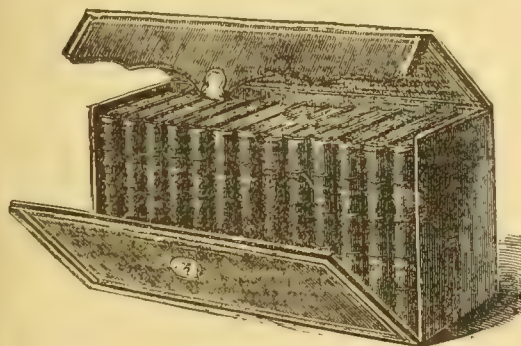


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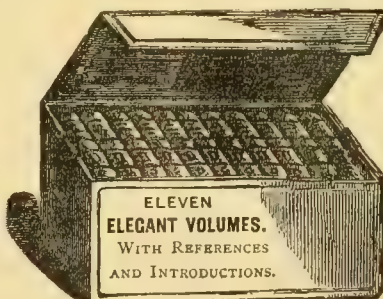
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HOLLOWAY'S PILLS.—This purifying and regulating medicine should occasionally be had recourse to during foggy, cold and wet weather. It is the best preventive of hoarseness, sore throat, pleurisy, asthma, and a sure remedy for congestion, bronchitis, and inflammation. Attention to the directions folded round each box will enable invalids to take the Pills in the most advantageous manner; they will there be taught the proper doses, and the circumstances under which these must be increased or diminished. Holloway's Pills act as alteratives, aperients, and tonics. When taken as a last resource, the result has always been gratifying; even when they fail to cure they always assuage the severity of the symptoms and diminish the danger.

THOMAS'S FITTINGS FOR WIRING WALLS.

GALVANISED STRAINING BOLT, No. 635.
FOR TIGHTENING THE WIRES.



One required for each line of Wires.
Price 4s. per dozen, with Holdfasts complete.

IMPROVED GALVANISED EYES, No. 631.

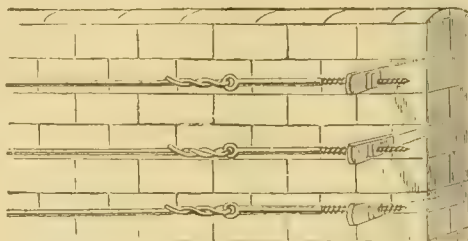


Spaced about 10 feet apart for guiding the Wires on the Wall.

1½ 2 2½ 3 3½ 4½ inches long.
2d. 3d. 4d. 5d. 7d. 9d. per dozen.

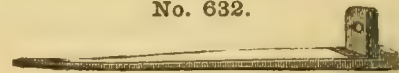
The following prices give the total cost of each line of wire, including holdfasts, straining bolt, intermediate guiding eyes, 10 feet apart, and best quality galvanised wire:—
Length of Wall 20 yards. 40 yards. 60 yards. 80 yards. 100 yards. Length of Wall 20 yards. 40 yards. 60 yards. 80 yards. 100 yards.
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IMPROVED

GALVANISED TERMINAL HOLDFAST No. 632.



5 inches long. Price 2s. per dozen.

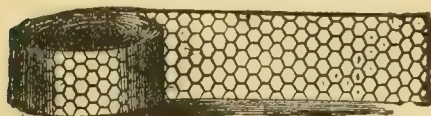
These Eyes and Holdfasts are very much superior to those generally in use; being made with a shoulder, they do not break when being driven into the hardest wall.

Strongly recommended.

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REDUCED PRICES.



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|----------|--------|---------|---------|------------|
| s. d. | s. d. | s. d. | s. d. | s. d. |
| 2 inches | 0 2½ | 0 3½ | 0 4½ | 0 5½ |
| 1½ inch | 0 3½ | 0 4 | 0 4½ | 0 6 |
| 1¼ inch | 0 4 | 0 4½ | 0 6 | 0 7½ |
| 1½ inch | 0 6 | 0 7½ | 0 10 | 1 0 |
| 1 inch | 0 7½ | 0 9 | 1 0 | 1 4 |
| ¾ inch | 0 10 | 1 0 | 1 3 | 1 8 |

Usual widths kept in stock, 12, 18, 24, 30, 36, 48 inches.
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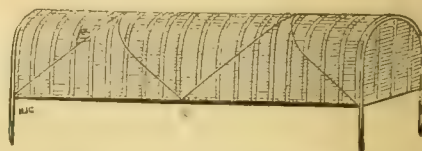
Price—6 feet high, 5s. 9d. per yard.
7 feet high, 6s. 9d. per yard.

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No. 263.—VOL. XI. { NEW SERIES }

SATURDAY, JANUARY 11, 1879.

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FOR VEGETABLES increases the quantity.
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MESSRS. PROTHEROE AND MORRIS will sell the above by AUCTION, at the Mart, on MONDAY, January 20, at half-past 11 o'clock precisely. P. & M. will buy for those who cannot attend. Catalogues of the Auctioneers, 98, Gracechurch Street, E.C.

Tooting, S.W.

In Liquidation.—*R. Wm. Rollisson & Sons.*

MESSRS. PROTHEROE AND MORRIS beg to announce that this great unreserved SALE of ORCHIDS, STOVE and GREENHOUSE PLANTS, PALMS, FERNS, NEW HOLLAND PLANTS, &c., full particulars of which appeared in the *Gardeners' Chronicle* of last week, will take place on MONDAY NEXT and four following days, at 12 o'clock precisely each day.

ORDER OF SALE.

MONDAY, TUESDAY, and WEDNESDAY.—ORCHIDS and TREE FERNS.
 THURSDAY.—Choice STOVE PLANTS, PALMS, FERNS, in rich assortments; also POT VINES.
 FRIDAY.—GREENHOUSE and NEW HOLLAND PLANTS, CAPE HEATHS, and thousands of young ERICAS for potting on; POT VINES, VEGETABLE and FLOWER SEEDS.

Catalogues may be obtained on the Premises; of G. WHIFFIN, Esq., Accountant, 8, Old Jewry, E.C.; of Messrs. LEWIS, MUNN, and LONGDEN, Solicitors, 8, Old Jewry, E.C.; and of the Auctioneers, 98, Gracechurch Street, E.C.

Rare Lilies.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 15, at half-past 12 o'clock precisely, first-class English-grown LILIES, consisting of *Brownii*, *giganteum*, *Kramerii*, *Humboldtii*, *Batemannae*, and many other beautiful kinds; also Hardy ORCHIDS, *Cypripediums*, &c., including the rare British species, *C. calceolus*; a number of first-class Hardy PERENNIALS, including *Senecio pulcher*, *Stoebea purpurea*, *Spiraea palmata*, *S. palmata elegans*, *Helleborus niger maximus*, *Iris Kempferi*, *Dodecatheon*, and hundreds of the beautiful double-flowered *Geum*, recently figured in the *Garden*; *BEGONIAS* of sorts, and about 2000 of the beautiful Neapolitan *Allium*, together with a fine collection of *Scillas*, *Brodias*, *Tigridias*, *Babiana*, *Ixia*, *Sparaxis*, *Anomathea*, *Gladiolus*, *Hesperocordium*, *Leucophaea*, *Antholizis*, *Oxalis*, *Galanthus*, and many others; 1000 *Lilium Kramerii*, 5000 fine bulbs of *Lilium auratum*, from Japan; 3000 *Tigridia grandiflora*, from New Jersey; Tuberoses *Begonias*, *Spiraeas*, *Gladioli*, and *Lily* of the Valley, *Anemones*, *Ranunculi* and American Tuberoses, and a consignment of Dwarf Roses from France.
 On view the morning of Sale, and Catalogues had

Newly Imported New Granadan Orchids, in Splendid CONDITION.



MR. J. C. STEVENS has received instructions from Messrs. James Veitch & Sons, Chelsea, to offer for SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 16, at half-past 12 o'clock precisely, a splendid lot of Cool ORCHIDS recently arrived, per *s.s. Moselle*, and comprising fine masses of *Odontoglossum Pescatorei*, in excellent health, some of them probably the largest plants ever offered; *Odontoglossum triumphans*, *O. Phalaenopsis*, *Ada aurantiaca*, *Odontoglossum Roezlii*, *Oncidium Weltoni*, and other well-known and popular kinds.
 On view morning of Sale, and Catalogues had.

Important Notice.

ROLLISSON'S NURSERIES, TOOTING, S.W.
MESSRS. PROTHEROE AND MORRIS beg to announce that this important Freehold Estate, not having been sold at the Auction on Thursday last, can now be TREATED FOR PRIVATELY, and that the Mortgagees are also willing to LET the PROPERTY on LEASE, with possession at Lady Day next.

Any one entering into an agreement either to Rent or Purchase the Property prior to the Sale of the Plants, to commence on MONDAY NEXT, would be in the advantageous position of being able to secure, at Auction Prices, whatever stock might be required to carry on the business.

Rent and full particulars may be obtained of Messrs. GATLIFF and HOWSE, Solicitors, 8, Finsbury Circus, London, E.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, London, E.C.

To Florists, Horticulturists, and Market Gardeners.

TO BE LET, by Tender, for a term of four and three-quarter years, a LARGE GARDEN, well planted with choice Fruit Trees (chiefly supplied by Mr. Thomas Warner, of The Abbey, Leicester), also containing large Vineries, 118 feet 1 1/2 by 16 feet 6 inches wide, divided into five compartments, well stocked with choice Vines in full bearing; also a Cucumber-house and other conveniences. Good supply of water; also the use of seven Rooms in Private Dwelling-house (the other part of this house is occupied, but is thoroughly separated and kept private from the part to be let.)

The whole Premises occupy an area of one and three-quarter Acres, and have been specially designed for the business of a Fruiterer, Florist, and Market Gardener.

Arrangements for keeping a Horse and Cart upon the Premises can easily be made.

The above is well situated, within three minutes' walk of a Railway Station and 5 1/2 miles from Leicester.

Application to view to be made to Messrs. C. C. ELLIS, MUNDAY and CO., 19, St. Within's Lane, London, E.C.; or to Mr. CHARLES COX, 13, Market Street, Leicester, from whom all information can be obtained.

Tenders to be sent to the said Charles Cox not later than January 25, who will not be bound to accept the highest or any Tender.

To Florists and Nurserymen.

TO BE LET, with immediate possession, the GARDEN, forming the centre of Princes Square, Kennington Cross, S.E., with the Glasshouse thereon, fitted with Hot-water Piping; also a small DWELLING HOUSE adjoining, with extra Land (if required). Apply to Messrs. WARING and NICHOLSON, Surveyors, 53, Parliament Street, Westminster, S.W.

Old Leake, near Boston, Lincolnshire.

TO BE LET, with immediate possession, about 2 acres of NURSERY GROUND, well stocked with young thriving stock, and also 3 acres of ORCHARD, planted 12 years with best market sorts. The Nursery Stock consists of Roses of all the best sorts, 2000 common Colchic, coaliflora, microphylla, and other Laurels; 1000 Fruit Trees of the best kinds, 1000 Ligustrum coaliflora; fine specimen Shrubs in sorts, and a stock of young Evergreen and Ornamental Trees. There is a Dwelling-house and Premises adjoining on the land. The Stock to be taken at a valuation. Rent £30 per annum. For further particulars apply to Mr. GEORGE JAY, 8, Bank Street, Lincoln.

Borough of Burslem.

TO NURSERYMEN, GARDENERS, &c.

THE CORPORATION INVITE TENDERS for a supply of TREES and SHRUBS for PLANTING in the CEMETERY; also TENDERS for DOING the PLANTING. Specification, List of Trees and Shrubs, and particulars, with Forms of Tender, on application to the Borough Surveyor. Tenders, sealed and endorsed "Trees and Shrubs," or "Planting" (as may be), are to be sent to me not later than the 21st instant. The lowest or any Tender not necessarily accepted.

The Corporation also invite applications for the APPOINTMENT of FOREMAN GARDENER, to Superintend the Planting and Laying-out. Applications, in the handwriting of the applicant, stating age and salary required, and enclosing three recent testimonials or giving three references, to be sent to me not later than the 21st instant.

J. W. POWELL, Town Clerk.

Town Hall, Burslem, January 3, 1879.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E.C. Monthly Horticultural Register had on application.

To Nurserymen, Seed Growers, and Others.

THE TAUNTON NURSERIES.—The above Property has been recently bought for Building Sites, and a considerable portion will at once be laid out for that purpose, but it is the intention of the Purchasers to retain as a NURSERY from 3 to 4 acres of Ground, together with valuable Walled Gardens, containing numerous Houses built and arranged in the best manner for Horticultural purposes. These Nurseries, from 13 to 14 acres in extent, have been in existence for a long period of years, and have at all times commanded a large trade.

The situation of this property, near to the Railway Station, the increasing trade and prosperity of the town of Taunton, with its numerous branch lines of rail, make this a favourable opportunity of obtaining a desirable increasing business.

To treat for the same apply to R. AND S. G. SAUNDERS, Jun., Bath Place, Taunton.

Potato Culture.—Secrets of Success.

MR. PORTER, Old Meldrum, having resolved to give up growing Potatoes for competition, will publish immediately CULTURAL DIRECTIONS, containing an account of his experience and practice in Potato Growing for Exhibition, and especially how to secure brightness and polish of tubers by Cultivation and Manuring, &c.—in short, how to produce perfect and polished Potatoes in all soils and seasons. Invaluable to exhibitors. Subscription Copies only will be issued. Apply to Mr. PORTER, Old Meldrum, Aberdeen.

The Best Green-flesh Melon of the Season.

SUTTON'S EARL OF BEACONSFIELD, oval shape, flesh pale in colour, singularly sweet and juicy, and possesses a delicate aroma; rind thin, but beautifully netted.

From Mr. W. WILDSMITH, Gr. to the Right Hon. Viscount Eversley.—"I have this season grown Lord Beaconsfield Melon, which for free bearing, flavour, and appearance, I consider unequalled."

Price 2s. 6d. per packet, post-free.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

PRIZETAKER PEAS, 55s. per quarter, for cash. Sample on application.

PLANTS—SPECIAL. HARDY NORTH AMERICAN ORCHIDS. DISA GRANDIFLORA, &c.

See CATALOGUE post-free on application.

The NEW PLANT and BULB COMPANY, Colchester.

CHRISTMAS QUINCEY, POTATO GROWER, &c., Peterborough, will have pleasure in forwarding his WHOLESALE LIST, free, on receipt of Trade Card. It contains over Forty of the best English and American varieties, carefully selected, true to name, and the greater part Seed size—the whole of which he can confidently recommend. Prices low.—Peterborough, Jan. 8, 1879.

Superbly Illustrated Chromolithographic GARDENING GUIDE and SEED CATALOGUE for 1879. The most beautiful Chromolithographic Gardening Guide yet published. Post-free 12 stamps. To be deducted by purchaser when ordering. C. R. FREEMAN and FREEMAN, Economic Seedsmen, Norwich.

To the Trade.

NEW POTATO, "PRIDE OF ONTARIO." and F. SHARPE are now sending out the above most prolific and handsome shaped new Potato. Full description and price may be had on application. Seed Growing Establishment, Wisbech.

ASPARAGUS ROOTS.—A superb lot of extra strong Connor's Colossal, for forcing; also a large quantity of 1, 2 and 3-yr. RHUBARB.—Linnaeus, Victoria, Scarlet Defiance, Prince Albert, extra fine stocks. CHARLES R. FREEMAN and FREEMAN, Seed Growers, Norwich.

Special Novelty.

SUTTON'S DOUBLE HYBRID BEGONIA, producing double flowers of the finest colours. 5s. per packet, post-free.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

To the Trade.

OSBORN AND SONS can still supply a quantity of Dwarf Maiden PEACHES, NECTARINES and APRICOTS, and a few Standards.

Also the following FRUIT TREE STOCKS:—Common and Brussels Plum, Pear, Crab, Paradise, Quince, and a few Cherry and Brompton Plum.

Prices on application.

The Fulham Nurseries, London, S.W.

JAMES FARRAR AND CO. beg to announce the publication of their Wholesale CATALOGUE of SEEDS for the present season, which will be forwarded post-free on application.

Seed Warehouse, 86, Golden Lane, Barbican, London, E.C.

Roses, Fruit Trees, and General Nursery Stock.

W. B. ROWE solicits the inspection by Nurserymen of his extensive stock of the above, which are well-grown, and fit for removal. Barbourne Nurseries, Worcester.

The Finest Strain of Calceolaria.

SUTTON'S PERFECTION, thus described in the *Gardeners' Chronicle*:—"A remarkable collection of great beauty and attractiveness. Each plant is densely laden with large flowers, and the colours are very varied, from creamy white, handsomely spotted on the body, to rich dark maroon."

Price 5s. and 2s. 6d. per packet, post-free.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

TODEAS.—Healthy young plants of T. superba and T. hymenophyllodes (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.

ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

Sutton's Superb Primula.

SUTTON AND SONS offer New Seed of this fine strain. Red, white, and mixed, 5s. and 2s. 6d. per packet, post-free.

Mr. J. CLARKE, Gr. to Lord Hastings, in the *Gardeners' Chronicle*, December 21, 1878, says:—"Sutton's strain of Primula I can truly assert is the most carefully selected I have ever grown. The plants are one and all as true as possible. They have been greatly admired."

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

To the Trade—Seed Catalogue.

H. AND F. SHARPE beg to announce that their SEED CATALOGUE has been posted to all their customers. Any one not having received it will oblige by applying at once to Seed Growing Establishment, Wisbech.

STANDARD and DWARF ROSES, leading sorts, in large quantities of strong, hardy, and well-grown plants. Price LISTS on application. LITTLE and BALLANTYNE, Knowfield Nurseries, Carlisle.

The Best New Tall Wrinkled Pea.

SUTTON'S ROYAL BERKSHIRE MARROW, height 5 to 6 feet, producing pods each containing 8 to 10 peas, delicate flavour, beautiful colour.

From Mr. WILLIAM PATERSON, Gr. to Her Majesty the Queen, Balmoral.—"I was much pleased with your New Pea. It is a splendid bearer, and when cooked is very finely flavoured. I consider it a first-class variety."

5s. per quart, 3s. per pint.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

Special Cheap Offer of

CHOICE SHRUBS.—

CHUJA AUREA, 18 inches, 14s. per dozen.

ELEGANTISSIMA, 18 to 22 inches, 14s. per dozen.

SEMPER AURESCENS, 18 inches, 16s. per dozen.

RETINOSPORA PLUMOSA AUREA, 2 feet, 20s. p. doz.

CUPRESSUS LAWSONIANA LUTEA, 2-yr. grafted, 12s. per dozen.

Package free. Cash with orders.

T. FLETCHER and SON, Nurserymen, &c., Chesterfield.

LEE'S NEW VIOLET ODORATISSIMA.

—Habit dwarf and compact, quite distinct from any other variety; colour, purplish azure, changing to pale azure when fully developed; form, fine; scent, exquisite. As the opinions of the Press, &c., were given last spring, they will not be repeated here. Plants at any time when the weather is favourable, at the following rates:—12s. per dozen, 8s. 6d. per half-dozen, 5s. per quarter-dozen. The Trade supplied when one dozen or more are taken on the usual terms.—GEORGE LEE, F.R.H.S., Market Gardener, Clevedon, Somerset.

Established Upwards of a Century.

DICKSONS and CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, beg to call the attention of those about to plant to their extensive Stock of FOREST TREES, SHRUBS for Game Coverts, FRUIT TREES, &c., which have been grown in exposed situations.

D. & Co. are now sending out their Bedding VIOLAS and PANSIES (of which they hold the largest stock in the country), Early and Late PHLOXES, &c.

Descriptive CATALOGUES free on application.

SUTTON'S NEW GIANT CYCLAMEN.

This magnificent new strain surpasses all others. The flowers are of extraordinary size and brilliant colour.

SUTTON'S CYCLAMEN GIGANTEUM ROSEUM SUPERBUM, 5s. per packet, post-free.

SUTTON'S CYCLAMEN GIGANTEUM ROSEUM, 5s. and 2s. 6d. per packet, post-free.

CYCLAMEN GIGANTEUM ROSEUM ALBUM, 5s. and 2s. 6d. per packet, post-free.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

The Best Garden Beet.

SUTTON'S IMPROVED DARK RED, superior to any variety in cultivation. It produces deep, dark, rich, crumpled leaves, as effective for bedding as any *Dracena* or *Perilla*, and yet retains all the good qualities of a table Beet.

From Mr. JOHN WILSON, Gr. to His Grace the Duke of Norfolk, Arundel Castle.—"Your Improved Dark Red Beet is the very best I have ever grown."

1s. 3d. per ounce, post-free.

Send for **SUTTON'S LIST OF NOVELTIES**, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

One Penny Each

GLADIOLUS BRENCHELEYENSIS.—The finest scarlet *Gladiolus* in cultivation, also **FLORIBUNDUS**, nearly pure white, fine sound Flowering Bulbs, any quantity, from 1 to 10,000, at the above price. A few thousand Smaller Bulbs, mixed, at 5s. per 100. Also **HOLLYHOCKS**, fine seedling plants, at 3d. each, 2s. 6d. per dozen, 1s. 1d. per 100. Double **DAISIES**, Red, White, and Hen-and-Chickens, 5s. per 100; Double dark **Crimson**, 6s. per 100.

CATALOGUE for 1879, containing 500 Illustrations, post-free for 1s.

BIDDLE AND CO., The "Penny Packet Seed Company," Loughborough.

SEEDLING AND TRANSPLANTED FOREST TREES.—One of the largest general Nursery Stocks in the kingdom, inspection of which is invited. Cheap through rates. Special prices to large purchasers. Samples on application.

LITTLE AND BALLANTYNE, Knowelfield Nurseries, Carlisle.

TO THE TRADE.—**PEARS**, Williams' Bon Chrétien and Hessel, Standards, 75s. per 100; **PLUMS**, Victoria, Dwarf-trained, 140s. per 100; **CHERRIES**, Standard, 75s. per 100; also trained **PEACHES** **APRICOTS**, and **APPLES**.

CATALOGUES on application to **WILLIAM FLETCHER**, Ottershaw Nursery, Chertsey Surrey.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf **ROSES**, **FRUIT TREES** of all sizes, **Scarlet** and other **RHODODENDRONS** well set with buds, **CONIFERÆ** and **EVERGREENS**, and **DECIDUOUS TREES** for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

To the Trade.

LIMES, 4 to 6 feet, 20s. per 100; 6 to 8 feet, 30s. per 100.

ASH, Mountain, 4 to 5 feet, 30s. per 1000.

WALNUTS, 6 to 8 feet, 30s. per 100.

PINE, Weymouth, 2-yr., 2-yr. out, 25s. per 1000.

General Nursery **TRADE LIST** on application.

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

The Best Ridge Cucumber.

SUTTON'S KING OF THE RIDGE, grows quite straight, from 12 to 16 inches in length, very level and uniform, in fact it is equal to a first-class frame Cucumber. It is remarkably smooth and unribbed, very productive, hardy and vigorous.

From the Right Hon. Viscount Eversley's Gardener.—"Your King of the Ridge is the best Ridge Cucumber I have yet seen. It grows as straight as possible—a rare occurrence with this kind of Cucumber."

Price 1s. 6d. per packet, post-free.

Send for **SUTTON'S LIST OF NOVELTIES**, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

KENTISH FRUIT TREES of every description, in 300 varieties, including some dwarf Pyramid Fruiting **APPLES** suitable for windy districts, at extraordinarily low prices. Before purchasing elsewhere send for Special **LIST** to

T. EVES, Gravesend Nurseries.—Established 1810.

Planting Season.

E. BURGESS begs to offer the following:—**Strong Standard PEARS**, Standard-trained **APRICOTS**, Turkey and English **OAK**, English and Scotch **ELMS**, **LIMES** up to 12 feet, **BEECH** up to 7 feet, and a general Nursery Stock. Prices on application.

The Nurseries, London Road, Cheltenham.

To Gentlemen, Builders, and the Trade

ROBERT AND GEORGE NEAL, Wandsworth Common and Garrett Lane Nurseries, beg respectfully to call attention to their large and varied Stock of **HARDY ORNAMENTAL**, **FOREST**, **FRUIT TREES** and **SHRUBS**, which are grown at their Nurseries, especially those **Trees**, &c., which are most suitable for growing in or near large towns. An early inspection invited. All goods delivered free on rail in London, or at own residence, within five miles of the Nurseries.

CATALOGUES free by post on application.

SPECIAL OFFERS TO THE TRADE.

LIMES, 8 to 10 feet, 75s. per 100; 10 to 12 feet, 100s. to 120s. per 100, extra fine.

ASH, Weeping, 8 to 10 to 12 feet, straight stems, 3-yr. old heads, extra fine, 24s. per dozen.

COB NUTS and **FILBERTS**, from layers, 2 to 3 feet, 35s. per 100; 3 to 4 feet, 45s. per 100.

PEACHES and **NECTARINES**, Dwarf Maidens, 60s. per 100.

ROSES on the Manetti, Dwarf, all the very best sorts, extra fine, own selection, 35s. per 100.

YUCCA RECUNIFOLIA, all transplanted last year, very fine plants, 3½ feet, 42s. per dozen.

MULBERRIES, fine trees, 2½, 30s., 42s., and 60s., per dozen, a few extra large do., fine heads, 7s. 6d. each.

KINMONT AND KIDD, Exotic and Vauxhall Nurseries, Canterbury, Kent.

To the Trade.—Vines—Vines—Vines.

W. G. CALDWELL AND SONS have still extra strong fruiting Black Hamburg **VINES** to offer, excellent stuff, at 5s. 6d. each. Also **AZALEA AMENA CALDWELLII**, well set with buds, 18s. and 24s. per dozen.

APPLES, Standard, 40s. per 100.

Pyramid, 60s. per 100, in all leading varieties. General **CATALOGUE** of Fruit Trees, Conifers, Roses, &c., post-free on application.

The Nurseries, Knutsford, Cheshire.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of **VINES** is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see **B. S. W.'S BULB CATALOGUE** for this year.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

Wholesale Seed Catalogue.

LITTLE AND BALLANTYNE beg to acquaint those of their Customers who may not have got a copy of the above, by any inadvertence, that another will be sent on application.

Seed Growers and Nurserymen, Carlisle.

The Best Late White Broccoli.

SUTTON'S QUEEN, fills the gap between late Broccolis and Cauliflowers. Perfectly distinct, very dwarf and compact, heads well protected, medium size, handsome, and of creamy white colour.

Mr. H. GADD, Gr. to the Right Hon. Lord Middleton, says, on May 28—"I am still cutting your Queen Broccoli, in fine condition, which, to use the phrase, is shaking hands with the Cauliflower, which is now coming nicely."

Price 2s. 6d. per ounce, 1s. per packet, post-free.

Send for **SUTTON'S LIST OF NOVELTIES**, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

SEEDLINGS, SEEDLINGS.

2,000,000 Native **LARCH**, 1-yr.

500,000 Tyrolean **LARCH**, 1-yr.

1,000,000 Native Scotch **FIR**, 1-yr.

500,000 Native Scotch **FIR**, 2-yr.

1,000,000 Spruce **FIR**, 2-yr.

100,000 Silver **FIR**, 2-yr.

200,000 Silver **FIR**, 3-yr.

600,000 **BEECH**, 1-yr.

150,000 **BIRCH**, 1-yr.

100,000 **BIRCH**, 2-yr.

500,000 **ALDER**, 1-yr.

100,000 **ALDER**, 2-yr.

400,000 **PINUS AUSTRIACA** and **LARICIO**, 1-yr. and 2-yr.

50,000 **LABURNUM**, 1-yr.

100,000 **SIVAMORE**, 1-yr.

200,000 **THORN QUICK**, 1-yr.

200,000 **THORN QUICK**, 2-yr.

The above are generally of first-class quality. Prices and sample on application to **MICHAEL BURKE**, Drumlagan and Garadice Nurseries, Co. Meath, Kilkcork, Ireland.

POTATOS, MANGEL WURZEL, and SWEDEN TURNIP SEED, and GOOSEBERRY TREES.

POTATOS—20 tons Snowflake, 10 tons Improved Peach-blow, 30 tons Champions, 10 tons Early Vermont.

MANGEL WURZEL SEED, New—2 to 3 tons Sutton's Oxeart.

GOOSEBERRY TREES—5000 Warringtons, 3-yr.

For special low prices apply to **W. COCKS**, Monk's Hall Seed Farms, Gosberton, Spalding.

Owing to the Death of

WM. CUTHBERT, Esq., Beaufront Castle, Hexham, Northumberland, the Trustees are prepared to receive Private Offers for the valuable Collection of large and handsome Specimen, Half-specimen, and other Plants suitable for the decoration of drawing, dining, and other rooms.

Also the whole of the **PINES**, comprising **Frutifers**, **Succession** and **Suckers**, consisting principally of **Queens** and **Smooth Cayennes**. They are a fine, strong-grown, healthy lot.

Also a lot of **STRAWBERRIES** in splendid condition for forcing. To any one contemplating furnishing an establishment the present is an excellent opportunity.

Amongst **Cool**, **Intermediate** and **East Indian ORCHIDS** the following are deserving of special mention:—

Aerides odoratum

suavisimum

Brassia verrucosa

Calanthe Veitchii

" *vestita luteo-oculata*

" *rubro-oculata*

Cattleya intermedia

" *Leopoldii*

" *Loddigesii*

" *Mossie*

Coslogyne cristata

Dendrobium album

" *devonianum*

" *nobile*

" *thysiflorum*

Lælia autumnalis

" *suavisimum*

Brassia verrucosa

Calanthe Veitchii

" *vestita luteo-oculata*

" *rubro-oculata*

Cattleya intermedia

" *Leopoldii*

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" *nobile*

" *thysiflorum*

Lælia autumnalis

" *suavisimum*

Brassia verrucosa

Calanthe Veitchii

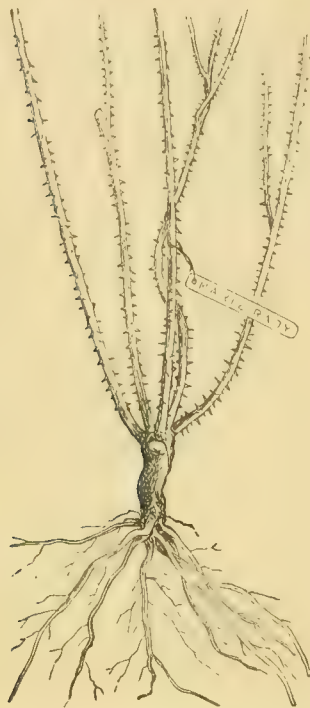
" *vestita luteo-oculata*

" *rubro-oculata*

Cattleya intermedia

" *Leopoldii*

THE OXFORD ROSES, ON THE CULTIVATED SEEDLING BRIER.



GEO. PRINCE

Begs to offer the following 25 choice varieties,
Carefully packed, package included, 21s.

| | |
|---------------------|------------------------|
| Alfred Colomb | John Hopper |
| Auguste Rigotard | Le Havre |
| Baran Haussmann | Louis Van Houtte |
| Duc de Rohan | M. dame Bérard (Tea) |
| Duchess Vallombrosa | Madame Lacharme |
| Emilie Hausberg | Marie Rady |
| Etienne Dupuy | Marie Guillot (Tea) |
| Etienne Levet | Miss Hassard |
| François Michélon | Mons. Paul Néron |
| Général Jacqueminot | Pauline Talabot |
| Hippolyte Jamin | Reynolds Hole |
| Jean Liabaud | Souvenir de Mons. Boll |
| | Thomas Mills. |

GEORGE PRINCE, OXFORD.

NEW CATALOGUE.

WILLIAM BARRON & SON'S

New DESCRIPTIVE CATALOGUE of Coniferæ, Hardy Ornamental Trees and General Nursery Stock, may now be had on application. A personal inspection of their unrivalled stock is solicited.

The Nurseries are three minutes' walk from the Borrowash Station, on the Midland (Derby and Nottingham) Railway.

ELVASTON NURSERIES, BORROWASH, DERBY.

TRANSPLANTED FOREST TREES.

ASH, Common, 2, 3, to 4 feet, stout.
BEECH, Common, 1½ to 2½ feet, stout.
LARCH, Fir, 1 to 1½ foot, very fine and cheap.
HAZEL, Common, 2 to 3 feet, and 3 to 4 feet, very fine.
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CHERRIES, Standards, Maidens and Cutbacks, leading sorts.
APRICOTS, PEACHES, and NECTARINES, dwarf Maidens.
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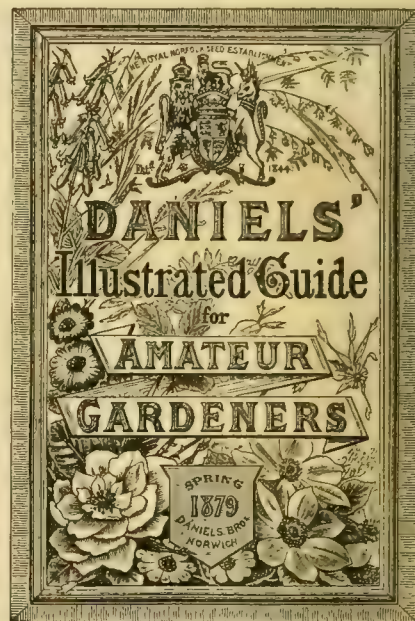
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NEW GIANT CYCLAMEN,

Cyclamen persicum giganteum rubrum.

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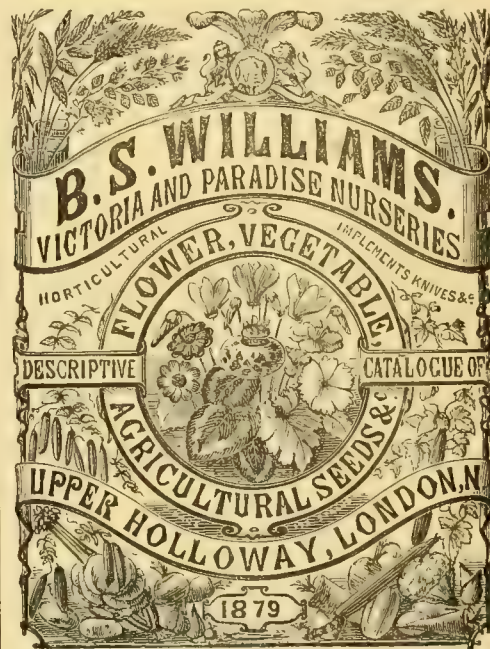
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This variety has very broad beautifully mottled coriaceous leaves, and stout flower-stalks, throwing the flowers well above the foliage; each flower measuring from 2 to 2½ inches in length, with broad petals of great substance, pure white, with a fine bold violet-purple eye.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 15, at half-past 12 o'Clock precisely, a magnificent

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1600 BULBS of the lovely NEAPOLITAN ALLIUM,

largely grown in the South of France and Italy to supply Covent Garden with cut flowers; a large

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FIRST-CLASS HARDY PERENNIALS,

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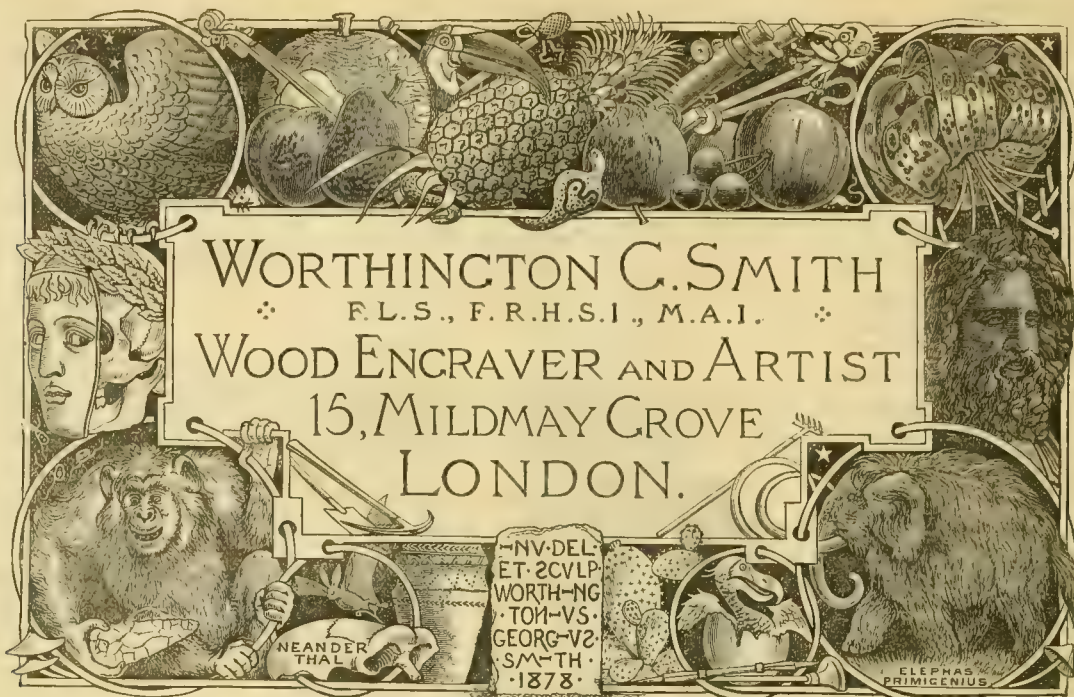


MR. J. C. STEVENS has received instructions from Messrs. JAMES VEITCH & SONS, Chelsea, to offer for SALE by AUCTION, WITHOUT RESERVE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 16, at half-past 12 o'Clock precisely, a splendid lot of COOL ORCHIDS, recently arrived per S.S. *Moselle*, and comprising fine Masses of ODONTOGLOSSUM PESCATOREI, in excellent health, some of them probably the largest plants ever offered; ODONTOGLOSSUM TRIUMPHANS, O. PHALÆNOPSIS, ADA AURANTIACA, ODONTOGLOSSUM ROEZLII, ONCIDIUM WELTONI, and other well-known and popular kinds.

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"We are quite glad to see this useful little book once more, and it is like a whiff of perfume from the heather in bloom to read on the wrapper 'two hundred and twenty-first thousand.' We advise all, who are interested in the promotion of cottage gardening to sow this little book broadcast."—*Gardeners' Magazine*.

"The information conveyed in this little book is well adapted for all persons having small plots of ground. The necessary operations for each month are clearly laid down, and are of a thoroughly practical nature. The sorts of both fruit and vegetables are well selected, many of them being excellent in quality. To our readers who are interested in the cultivation of their flower and kitchen gardens, we can safely recommend this as being a most concise and useful work."—*Bell's Messenger*.

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AMIES' CHEMICAL MANURES.

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Write for Descriptive Pamphlet, post-free.

Mr. WILLIAM EARLEY, the well-known horticulturist, and Editor of the *Horticultural Record*, Villa Gardener, &c., writes:—

"I give you the result of the trials I have yet been able to make of your Manures. Snowflake Potatoes turned out much cleaner than they had hitherto done from our wretched soil. Half a bed of spring-transplanted Giant Rocca Onions, which had been surface-manured with Amies' Manure, and subsequently well hoed, had, by contrast with the very irregular crop not so treated, a most remarkable and exceptional evenness of bulbs. They appeared as if all were grown in one mould, not a solitary small one being mixed with them. Lilies of the Valley sprinkled with it at the commencement of growth, showed much stronger foliage, spikes, and bloom by contrast with the beds generally. A bed of Phlox decussata surface-manured, then hoed, gave prodigious spikes of bloom. At my private house a collection of Roses, plunged in pots, averaging 5 and 6 feet in height, and pyramidal, have given a remarkable display. Window-boxes which are only 4 inches deep and 7 inches across, outside measurement, but to which Amies' Manure was applied, have shown such a superabundant growth as to be at this moment the admiration of all passers by. Besides a row of Scarlet Pelargoniums and striped Petunias along the back, Sweet Peas are at this moment hanging down from the trio at the upper windows, two or three feet in depth, and full of flower; indeed the growth seems out of all proportion to the handful of soil I have described above."

Mr. THOMAS FROST of Bower and Ling Nurseries, Maidstone:—

"I have given your Manure a thorough trial, not only on Pelargoniums, Fuchsias, and other soft-wooded stuff, in fact I pot all my soft-wooded plants now in soil that has had about 1½ lb. of your Manure to each bushel of compost, with very satisfactory results, but my greatest success has been achieved in the open ground under strict trial conditions. The first was on a piece of ground which has been for the last four or five years planted with Conifers, and consequently has had no manure. Having disposed of all the shrubs I planted the ground (about ½ of an acre), with Early Rose Potatoes, dividing it into three equal parts, giving it all precisely the same treatment, with the exception that to one-third I used farmyard manure, to the second piece guano, and to the other piece Amies' Chemical Manure. The portions that received the guano and the farmyard manure started away beautifully, and the haulm grew strong and vigorously, far excelling in vigour the place dressed with Amies' Manure. I began to fear that it (Amies' Manure), was going to prove a failure, but about the middle of May the two very vigorous pieces began to go back and exhibit signs of "curl" and slight symptoms of disease, whilst the middle piece, where your manure was, kept growing sturdily and healthy, and did not exhibit the least disposition to blight or curl; and now on digging there is not one tuber that has the slightest speck of blight, although there is exactly double the crop that I got from the guano and farmyard manure, which threw rather more haulm, although the piece that had your manure pushed ahead and almost overtook the other two pieces whilst they were struggling against disease; but the haulm was never at any time rank, but short jointed, sturdy growth that looked just calculated to resist disease."

AMIES' CHEMICAL MANURE COMPANY
(LIMITED),
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GRATIS TO CUSTOMERS.



THE QUEEN'S SEEDSMEN,
WORDSLEY, STOURBRIDGE.



SATURDAY, JANUARY 11, 1879.

THE NEW PLANTS OF 1878.

(Concluded from p. 10.)

GREENHOUSE PLANTS.

BY far the finest greenhouse subjects which have attracted notice during the past year are the Bomareas, a set of climbing Alströmieriads of which very little seems known from a horticultural point of view. That they are grand subjects many of them, as greenhouse or conservatory climbers seems certain, and the examples of cut specimens which have appeared at the floral meetings in London during the past season will, it is hoped, draw towards them the attention they deserve. Bomarea Carderi and B. Calsdii, though not absolutely, are yet comparatively new, and may be specially named as the species referred to above. The former (*Gard. Chron.* 1876, vol. v., p. 792) has rosy pink, the latter orange-scarlet flowers, in grand drooping umbels. The newer B. oligantha has reddish-yellow flowers, the inner segments bright yellow with claret-brown spots, but the umbels are smaller than in the species previously named. The old-fashioned Agapanthus umbellatus is one of the finest greenhouse plants we possess, and of this two novel forms have been imported, which can scarcely fail to prove acquisitions; one is called A. umbellatus flore-pleno, and has double dark blue flowers; the other, A. umbellatus excelsus, has flower-stems 6 feet high, and very large umbels of pale blue flowers. In Clausenia corymbiflora we have a Rutaceous greenhouse shrub, from the Loyalty Islands, whose large corymbs of white flowers are succeeded by odoriferous yellowish-white fruit, which is said to be of agreeable taste.

PALMS AND CYCADS.

To the cultivated Palms, of which the list has now become lengthy, some very ornamental additions have been made especially amongst the pinnate-leaved series. We may mention as particularly welcome Kentia Luciani and K. Wendlandiana, Areca purpurea and A. gracilis, the beautiful feathery Loxococcus or Ptychosperma rupicola, Calyptronoma Swartzii, and Plectocomia himalayana.

Of the beautiful Cycadaceous genus Bowenia, distinguishable by its bipinnate leaves, Mr. Bull has a remarkably handsome form with the leaves toothed, those of the original B. spectabilis being entire; this is called B. spectabilis serrulata, and is, like the original, one of the most beautiful plants in the order. Cycas siamensis is a new species resembling C. circinalis, recently introduced from Cochin China. Its stout glabrescent trunk is marked with circular furrows, and its pinnate leaves are flat, about 2 feet long, and divided into about sixty-five pairs of segments. Another fine and exceedingly ornamental plant, obtained from New Grenada and provisionally named Zamia amplifolia, has the leaf segments few, in pairs, and very large, lance-shaped, each 11 inches long. Still another distinct-looking novelty has been introduced recently, and had been named Encephalartos acantha, from its leaf-segments terminating in a translucent spine, but it appears to have been, by the aid of better materials, identified as the E. Friderici-Guilielmi. This comes from Graham's Town. The woolly trunk bears a crown of leaves some 2½ feet long, with 120 pairs of closely

set oblong-linear segments. This beautiful order of plants is by no means cultivated to the extent which it deserves to be, for it is at once remarkable for nobility and grandeur of aspect.

FERNS AND LYCOPODS.

Tropical Ferns predominate, and to these we have many interesting additions to record. The genus *Cibotium*, of which two or three recently introduced forms were recorded last year, now gives us another well-known Sandwich Island species, but which was not previously known in our gardens—*C. Chamissoi*, which differs from the other species from the same island in being less coriaceous and not at all glaucous. It is like them, arborescent, and a very fine ornamental Fern. The *Adiantums* have received some good additions in *A. cyclosorum*, which is remarkable for its cycloid indusia; in *A. tetraphyllum gracile*, a pretty form of the prionophyllum group; in *A. rhomboideum*, which has been confused with *A. varium*; and in *A. bellum*, a pretty little Bermuda plant, very like *A. fragile*, and probably sometimes lumped with it, but obviously different in not having deciduous pinnules as *A. fragile* has. *Davallia fijiensis*, one of the most beautiful of the Hare's-foot Ferns, has been introduced to more than one collection. Its fronds are large and coriaceous, but cut up into very fine divisions, and its sori are seated in very deep and narrow cup-shaped indusia. A new species of *Nephrolepis* has been added to this favourite genus, *N. Pluma*, from Madagascar—a deciduous Fern, with oblong tubers which rest in winter, and with very long and narrow, elegantly pinnate fronds, which especially adapt it for growth as a summer basket Fern. The South Sea *Microlepia hirta* has yielded a beautifully crested variety, *M. hirta cristata*, which has the advantage of being a very free-growing plant, as well as exceedingly ornamental. Then we have a new *Platynerium*, *P. Hillii*, from Queensland, a distinct and elegant species of a very remarkable genus of Ferns, whose fronds have in certain species considerable resemblance to the horns of the elk, whence the popular name of Elk's-horn Fern given to the genus, and whence also the scientific name, *Platynerium*, from *platys*, broad, and *keras*, a horn.

Perhaps one of the handsomest of the Ferns of the year is *Lastrea aristata variegata*, which is, moreover, a hardy greenhouse plant, if indeed it may not prove to be quite hardy. It is a Japanese plant, free-growing, with evergreen fronds of rigid texture, pentagonal in outline, with crowded spiny-toothed pinnules, the midrib of the ultimate branches, together with the base of the pinnules, being marked by a broad band of very pale yellowish green, which, contrasting with the dark green of the rest of the frond, shows a distinct pallid band down each of the divisions. When well developed, it is a very charming plant.

We have here to notice two new *Selaginellas*, both very handsome garden plants, and desirable from a decorative point of view. *S. Victoriz*, described by us in the *Florist*, is a South Sea plant, allied to *S. Wallichii*, of subsucculent habit, pinnately branched, the branchlets simple, an inch long, terminating in a slender tetragonal spike of equal or greater length. *S. bellula* is from Ceylon, and has the general aspect of *S. inaequifolia*, but differs considerably when seen side by side.

ORCHIDS.

The first place amongst these must, we think, be accorded to *Lælia anceps alba*, a Mexican plant, to which allusion has been made on one or two recent occasions. One can hardly form a conception of a flower more lovely in the purity of its whiteness, its size and form being at the same time sufficiently ample and well displayed to show off its beauties in the highest degree. Other *Lælias* have come

to us from the hand of the hybridiser, and splendid acquisitions they are, as for example *L. Dominiana*, bred between *Cattleya Dowiana* and *L. elegans*, and *L. Sedeni*, allied to *devoniensis*; both of them are remarkable for the superb colouring of their purplish-crimson lip, and both come into the front rank of ornamental Orchids. Though not quite new, we may here mention *Cattleya Veitchiana* as having been exhibited this year in splendid condition, surpassing all previous experience in the superb colouring and noble character of its inflorescence. Still searching amongst the garden hybrids we find *Calanthe Sedeni*, the richest in hue and most attractive of all the *Calanthes*, in the way of *C. Veitchii*, but with the colour intensified many degrees. It is reported to have sprung from a cross between *C. vestita rubro-oculata*, and *C. Veitchii*, and is deservedly named after the hybridist who was the means of bringing it into the world. *Sobralia suaveolens*, with its perfumed flowers of ochroleucous tint, may be expected to be a favourite; and *Masdevallia splendida*, "in the way of *Veitchiana*, and equally as beautiful," must be a welcome guest in our cool Orchid houses; like *Veitchiana* its blossoms are of a rich scarlet with a violet sheen, and it comes from the Andes. Contrasting strongly with it, being one of the smallest of its race, but equally beautiful, though its beauty is of another type, is *M. trigloch*, the flowers of which are reddish-brown with yellow tails, and beautifully blotched. *Bollea Lawrenceana* with its violet-tipped lip, and yellow-tipped sepals and petals, is a very handsome introduction, having flowers as large as those of *B. cœlestis*; while in *Pescatorea Backhousiana* we have an allied plant also of considerable beauty, with purplish-violet sepals and petals, and a cream-coloured lip margined with purple, and in *P. bella* a somewhat similar species of no mean beauty. *Dendrobies* have received one or two accessions to their ranks; *D. superbiens* proves to be a showy and valuable decorative plant, but is now scarcely a novelty; *D. Goldiei* is of the same general character, while in *D. Williamsianum* we gain a New Guinea species having flowers as large as those of *D. Dalhousianum*, with whitish sepals, rosy petals, and a rich violet-purple lip which has an irregularly-shaped but squarish front lobe.

HARDY PERENNIALS, &c.

A few good hardy perennials have been made known, amongst them *Tritoma* (*Kniphofia*) *maroccana*, a dwarfier and smaller plant than the well-known *T. Uvaria*. *Spiræa palmata elegans*, a neat-flowering plant with white blossoms and red anthers, has given rise to sundry speculations as to its real name and origin, which are not yet set at rest. It is, however, a plant which under any name may well find a place in our borders of hardy flowers. *Iris cretensis* is a pretty narrow-leaved species, with the outer segments of the flowers yellow below, then white with bluish lines, and tipped with dark purple. It comes from Crete. Another novelty of the same genus, from Turkestan, *I. Kolpakowskiana*, is of dwarf habit but very beautiful. Its flowers are dark purple in the apical half, white varied with purple in the basal half, and having a bright yellow median bar bordered with purple. But the most striking of all the novelties of this section is the *Centaurea Fenzlii*, "the noblest Centaury hitherto introduced into cultivation;" an Armenian species, with broad spreading basal leaves a foot and a-half long, and numerous erect peduncles, each bearing one or two large heads of yellow flowers. It is, indeed, a stately plant—but it is a biennial, as also is the Texan *Castilleja indivisa*, a remarkable plant, with a head of brilliant scarlet bracts.

To these one or two plants of the bulbous and cormiform series may be added. Notably *Montbretia Pottsi*, a South African Iridaceous plant,

with the habit of *Crocusmia aurea*, and exceedingly ornamental. It grows 3 to 4 feet high, has linear-ensiform leaves $1\frac{1}{2}$ to 2 feet long, and a panicle $1\frac{1}{2}$ foot long of funnel-shaped bright yellow flowers, tinted on the outer surface with red. *Ixiolirion Pallasii*, which, if not strictly new, has, we imagine, long been lost to our gardens, has reappeared, and its pretty blue funnel-shaped flowers on a tall leafy stem will recommend themselves from the distinctness of character presented by the plant. *Fritillaria armena* is a dwarf bulb, with solitary drooping flowers of a lurid purple, more interesting than showy perhaps; and *Allium karataviense*, from Turkestan, is a remarkable looking Leek, with broad elliptic oblong leaves, and large globose heads of white starry flowers. *Crocus etruscus* is a very pretty Irid, obtained from Italy, a spring-flowering species, with bright lilac-purple flowers, the three outer segments having five feathered lilac stripes down the back; it was introduced by Mr. G. Maw, who "undertook an expedition to Italy expressly for the purpose of hunting it out."

ANNUALS.

We have met with but few new annuals, leaving out of view the novelties which are constantly appearing in the shape of garden varieties, some of which are of great beauty, as, for example, the dwarf Candytufts of MM. Vilmorin and Messrs. Carter's new *Eschscholtzias*. The most interesting which has come under our notice is the *Campanula macrostyla*, a remarkable flower certainly—broad bell-shaped, and of a purplish rose, having a huge much projecting style, whence the name. It has been comparatively scarce, and the past season does not appear to have exactly suited it, but it is worth some patient care.

HARDY TREES AND SHRUBS.

There is not much to record under this head. *Acer platanoides columnaris* is a remarkable tree, which appears to have originated in French gardens, and has a straight erect trunk with short densely crowded branches, forming a leafy column. From this description it would appear to have something of the habit of *A. Lobelii*. *Robinia Pseud-Acacia Bessoniana*, to which attention has been called in the *Revue Horticole*, though not new, seems to be little known in comparison with its merits, for it is without doubt one of the handsomest of all the compact growing forms of the False-Acacia, being comparatively vigorous in development yet always close and symmetrical in outline and fresh in colour, retaining its greenness till late in the autumn.

Daphne Blagayana, from the Styrian Alps, is a very pretty dwarf evergreen shrub, with something the aspect of *D. collina*, its spreading branches being furnished with small oblong leaves, and terminated by heads of creamy white flowers. The *Magnolia stellata*, *alias* *M. Halleana*, is a neat dwarf deciduous shrub, free flowering, producing under cover in early spring its pretty white blossoms, like small Water Lilies, which are naturally produced so early as to run great risk of being frost-bitten in exposed places, as is the case with some of its allies. Finally we have the double *Syringa vulgaris Lemoinei*, which, if Professor Morren's figure may be credited, is a really handsome form of the common purple Lilac, from which it differs in having double blossoms. *T. Moore*.

THE FROST AND THE ROADS.—"A Lover of Humanity," writing to the *Times*, concerning the present tedious and ineffectual method of distributing gravel over the roads, asks why our roads should not be gravelled or sanded in the same way as they are watered, and suggests that without waiting for new carts specially prepared for the purpose, it would be very easy to have holes bored in the flooring of brick carts or others, and then to fill them with sand or very fine gravel, which would disperse evenly as they were driven along, thus rendering the roads safe both for men and beasts in a quarter the time, and far more effectually than by the tedious process now pursued.

New Garden Plants.

BULBOPHYLLUM BECCARI, n. sp.*

This gorgeous Orchid would appear to have been discovered in 1853 by Mr. Thomas Lobb. A leaf, quite like the materials I have now at hand, was brought home by this excellent traveller, and Mr. Bateman showed it in one of his lectures at the Royal Horticultural Society. It is now kept in Dr. Lindley's herbarium at Kew. Much later full information about the same thing came to Europe. It was in March, 1867, when M. Odoardo Beccari found complete materials in Borneo. When I was at Florence the autumn before last I admired those wonderful collections of capital specimens, judicious sketches, preparations in spirits, woods, fruits, all with corresponding numbers, all wonderfully well kept, though collected in the wildest parts of the Malayan and Papuan Archipelago. One of the pets of this excellent collector was this most admirable Orchid. It twines with its mighty stems spirally around trees, and excites the highest interest by its grand leaves. The flowers appear in dense, cylindrical, nodding racemes on very long pedicels. They are equal in width to those of a *Bulbophyllum leopardinum*. They are light brownish and painted with violet. The brown lip has a violet hue ("conspue violacea"). The peduncle itself is rosy with violet lines.

It gives me great satisfaction to dedicate this unique Orchid to M. Beccari, the energetic and most successful traveller. He would be agreeably surprised to see his Bornean friend in flower in Europe. It appears there is good hope for this. The plant has appeared a third time, and is now in our reach. Mr. Bull has been so very lucky and successful as to get it alive. *H. G. Rehb. f.*

POLYSTACHYA RUFINULA, n. sp.†

A very curious novelty. It is much like the well-known *P. luteola*. The bulbs are cylindropyrmiform, being sticklike and only thickened at their base. The bulbs at hand are of very different length, up to 2 inches. The narrow, ligulate, bluntish leaves stand in pairs at the time of flowering, the inferior ones having already fallen. Their texture is rather thin. The inflorescence at hand is simple and few flowered. As *Polystachyas* have branched inflorescences in the majority of species it may get branched, though very numerous orchidaceous racemes become never branched, at least not in a normal way. The rachis is slightly hairy. The flowers have rather long chins. The sepals are of a strong cinnamon-brown outside, greenish inside, washed at the borders with light brown. Petals greenish, with brown tips. Lip light purple over the anterior borders, yellowish over the disk, with a longish ridge and the furfuraceous surface, caused by fragile hairs. Anther yellow, with two brown eye-spots. Column whitish, brown at base and reddish on the anterior androclinium. This comes from Zanzibar, and has just flowered in the collection of Captain J. C. Hincks, Breckenborough, Thirsk, a collection which proves a rich source of rare and new species. *H. G. Rehb. f.*

DISTRIBUTION OF SOUTH AFRICAN PLANTS.

THE *Cape Argus* for November 5, 1878, contains a report of an interesting lecture on this subject delivered before the Philosophical Society by Mr. H. Bolus, F.L.S. Mr. Bolus is one of the most active and competent botanists in South Africa, and as his lecture is of interest to botanists and horticulturists alike we here briefly epitomise it. He proposes four regions of vegetation.

I. *South-Western Region, or Region of Heaths.*—A tract bounded northward and eastward by the Cederbergen, Winterhoekbergen, Hex River Mountains, Zwartebergen, and Vanstadensbergen, and southward and westward by the sea. It is the home of the

Bulbophyllum Beccari, n. sp. *H. G. Rehb. f.*—Rhizomate radicante validissimo pollicem virilem crasso, dense fibroso, scandente; foliis subsessilibus; petiolo articulo brevissimo, lamina oblonga obtuse acuta, prope bipedali unum et dimidium seu unum pedem lata; pedunculo basi plurivaginato plurimifloro, incurvo (semper ?); vaginis oblongis acutis; bracteis ligulatis acutis ovaria longissime pedicellata non attingentibus, mento obtusangulo; sepalis oblongis obtusis hinc parce undulatis, reflexis; tepalis angustioribus curvulis, labello cordato oblongo, columnae utrinque uniaristata; anthera dorso asperula. — Borneo.

† *Polystachya rufinula*, n. sp. — Pseudobulbis teretibusculopyriformibus diphyllis; foliis lineari ligulatis obtusiusculis subacutis; racemo paucifloro (9 floro), rhachi parce pilosula; bracteis triangularibus apice stacis ovaria parvisse villisula longe non aequantibus; sepalis impari oblongo obtuso acuto; sepalis paribus inequali triangularibus; in mentum conico-obtusum extensis; tepalis lineariobtusis; labello unguiculato basi subcordato dilatato antice trifido, lacinias laterales lineari-ligulatis obtusis angustis, lacinia mediana producta emarginata lateribus crispula, callo lineari obtuso a basi in medium farinaceo, circumferentia etiam farinacea. — Zanzibar. Col. Hincks. *H. G. Rehb. f.*

peculiar Cape shrubby element, the Diosmeæ, Ericaceæ, Bruniaceæ, Penæaceæ, Proteaceæ, and Restiaceæ. The rainfall is regular and mostly in winter, decreasing greatly in quantity northward. There is a general deficiency of trees, forests occurring only in the extreme east of the region. Large tracts of sandy downs occur near the sea-coast on the western side, which are covered with flowers of the greatest variety from June to September. Grassy open downs occur near Caledon, resembling the chalky downs of Sussex, and forming fine sheep-walks. The affinities of the flora are mainly with that of south-west Australia.

II. *Subtropical Region.*—This adjoins the preceding region, and interlaces with it at places. It is bounded on the north by the Winterhoek, Zuurberg, Boschberg, and Kagaberg Mountains; and thence across the Queenstown district to the Stormbergen, and along those mountains, the Drakensbergen and Quathlamba, northward. In the districts just named the predominant families of the south-western flora begin gradually to disappear, [and the orders Caparidæ, Malvaceæ, Begoniaceæ, Rubiaceæ, Apocynaceæ, Asclepiadæ, Bignoniaceæ, Acanthaceæ, Musaceæ, Cycadæ, and Palmaceæ, with many genera of Leguminosæ, make their appearance. The country is much broken by the steep rivers flowing from the mountains to the sea, and their sides are clothed with a dense and often almost impenetrable bush. Dense bushes (or dwarf forests) occur near the Addo, Uitenhage, and lofty forests on the crown of the Katberg, and in Kaffraria arborescent. Aloes and Euphorbias, with *Encephalartos* and *Phoenix reclinata*, give a peculiar aspect to the vegetation. This region is well watered, the rainfall occurring in summer. The affinities of the flora are with that of tropical Africa.

III. *The Central Region, or Region of Succulents.*—This is what is known as the Karroo, and stretches from Namaqualand on the west to the great Fish River on the east, being bounded on the north by the Roggeveld, Niemoveld, and Sneuwbergen Mountains, and south by the south-western region. It forms, excluding the western extremity, a dry plain of an average altitude of 2500 feet above the sea. The rainfall ranges from an annual mean of 6 to 15 inches in different parts. But the variations in the same locality are very great. The fall is chiefly in summer, accompanied by thunder-storms. Aspect of the country very mournful, the prevailing vegetation consisting of small bushes or succulent plants, with larger shrubs and thorny trees in the ravines and on the mountain-sides. The soil is poorly clad, and large patches of bare dry ground are everywhere apparent. The Diosmeæ, Ericaceæ, Bruniaceæ, Proteaceæ, and Restiaceæ are unrepresented, being replaced by numerous succulent Ficoideæ (*Mesembryanthemum*), Crassulaceæ, Stapeliæ, Aloinæ and Euphorbiaceæ, Compositæ, Asclepiadæ, Apocynaceæ. There is also a remarkable erect *Ipomœa* with an immense tuberous underground stem, and *Portulacaria Afra* (Spek-boom) is a singular bush, with thick fleshy acid leaves. The Prickly Pear (*Opuntia* sp., from America) is perfectly naturalised, and is spreading so rapidly as to become a great pest. It grows sociably in some places to a height of 15 to 20 feet, giving a peculiar aspect to the country.

IV. *The Upper Region, or Region of Composites.*—This is formed by the upper plateau at an altitude ranging from 4000 to 4500 feet above the sea. It is bounded on the south-east and west by the mountains which form the northern boundary of the central and subtropical regions, and on the north by the Orange River in part, and in part by the southern line of the red sand or conglomerate formation, which runs from 25 to 40 miles south of the Orange River. Its aspect is that of a uniform dreary moor, clothed with dwarf, small-leaved, stunted shrubs, chiefly belonging to the Compositæ. Out of 496 flowering plants collected in this region by Mr. Bolus, 126 or 25.4 per cent. belong to that order. The peculiar plants of the south-west region are almost wholly absent. Succulents are deficient, and the winters are too cold for the Prickly Pear. The subtropical plants of the second region are also sparingly represented. The three chief Composites are *Chrysocoma tenuifolia*, *Erioccephalus glaber*, and *Euryops asparagoides*. There are no trees excepting along the Orange River, where the Willow (*Salix capensis*) and some species of *Rhus* fringe the banks. The rainfall is small, though more regular than that of the succulent region.

THE FROST AND ITS EFFECTS.

IN the neighbourhood of London open-air vegetation has, as was generally anticipated, sustained severe injury by the late exceptionally intense cold; more especially has it left indelible traces on half-hardy evergreen shrubs, which have suffered but little from the effects of the past few winters. Nevertheless it has taught a practical lesson, besides the many interesting facts which may be gleaned by the observance of the varied constitution of plants, even in the case of closely allied species and those inhabiting almost identical localities. Still it ought not to deter us from replacing the loss, as it will be generally admitted that the amount of enjoyment derived by seeing them luxuriate in the open air during the summer and winters of average severity amply compensates for the loss sustained once in several years.

KEW.

At Kew, where much is done with regard to testing the relative hardiness of tender plants, there is a wide field for observation, but the amount of damage done cannot of course be accurately ascertained at present, as some plants which are apparently unaffected may reveal signs of injury later on. The following remarks may be useful for comparison with other localities.

Australian and New Zealand shrubs appear to be the most severely damaged, for the shrubby *Veronicas* are quite destroyed, the stems being split by the frost, as in the case of *V. Andersoni*, *speciosa*, *salicifolia*, *angustifolia*, *kermesina*, and others, with the exception of *V. pinguifolia* and *V. Traversii*, which are unscathed though totally unprotected. *Eurybia Traversii*, *argophylla*, and *Forsteri* are also killed. *Sophora tetraptera* on a western aspect is much injured; on a northern apparently dead: the variety *microphylla* does not show much sign of injury at present. All the *Coprosmas* except *Cunninghami* are killed, as also *Griselinia lucida*; but its congener, *G. littoralis*, is unaffected. *Muhlenbeckia complexa* and *adpressa* are much damaged. *Clanthus puniceus*, *Aristotelia racemosa* and *Macqui* are killed back to the stems, also *Melaleuca decussata*. *Olearia Haasti* and *Gunni* are uninjured, also the little *Cassinia fulvida* (*Diplopappus chrysophyllus* of some). *Callistemon rigidum* is severely cut. *Pittosporum tenuifolium*, even as a standard in the arboretum, is uninjured and apparently as hardy as *P. Tobira*. *P. eugenoides* is slightly injured, and *P. undulatum* killed. *Myoporum laetum* and *Macadamia ternifolia* are quite dead. The Tasmanian *Billardiera longifolia* is up to the present unscathed.

South American shrubs seem to be harder, as *Ercilla* (*Bridgesia*) *spicata* is unhurt, *Berberidopsis corallina* but slightly so. Of the *Escallonia*s, *marcantha* seems to be hardiest, as it is unhurt; *E. illinita* is not much damaged, but *E. montevidensis*, and its near ally, *E. floribunda*, are fast losing their leaves. *Azara Gilliesii* is but slightly damaged, whilst *A. integrifolia* and its variegated form are much blackened. *Lippia chamaedrifolia* is killed back; *L. citriodora* is quite dead; *Embothrium coccineum*, protected with a net, is slightly damaged; *Cantua dependens* and *Mutisia Clematis* succumbed to the first severe frost; also *Eupatorium ligustrinum*. *Desfontainea spinosa*, and *Maytenus chilensis* are unhurt. *Solanum jasminoides*, which a few weeks since was very attractive by its profusion of blossom, is severely cut. *Lapageria rosea* has received protection, therefore is unhurt. Californian shrubs have withstood it well; *Fremontia californica* is slightly nipped. *Ribes speciosum*, which is just expanding its leaf-buds, is also but slightly injured. Most of the species of *Ceanothus* were afforded protection. *Castanea chrysophylla* is uninjured, also *Oreodaphne californica*. The Mexican *Choisya ternata* appears to be much harder than is generally supposed, as it is unhurt, though not protected. *Diplacis glutinosus* is severely damaged. *Cestrum* (*Habrothamnus*) *corymbosum* is killed back. *Garrya Thuretii* (?) is apparently as hardy as *G. elliptica*. Among Chinese and Japanese introductions *Viburnum Sandankwa* and *Awafuki* are much damaged, also *Rosa bracteata*; *Abelia rupestris*, *Eriobotrya japonica*, *Olea ilicifolia*, *Ilex latifolia*, but slightly. A small plant of *Rhodoleia Championi*, from Hong Kong, has the leaves nipped, though protected. The standard *Camellias* in the Lily beds show no sign of injury, and though profusely set with flower-buds they have not fallen. Of those from North India *Holboellia latifolia* is apparently killed. *Piptanthus nepalensis*, *Cratægus crenulata*, *Stranvæzia glauca*, *Cornus capitata*, slightly injured. *Berberis nepalensis*, *Euonymus fimbriatus*, are unscathed.

Vitis tenuifolia was killed by the first frost. The South European *Convolvulus Cneorum* received protection, but is injured. The common Myrtle is also much damaged, but the variety *mucronata* appears hardier, as it has only lost its flower-buds. *Bupleurum fruticosum* is quite uninjured. *Smilax aspera* has stood well, being but slightly blackened. *Aristolochia altissima* and the Carob Bean (*Ceratonia Siliqua*) appear to be killed, and the European Olive is much damaged. *Cistus Berthelotianus* and *Laurus canariensis*, from the Canary Islands, have succumbed.

The frost has also wrought much havoc amongst the herbaceous plants, for most of the fine South American *Eryngiums* are killed, also many of the Californian *Pentstemons*. *Salvia interrupta* is killed, also *S. macrostachys*. *Audibertia grandiflora* succumbed to the first frost. The *Megasea* section of *Saxifraga*, principally from the Himalaya, are also severely cut, also *Francoa sonchifolia*, *ramosa*, and *appendiculata*. Several of the *Hypericums*, especially the more shrubby kinds, are killed down. The Japanese grasses, *Eulalia japonica* and vars. *variegata* and *zebrina*, are also killed back, and several *Bambusas* and *Arundinarias*. Some of the *Cordylines australis* are quite destroyed, whilst others are apparently in good health. *Puya chilensis* is uninjured, also the variegated form of *Yucca aloifolia*. *Kniphofia Quartiniana* is quite killed, and the others seem to be much cut, but the little *K. MacOwani* seems as hardy as any. *Neja gracilis* and *falcata* have succumbed, also the Cape *Anchusa* (*A. capensis*), and *Chamæpeuce diacantha* and *C. Casabonæ*. *Sarracenia purpurea* is quite uninjured, though unprotected.

ANOTHER ACCOUNT.

Another correspondent writes:—Kew, on the whole, has suffered but little when compared with places at similar elevations in the immediate neighbourhood. The Laurels, *Laurustinus*, the beautiful golden-leaved *Euonymus*, *Roses*, &c., which at places on the Middlesex side of the Thames have been killed by the thousand, are, to all intents and purposes, uninjured here. This state of affairs may probably be accounted for by the nature of the soil, that of Kew being nearly everywhere of a dry, sandy nature, the gravelly substratum often coming very near the surface. Generally speaking, the Australian and New Zealand plants seem to have suffered most. The Australian *Pittosporum undulatum*, as a wall plant, is killed, and the New Zealand *P. tenuifolium* slightly damaged; in the open shrubbery this latter species is severely injured. Among New Zealand and Tasmanian plants which are killed outright are *Griselinia lucida*, *Eurybia argophylla* (the silver-leaved Musk tree), *Cordylina australis*, *Coprosma Baueriana*, and other species (*C. Cunninghami* being apparently the only one which has escaped with life), and *Aristotelia racemosa*. *Muhlenbeckia adpressa* is much damaged, whilst *Sophora microphylla*, *S. tetraptera* var. *grandiflora*, and *Clianthus puniceus*, are but slightly affected so far. The beautiful New Zealand *Veronicas* have fared very badly; a very interesting fact connected with these, is that while the species with large leaves and the garden hybrids of similar habit, such as *V. angustifolia*, *V. kermesina*, *V. salicifolia*, and *V. Andersoniana*, are quite killed, or very seriously crippled even in sheltered spots on the walls, the small-leaved, neat-growing kinds, as represented by *V. Traversii* and *V. pinguifolia*, have escaped scot-free in exactly similar positions, the two species just named being totally uninjured even in thoroughly open spots in the outside borders. The following Australian plants may be numbered among the slain:—*Eurybia Traversii*, *Myoporum laetum*, *Melaleuca decussata*, *Callistemon rigidus*, *Eucalyptus globulus*, and the Queensland Nut, *Macadamia ternifolia*. The blue-berried Apple-berry, from Tasmania, *Billardiera longiflora*, has proved itself capable of withstanding a considerable amount of cold, and that without any shelter except what is afforded by the wall to which it is trained. The large *Eucalyptus polyanthemos* seems perfectly uninjured. *E. globulus* is, if not altogether killed, at any rate very much cut back. Another *Eucalyptus*, standing in a rather open spot in one of the old plantations, where it has probably been for the last quarter of a century or more, seems not at all affected. This specimen flowered profusely a few seasons back.

Leaving the Antipodes and coming to natives of the Mediterranean region, we have to record several casualties. The St. John's Bread, *Ceratonia Siliqua*, *Laurus canariensis*, *Myrica Faya*, *Ceanothus africa-*

nus, *Aristolochia altissima*, *Pistacia atlantica*, and *Rhodocistus Berthelotianus* are among those which have suffered most severely, all being, if not quite killed, so much damaged as to probably prevent their ever recovering the shock they have sustained. *Cneorum tricoccum* has been badly cut, *Convolvulus Cneorum* and *Bupleurum fruticosum*, on the other hand, not exhibiting any ill effects. The Olive, *Olea europæa*, has been rather damaged, the young shoots away from the wall being killed. The variegated form of the common Myrtle has fallen a victim to the frost, but the normal green one has received no more injury than that sustained by a solitary Sweet Bay in a somewhat bleak spot. *Myrtus mucronata*, too, has proved itself even more hardy than the common *M. europæa*, having received no further injury than the destruction of its numerous flower-buds. This seems another instance of a small-leaved plant possessing greater power of resisting cold than its larger-leaved relations. By the way, the Kew specimen of this variety has a particular kind of interest: it was struck from a flowering spray which had graced the bouquet of a royal bride.

Of all the Himalayan shrubs which are now to be found in the open air here none appear to have been so badly used as *Holboellia latifolia*, the long climbing shoots of which seem quite killed back to the main stems. *Cornus capitata* (*Benthamia fragifera*) and *Thea assamica* exhibit marks of injury, whilst *Piptanthus nepalensis*, *Stranvæsia glaucescens* and *Euonymus fimbriatus* on the walls, and *Skimmia Laureola* and several *Rhododendrons*, *R. campylocarpum*, *R. glaucum*, *R. ciliatum*, and *R. virgatum* among the number, in the open shrubbery borders, are apparently not injured in the slightest degree.

The plants from China and Japan have, as a rule, stood remarkably well. *Quercus phillyreoides*, *Q. glabra* and *Othera japonica* are totally untouched in the open ground, and that peculiar spring shrub, *Triphasia trifoliata*, has only had a few leaves browned. *Nandina domestica*, both in the open shrubbery and on the walls, has received but equally slight injury. *Illicium anisatum* and *I. religiosum* seem to feel quite as much at home in sheltered spots in the open as they do on the wall, in both places they have been but slightly touched. The *Camellias* (large plants) in the pleasure grounds have escaped with the exception of one with variegated foliage, the whitest leaves being altogether browned and the others merely affected where the colour, or rather lack of colour, occurred. *Viburnum Awafuki*, in the general collection, has stood the frost just as well as a plant on a well-sheltered wall; and *V. Sandankwa*, in a remarkably cosy spot on the wall in question, shows only a few browned leaves. The latter species seems the hardier of the two. The fine deciduous kinds have most likely not been injured in any way. On the walls, *Fatsia japonica*, the Loquat (*Eriobotrya japonica*), *Olea ilicifolia*, and *Kadsura japonica* (the latter, though, receiving the shelter of a mat during severe frost), are in perfect health; and in a well-sheltered spot in the private portion of the gardens is a plant of *Trachelospermum jasminoides*, which does not appear to be at all affected, although it has not been covered up in any way. *Olea japonica* and *O. fragrans* are both slightly touched; they are evidently much less robust than *O. ilicifolia*. The three fine specimens of Fortune's, Fan Palm, *Chamærops Fortunei*, near the grand entrance, have so far withstood the cold.

From the region comprising Chili and Peru, many beautiful and interesting plants have not been at all injured. All are planted against walls, except when otherwise stated. Evidently the hardiest are *Embothrium coccineum*, *Maytenus chilensis*, *Desfontainea spinosa*, *Ercilla spicata*, and *Eugenia Ugni*. *Berberidopsis corallina* and *Lapageria rosea*, in company with the *Trachelospermum* before mentioned, are untouched, although they have not received the shelter of a mat, which was accorded to another specimen of *Berberidopsis* in a less sheltered position; the leaves of the latter, in spite of that shelter, have been somewhat browned. In the open border an entire group of plants has been quite killed. *Cantua dependens* and *Duvaua dependens* have quite gone, and *Drimys Winteri* has suffered slightly. *Aristotelia Maqui* and *Solanum crispum* in the open borders are considerably injured, and *S. jasminoides* on walls of various aspects is also much hurt. Of all the Azaras the hardiest seems to be the graceful *A. microphylla*. Next in hardiness comes *A. Gilliesii*—grown in some nurseries under the name of *A. crassifolia*—which, with

the exception of its catkin-like flower-spikes, quite blackened, has not suffered much. *A. dentata* is cut badly, and *A. integrifolia*, side by side in the open border with those just mentioned, looks as if it had been dipped in boiling water. Even on a wall it has been badly cut back. The *Escallonias* have fared rather badly. *E. montevidensis* and *E. floribunda* are seriously damaged, even though protected by mats and in the open border, where well surrounded by Laurels; these two are killed, as is also *E. pulverulenta*. *E. illinita* has suffered in all positions. *E. macrantha* and *E. pterocladon* are the two species which have most successfully passed through the ordeal.

— There is evidently great variation in the climate of our tight little island. A correspondent at p. 16 tells us that the snow had disappeared in Middlesex on Sunday, the 29th ultimo. Now, on the following day, while travelling from Birkenhead, I found snow in the surrounding country from there to Crewe some 2 or 3 inches deep; from Crewe to a few miles beyond Stafford it gradually disappeared. I ascertained that in the district alluded to some 10 or 12 inches of snow had fallen, while here, in a midland county (Warwick), we had some 4 inches only, and the greatest amount of frost 28° on the night of Christmas Eve. It would be interesting to know if the depth of snow is co-existent with a corresponding amount of frost; if so, it shows the wise provision Nature has made for its protective influence. Owing to our comparative immunity from severe frost during the past few years, I am afraid our hoary visitor caught many of us napping; but during the short respite it was some consolation to see so few things injured, in the way of trees and shrubs. The Conifers appear to have escaped unscathed. The *Araucarias* were looking as green and healthy as previously. I could observe none of the rusty tinge which the stinging frosts of 1860 to 1861 left on this noble tree. I fear it is "all up" with our friend the Blue Gum, for on examining the foliage and wood with a knife it was something like cutting through sodden leather. This will be a great disappointment to many who hoped to get this recent introduction firmly established among our choice trees. I am inclined to think the fruit-buds have sustained no injury, but on the contrary that both wood and buds will derive much benefit from the thorough cleansing of scale and other pests which of late years have established a footing among our fruit trees. The unprotected Cauliflowers are completely destroyed; not so the Broccolis, they look healthy and well enveloped in their blanket of white—their natural protection. While writing, we are getting a second edition with a vengeance; what the effect of this may be remains to be proved, but I trust we shall have little to complain about, and much to be grateful for, in having again a seasonable winter of the good old sort. J. J. B.

— *Camellias* and Indian *Azaleas* here are looking as well as they did in June; they are loaded with buds, and even small plants a foot high are in perfect health and vigour. We continue to plant them about the grounds whenever we find space. *Olea fragrans* is also looking extremely well, and is not at all injured by the frost. The young plants of *Eucalyptus* are not injured, for though a few of the tips of the younger leaves are a little curled, the plants are as yet quite safe. Thomas Stewart, Gr., Glen Eyre, Southampton.

— The humble Violet has been a considerable sufferer through the late severe weather. The leaves have been greatly destroyed, the crowns exposed, and the bloom checked. At this time last year, thanks to the mildness of the season, a few blooms were always to be had, and the grower could look from week to week for something to bring back from market the humble shillings. Now there is not the least prospect of a flower being ready to gather for weeks, and when they are the leaves that are essential for bunching will be sadly lacking. The Violet season will be a short one, and will result in a glut. This is not by any means the desire of the grower, for a glut means a price so low as to render the floral crop almost unprofitable. It is a curious fact that the Wallflowers have so entirely escaped damage, and look so well, an exemption which one grower attributed to the snow, but if such was the case it is remarkable that the Violets, which were much more fully protected, should have so considerably suffered.

is perhaps a fact, although the suggestion is made with due deference, that the fine dry October which is expected to harden and strengthen the Wallflowers had a diverse effect upon the Violets, that it checked the production of robust foliage, the best natural protection for the blooming crowns. Again, November is, though fairly open, yet exceedingly gloomy and wet, and this served to keep the Violets leafless, whilst it prevented the undue pushing of Wallflower blooms. We have heard it remarked that the past autumn proved singularly uncongenial to the growth of the Wheat plant, and that its germination is longer than has been previously noticed. Servers might perchance have seen in this the foretelling of the severe weather that followed. Its mention, however, serves to show perhaps more effectively than has been in garden plants how diverse might have been the effects produced by a cold autumn on sweet spring flowers. *A. D., West Middlesex.*

—The leaves of Periwinkle and St. John's Wort just as if they had been parboiled. Bayes, common Laurel, *Aucuba variegata*, *Leycesteria*, white Azaleas, *Hamamelis sinensis*, *Daphnes*, *Laurustinus*, and *Myrica* (and I fear a good many *Rhododendrons*), are all injured. The snow here was 4 inches deep, and the gardens are very much protected by deciduous trees. *Edward Ward, Gr. to Lord Windsor, West Grange, Bromsgrove.*

—I am happy to say that the Palms (*Chlorophytum Fortunei*) growing in the open air here without protection are unscathed, and looking as well as they usually do at Midsummer. I fear all Australian *Dracaenas* will succumb. All the plants were tied up with matting, and the older plants—six and eight years old—are all yet alive, but are very unhappy, whilst the younger plants are nearly dead to the ground line. I do not think any of the Blue Gums are killed outright, but most of them will die back to the ground line. The largest plants are from 25 to 30 feet high, and at present seem only to have suffered at the extreme tips of the shoots. Our lowest temperature (8°) occurred on Christmas Eve. The heavy rains of last week have saturated all vegetation, and the land also being full of water, the sharp frost we now experiencing nightly is doing serious injury to broccoli and kitchen garden crops generally. *W. Edsmith, Heckfield, Hants, Jan. 7.*

—Although the present winter (1878-79) has not as been nearly so severe as that of 1859-60, I think we find the present one more destructive in its effects amongst timber, &c. I well remember the memorable Christmas morning of 1860 when we had the thermometer 14° below zero [?]. I had then charge of the houses at a large place in Dumfriesshire, and not an opportunity of making such an inspection as I have at present amongst timber trees. Here the destruction of timber is something fearful. Trees of not small ones) some up to 2 feet 10 inches in diameter, and others even larger, are to be met with at almost every turn in the park, as well as in the woods. Ash, Spanish Chestnut, Sycamore, and many other Oaks are split from almost the top to the bottom of the stem, into three, and in many instances in quarters, and the whole completely spoiled as regards timber for use. Some may say this is only the result of what we call "shaky" trees, but many are found with not the slightest traces of this. My opinion is that we experienced such a very mild winter that the sap had not returned; hence the cause of the trees bursting. We shall also hear a great deal about the so-called disease amongst the chestnut, in my opinion "Jack Frost" is the principal cause of it all. I shall be much interested to hear if in other quarters the same incidents have happened to the same varieties, &c. Amongst other plants we shall have a great mortality, although as yet we have only had 28° of frost (this we had several nights), and the whole of the daytime we had from 20° to 23°. This was even worse than in 1860, for on the thermometer only remained so low for a few hours in the morning, soon rising to 17°. I fully believe we shall find this the more severe of the two; however, time will show. Again, on the 28th of last month the rain for a long time fell in perfect torrents, and the following morning we had 25° of frost, all plants here being covered with ice and icicles. Myself, the Roses, I am afraid to look at, although they are well cared for. Such charming varieties as *France*, *Baroness Rothschild*, and *Comtesse*

d'Oxford, already look black and worthless. *Maréchal Niel* still holds good, and should a change take place soon, which I trust it may, all will be well with him, although he is in some quarters rather exposed. Hardy Heaths are cut to the ground. Some grand and very old specimens of the Golden Queen Holly look much cut up, and even the Ivy, particularly the Irish, looks much damaged. Since writing the above, the carpenter informs me that a very large Oak has burst in the park near his cottage, and he describes the noise as being like the sound of a cannon in the distance. *Robt. Craig, Levens Hall, Westmoreland, Jan. 8.*

THE DISEASES OF HYACINTHS.

A NOTICE has lately been given in the *Gardeners' Chronicle* of Dr. Sorauer's German paper on the diseases of Hyacinths, which induces me to offer a few observations on this paper from the Dutch Hyacinth growers' point of view. When Dr. Sorauer says that the annual produce of Hyacinths is decreasing yearly in consequence of disease, it cannot be understood otherwise than that the writer considers this to be a general rule, not only in Berlin, but in Haarlem also. As far as Haarlem is concerned, however, the inference is not correct. The principal diseases of Hyacinths known at Haarlem are three, viz., the ring disease, the black rot, and the white rot, but although these diseases from time to time have made ravages among cultivated Hyacinths, the number of bulbs grown increased yearly in Holland up to 1877. The calamity which so much injured Hyacinth culture in May, 1877, and, although on a much inferior scale, again at the end of April of 1878, seems to be of quite a different character from the above-named diseases. By these calamities the general stock of Hyacinths suffered so much, that it probably did not increase during these two years, but remained at about the same total number. There is, however, much reason to think that the usual yearly increase will again take place in the future, if such an unusual calamity does not recur next spring. As for the Berlin Hyacinths, Dr. Sorauer tells us that it is said that there are sold 1,500,000 Hyacinth bulbs annually at Berlin. This may be true, but it is probable that among these there is a great number of Dutch bulbs, as there is annually a regular and very considerable export of Hyacinth bulbs from Holland to Berlin.

Good Dutch growers will never send out a Hyacinth bulb without inspecting it carefully to see if it is affected with either of the above-named diseases. If disease is found in a bulb sent out from Holland, usually the reason of it will be, that at the moment it was packed the disease was not sufficiently developed to cause it to be recognised by the methods of examination in use at Haarlem, and of which that for the ring disease is described by Dr. Sorauer.

In Holland, up to the present time, only pure cowdung has been used as manure for Hyacinths. It is not proved that the greater or less quantity of it used has influenced the disease to a greater or less extent. Dr. Sorauer supposes that the strongest growing bulbs are most subject to the disease: that may be so in exceptional cases, but it cannot be considered as the rule.

Dr. Sorauer supposes that the practice of cutting off the flowers is one of the causes of disease: I cannot allow this. If the cutting is done prudently, without injuring the leaves, as is the case in Holland, experience proves that it does no harm at all, but it is, on the contrary, considered to do much good in the prevention of other diseases.

It would in many instances be injurious to the bulbs to keep them in the ground till the leaves and roots have totally died off, as Dr. Sorauer proposes. The method followed in Holland is to cover the big bulbs, after they have been taken up, with earth or sand, and to let them remain thus for eight or ten days before storing them in the magazines, and it has proved successful.

The diseases named above are in Holland generally either confined to a particular locality or to one or more varieties. Apparently under the same circumstances one locality, or some varieties, will suffer from them, and others not. Some varieties are known to be specially subject to injury by ring disease, others by black rot, others, again, by white rot. In such cases it may occur that such varieties in some localities are nearly totally lost by the disease, while other varieties, planted close to them, are not injured at all.

It is very desirable that more accurate observations based upon scientific research should be made, to clear up many points yet dark in the history of bulb diseases in general and that of the Hyacinth in particular. Such observations and researches would be best undertaken in Holland, where the material is at hand to carry them out thoroughly. In Holland the cultivation of Hyacinths is brought to greater perfection than elsewhere, consequently there is no risk that conclusions would be built on inferior grown material. Meanwhile Dr. Sorauer has earned the warm thanks of the bulb cultivators, for having, although at a great distance from the growing place, and notwithstanding great difficulties in making his observations, tried to advance the knowledge of Hyacinth diseases a step further. *J. H. Krelage, Haarlem, January 3.*

EXHIBITION OF WORKS BY THE OLD MASTERS.

THIS exhibition, which opened to the public at the Royal Academy on Monday last, is of more than usual excellence. These annual exhibitions (taken now with the exhibition of similar works at the Grosvenor Gallery) show what a very large number of magnificent paintings by the Old Masters there must be in the various galleries of this country. It is almost impossible for any single individual to visit all the private collections of Great Britain, therefore these yearly London exhibitions of works by deceased masters present a most valuable opportunity to art lovers for becoming acquainted with a series of first-class masterpieces. It commonly happens that one only knows certain great works of art by the published engravings, and it is often surprising what a difference there is between the original painting and its engraved counterpart. This is well seen in 15, Fuseli's well-known work of "The Nightmare," the painting being a far better work than is indicated by the engraving; in some instances the engraver refines the original, whilst in other instances the refinement of work and feeling on the painter's side is more or less lost by the engraver. Gallery No. 1 is remarkable for a series of good Morlands, a Constable or two, and works by Gainsborough, Hogarth, and Reynolds. Passing to Gallery No. 2 one may pause for a moment to admire the beauty of the execution of the painting in "The Eve of the Deluge," 56, Jan Brueghel, but anything more absurd than the whole placid conception of the scene, with the little ark in the distance and its board for ascent, could not be. 58 is a fruit subject by Cornelius de Heem, "Grapes, Plums, and Apricots." The picture also contains Peaches, Medlars, and a Melon, all remarkably well executed. The exhibition contains some unusually large works by Snyders, one of lesser size being found in 98, "Still Life," a boldly executed group of poultry and fruit. Gallery No. 3 contains three very fine works (lent by Sir William Fitz-Herbert and J. Ormiston, Esq.) by Murillo, works well known by the published engravings. These are the "St. Francis of Assisi," "The Magdalen," and "The Assumption." This room also contains many fine works by Vandyke, Rubens, Reynolds, Bassano and others. In gallery No. 4 there is a large and instructive collection of works by the early Italian masters; these are mostly conventional, architectural and decorative in character, Greek, Byzantine, Tuscan, unknown, &c. As studies of the development of art from very early times these works possess great interest. It will be observed how most of these pictures are marred by the big, ugly, and ignorantly designed frames. Here we have pictures of the utmost possible refinement and most marked architectural character put into the most wretched, flashy, and massive gilt frames—frames that would disgrace the commonest makers of the Curtain Road. In 185, a Triptych by Tommaso di Stefano, the frame is so vicious in design that no one with any architectural knowledge can approach the picture without feeling angry. Most of the early Italian pictures in the National Gallery are similarly defaced and injured. It is a most extraordinary thing that our art-directors should allow these valuable works to be placed in settings evidently contrived by the most ignorant of men. A lesson has been before our authorities for many years in the chaste and proper frames always found with the pictures exhibited by Alma-Tadema, and a few other artists. 205, "The Virgin and Child," and "St.

John and Angels," Alessio Baldovinetti. In this a large number of plants are introduced, but they are all more or less imaginary and unnatural. Gallery No. 5 contains a large and almost astounding picture of a life-size (or more than life-size) grey horse, seen in profile, by James Ward, and four very large and characteristic pictures by Francis Snyders, lent by the Duke of Newcastle; these pictures are termed "Market Pieces," and represent immense groups of poultry, fish, joints of meat, crabs, lobsters, &c. Vegetables and fruits are represented in Carrots, Radishes, Onions, Jerusalem Artichokes, Celery, Quinces, Gourds, &c., not forgetting a basket of large, rank and brown horse-mushrooms; as some of these latter are represented with thick fibrous roots, they could hardly have been taken from

illustrations to the "Inferno." 125, "Two studies of the Virgin and Child and St. John;" Raphael. These are studies of the nude for the well-known "Madonna del Cardellino," of the Uffizi Gallery at Florence. 139, Study of a head of an Apostle in the cartoon of "The Death of Ananias," now at South Kensington. This study strikes us as being superior to the head in the cartoon itself. In Gallery No. 9 are other drawings by Raphael and Michael Angelo, and a remarkable collection of portraits by Holbein. Many of these latter heads are described in the catalogue as being executed in "black chalk," but many are not even touched with "black chalk," the dark lines all being black colour carefully lined in with a brush; this fact is well marked in 217 and 220. The large and important life-size figure of Henry VII. is labelled on the picture "india-ink," whilst the catalogue says "black

FLOWER GARDENING AT STOKE ROCHFORD.

FROM amongst the many fine examples of bedding-out that came under our notice last year, we recall with pleasure the artistic and most effective display made by Mr. Dell at Stoke Rochford, the country residence of Christopher Turner, Esq., near Grantham. The space at our disposal just now does not permit us to enter into any lengthy details with respect to the style and subjects employed in the decoration of the whole of the flower garden, but with the assistance of a photograph, a ground plan and a sectional drawing, kindly placed at our disposal by Mr. Dell, we will endeavour to give our readers some

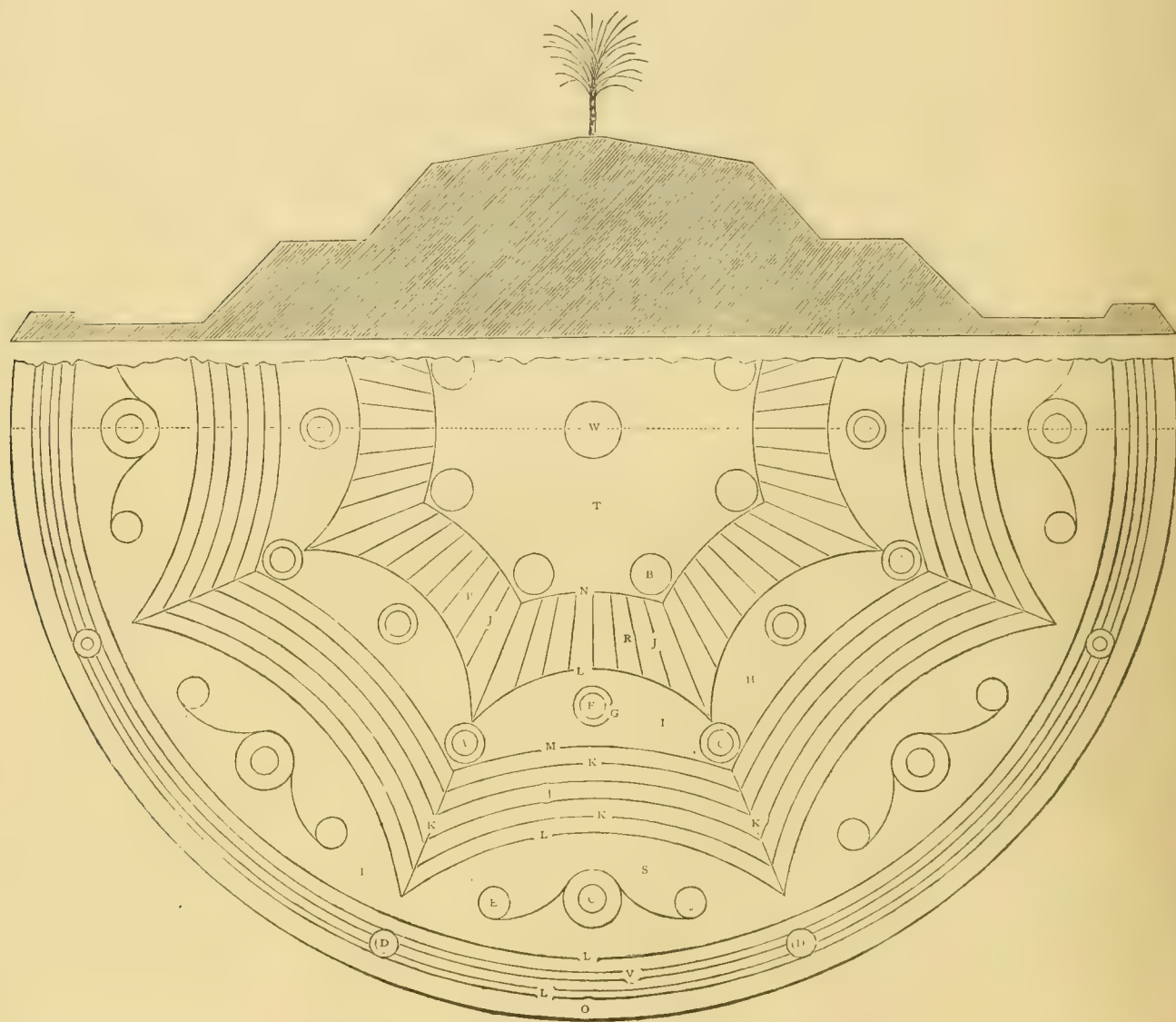


FIG. 4.—PLAN AND SECTION OF FLOWER-BED AT STOKE ROCHFORD.

Nature. Gallery No. 7 is devoted to miniatures and drawings, the place of honour being given to a highly-finished and most beautiful drawing by Michael Angelo, for the well-known figure of "Dawn" upon the tomb of Lorenzo de Medici. This room contains a great number of beautiful drawings by Correggio, Caracci, Titian, and Parmigiano. Gallery No. 8 is exceedingly rich in original drawings and sketches by Raphael and Lionardo da Vinci, mostly lent by Her Majesty the Queen and the University of Oxford. In 111, "Study for the Figure of Poetry on the ceiling of the Stanza della Segnatura of the Vatican," Raphael, it will be seen by the indentations in the paper that the artist carefully drew a nude figure before he introduced the lines of the drapery. 113, by the same artist, "Study for the Heads of Homer, Virgil, and Dante." On looking at the head of Dante, as here drawn, one sees in a moment the deep gulf that lies between Raphael and Doré, judging from the large heads of "Dante," given in Doré's

chalk—the lining is really brush-work with ink and not chalk. We cannot possibly find room for a notice of all the works in this fine collection, so will pass on to Gallery 10, where, amongst other things, there is a "Study of a Pine-apple," by J. M. W. Turner, R.A., one of the worst things we have ever seen; the Pine-apple, too, has a proliferous top. In this gallery there is a series of studies by John Flaxman, which latter, with the studies by the same artist in the Grosvenor Gallery close by, make a very good collection indeed.

THE RAINFALL IN THE ISLAND OF JERSEY. —A correspondent of the *Times* gives the following measurement of rainfall in the island of Jersey, from January 1 to December 31, 1878:—"January, 3.20 in.; February, 2.36 in.; March, 1.86 in.; April, 3.88 in.; May, 4.06 in.; June, 2.14 in.; July, 2.22 in.; August, 3.91 in.; September, 2.18 in.; October, 6.43 in.; November, 8.38 in.; December, 5.38 in.: total, 46 in.

idea of the planting and general effect of one of the most beautiful flower-beds that can well be conceived.

A view of the circular bed in question will be seen in fig. 5, and the plan and section in fig. 4. Its position in the garden is in that portion which adjoins the conservatory, and its measurement in diameter is 30 feet. The central object on the summit, W (see plan), was a specimen of *Cordyline indivisa*, 4½ feet high, sun rounded in T with a mixed assortment of bedding plants of all kinds, and the corner circles, marked R, planted with well-developed specimens of *Chamaepeuce diacantha*. The scooped slope next below was formed with a line at the top, N, of the silver variegated Thyme, and at the bottom, L, with the Golden Feather Pyrethrum, with sloping lines between, J, of *Echeveria glauca* filled in in alternate scollops with *Sedum Lydium*, and R, *Sedum acre variegatum*; the circles at the points marked A being occupied with well-furnished plants of *Cordyline indivisa*, carpet

with *Mentha Pulegium gibraltarica*, and those marked E with large plants of *Echeveria metallica*, about 15 inches high, also carpeted with the little *Mentha*. The circles marked F (on the level) were all occupied with fine bushy plants, about 18 inches high, of *Acacia lophantha*, encircled with a band of *Fresia Herbstii*; the carpeting plants filling the remainder of the sections being alternately, H, *Alternanthera paronychioides major*, and I, *Mesembryanthemum cordifolium variegatum*. Then follows another scalloped slope planted in lines, with the scrolls divided off at the angles with lines, N, of *Alternanthera paronychioides major*. The line at the top, M, is the same all round, and composed of the golden variegated Thyme; and the one at the bottom, L, of

The great beauty of the bed consisted in its well-balanced proportions, its elegant outline, and its rich and harmonious colouring, entirely destitute of glare—qualities which go very far to compensate for the objection often raised to this style of gardening on the score of formality and artificiality. The large expanse of green turf which forms the setting of this gem secures the requisite idea of "repose," without which such beds are apt to be offensive to the eye of taste.

In winter the form of the bed remains the same, and the hardier plants retain their positions, while small Conifers and other evergreens take the place of such of the summer occupants as are too tender to remain out; so that at all seasons it forms a most attractive object, and reflects the greatest credit on its designer and planter, Mr. Dell.

generally are concisely alluded to in the following notice by Dr. Gilbert, and for permission to reproduce which, together with the portrait on p. 49, we are indebted to the Editor of the *Agricultural Gazette* :—

Jean Baptiste Boussingault was born in Paris, in 1802. He received his scientific education at the School of Mines of St. Etienne; and in the laboratory of that institution he conducted his first original investigation, the results of which were published in 1821. Soon after this, that is, when he was still little over twenty years of age, Boussingault went out to Columbia, South America, as mining engineer, and became director of some mines for an English company.

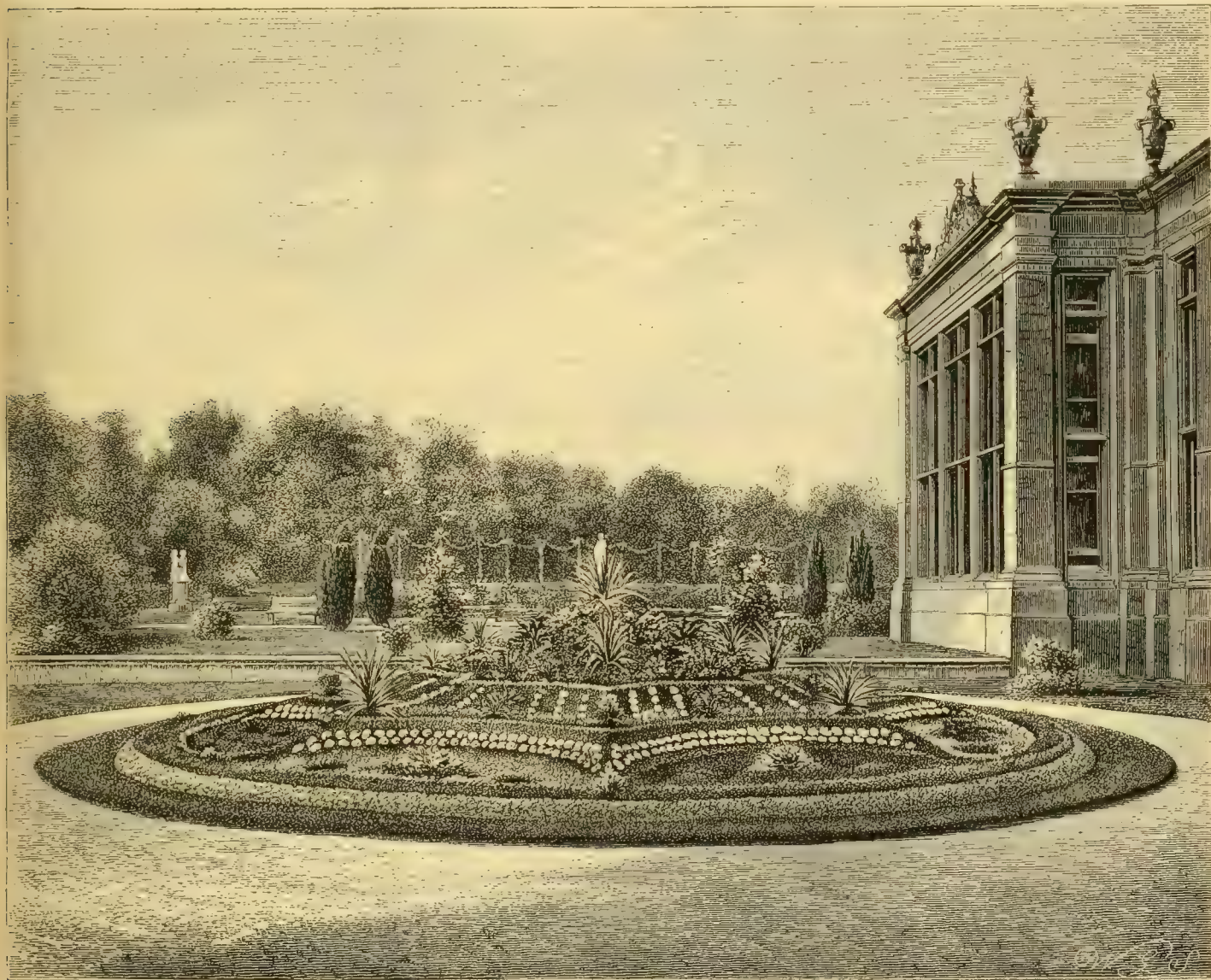


FIG. 5.—A FLOWER-BED AT STOKE ROCHFORD.

the Golden Feather Pyrethrum. The intervening lines, counting from the top, were planted with, K, *Alternanthera paronychioides*; then two lines, J, of *Echeveria glauca*, followed by another one, K, of the last mentioned *Alternanthera*. From the line L of Golden Feather to the margin is all on the level. The circles C were filled with large plants of *Echeveria metallica*, encircled with *Mentha Pulegium gibraltarica*, lines of which led to the smaller circles E, of the same plant, and the whole filled in alternately with, I, *Mesembryanthemum cordifolium variegatum* and S, *Alternanthera amabilis*. The circles, D, in the outer ring were composed of plants, about 9 inches high, of *Pachyphytum bracteosum*; and the lines of (J) *Echeveria glauca*, (L) Pyrethrum Golden Feather, (V) two of *Alternanthera paronychioides major*, (I) Pyrethrum Golden Feather again, and the outer one (O) of a broad band of *Sedum hispanicum*.

BOUSSINGAULT.

AMONG those who by their chemical researches have thrown the greatest amount of light upon the problems of vegetable physiology, there are few indeed who can be placed in the same rank as the subject of this notice. His researches on the respiratory and assimilatory functions of plants are among the most conclusive proofs of doctrines upon which the whole fabric of the physiology of the leaf depends. The absorption and dismemberment of carbonic acid under the influence of sunlight, and the consequent elimination of oxygen—the proof that plants do not absorb directly free nitrogen from the air, large as is the quantity contained in it—are cardinal facts in physiology, and for their substantiation we are very largely indebted to Boussingault. His very numerous and comprehensive researches in various points of plant-nutrition and agricultural chemistry

There he remained for about ten years, during which time he published many papers, chiefly on metallurgical or mineralogical subjects. But before leaving home he had received valuable suggestions as to the points deserving observation from A. von Humboldt, whose notice he had already attracted, and to whom, in the form of letters, many of his afterwards published communications were made. Notwithstanding the direction given to his energies by his technical education and engagements, his natural bent soon showed itself, and we find him making observations on the meteorology and the vegetation of the regions he visited. In regard to his contributions to science whilst in South America, Humboldt speaks of him as having enriched chemistry, meteorology, astronomy, and geography, with a number of precious works. Boussingault also, with his friend, Colonel Hall, took part in the War of Independence, and showed as much courage in

battle as energy in scientific pursuits. After spending ten years in South America Boussingault returned to France, and was appointed Professor of Chemistry at Lyons, where he conducted an investigation into the composition of the atmosphere. He married the sister of a former fellow-student at St. Etienne, M. Lebel; and, by his marriage, became joint proprietor, with his brother-in-law, of the now famous estate of Bechelbronn, in Alsace, which, besides a large farm, included a mine of bitumen. M. Lebel, besides being a chemical manufacturer, was also a very intelligent practical farmer who was accustomed to use the balance for the weighing of manures, crops, and cattle. Here, then, was associated "practice with science," and it was under these favourable, not to say indispensable conditions, that the first laboratory on a farm was established, and the first agricultural experimental station was founded.

From this time forward Boussingault generally spent about half the year in Paris, and the other half in Alsace; and has continued his scientific labours, sometimes in the city, and sometimes in the country, up to the present time. His first important contribution to agricultural chemistry was made in 1836, when he published a paper on the quantity of nitrogen contained in different foods, and on the equivalents of the foods, founded on the amounts of nitrogen they contained, which he determined in a large series of such matters; and he compared the results so arrived at with the estimates of others founded on actual experience. Although his original conclusions have, probably, undergone some modification, the work of itself marked a great advance on previously existing knowledge and modes of viewing the subject.

In 1837 Boussingault published papers on the amount of gluten in different kinds of Wheat, on the influence of the clearing of forests on the diminution of the flow of rivers, and on the meteorological influences affecting the culture of the Vine. In 1838 he published the results of an elaborate research on the principles underlying the value of a rotation of crops; he determined by analysis the composition, both organic and mineral, of the manures applied to the land and of the crops harvested; and in his treatment of the subject he evinced a clear perception of the most important problems involved in such an inquiry; some of which, with the united labours of himself and many other workers, have scarcely yet received an undisputed solution. Thus, in the same year he published the results of an investigation on the question whether plants assimilate the free or uncombined nitrogen of the atmosphere; and although the analytical methods of the day were inadequate to the decisive settlement of the point, his conclusions were in the main those which much subsequent work of his own, and much of others also, has served to confirm. As a further element of the question of the chemical statistics of a rotation of crops, Boussingault determined the amount and composition of the residues of the crops, and also the amount of constituents, consumed in the food of a cow and a horse, and yielded in the milk and excrements of the cow, and in the excrements of the horse. Here, again, the exigencies of the investigation he undertook were beyond the reach of the known methods of the time. Indeed, rude as the art of agriculture is generally considered to be, the scientific elucidation of its practices requires the most refined, and very varied, methods of research, dealing as the subject does with the chemistry of the atmosphere, of meteoric and other waters, of the soil, of vegetation, and of animal life; and a characteristic of the work of Boussingault may be said to be that he has frequently had to devise methods suited to his purpose before he could grapple with the problems before him; and in this way he has made valuable contributions to analytical chemistry.

In 1839, chiefly in recognition of his important contributions to agricultural chemistry, Boussingault was elected a member of the Institute. Thus, before 1840, the date of the first appearance of Liebig's memorable work, Boussingault had covered much of the ground, and there can be no doubt that many of the important facts established by his researches served as the basis for much of Liebig's brilliant generalisations. This led to the publication, in 1841, by Dumas and Boussingault jointly, of an essay, which was afterwards translated into English, and published in this country under the title of *The Chemical and Physiological Balance of Organic Nature*. In 1843 Boussingault published a larger

work, which embodied the results of many of his own previous original investigations. This also was translated, and published in this country under the title of *Rural Economy in its Relations with Chemistry, Physics, and Meteorology*. A second edition of this book, *Economie Rurale*, appeared in France in 1857, but it was not translated into English.

Although Boussingault's attention has been by no means limited to subjects bearing upon agriculture, by far the greater number of his researches have had relation to the problems which it suggests. Thus, the amount and condition of the combined nitrogen in the atmosphere, in the aqueous depositions from it, in rivers and springs, and in the soil, have been investigated. The amounts of nitrogen, phosphoric acid, &c., in different manuring substances have been determined, and their comparative values estimated accordingly. The question of whether or not plants assimilate the free nitrogen of the air has again and again been taken up, the weight of the evidence always serving to confirm the conclusion that they do not. Very recently, too, he has made experiments in regard to some functions of the leaves of plants. Lastly, in the sphere of animal chemistry, he has from time to time devoted himself to the elucidation of important points, such as the sources in the food of the fat of the fattening animal, the assimilation of mineral constituents, the question whether any of the nitrogen of the food or of the animal is exhaled, and so on.

In 1848 Boussingault, who was in politics a moderate Republican, was elected a member of the Assemblée Nationale, and he was for a short time member of the Conseil d'Etat. In 1851, however, he was, on account of his political opinions, dismissed by the Government from his position of Professor at the Conservatoire des Arts et Métiers; but on the representations of scientific friends of eminence and authority, and the threat of his colleagues to resign in a body, he was reinstated.

When, in the commencement of the Franco-German war, the Crown Prince of Prussia had crossed the Rhine into Alsace, some of the soldiers bivouacked in the woods of Bechelbronn, and some of the officers were quartered in Boussingault's house, the old Convent of Liebfrauenberg. Some time afterwards Boussingault received a letter from one of those officers, saying that, finding in whose house they were, and having the highest respect for its scientific owner, he had done his best, he hoped successfully, to prevent any injury being done, especially to the laboratory. He further expressed a hope that Boussingault would find nothing missing, except a thermometer, which he had himself presumed to take as a memorial.

Boussingault's first scientific contribution appeared in 1821, and in the Royal Society's Catalogue of Scientific Papers there is given a list of 150 published by him from that date to 1873 inclusive; besides a number published jointly with others. Last year, 1878, the Council of the Royal Society awarded the Copley Medal, the highest honour at their disposal, to Boussingault, for his numerous and varied contributions to science, but especially for those relating to agriculture. The presentation of the medal took place at the anniversary meeting of the Society, on Saturday, November 30. The veteran investigator, though still happily as vigorous as could be expected at the age of 76, but suffering from recent domestic bereavement, felt unable to be present to receive the reward in person, but it was transmitted to him, with the assurances of the appreciation of English scientific men, by the Foreign Secretary of the Society. It will perhaps excite surprise, that such considerable and long-continued services have not been earlier so recognised. But the characteristic modesty of the man, the scrupulously matter-of-fact, and unexaggerated style in which he has put forward his results, and the circumstance that they have so largely had reference to agriculture, have doubtless led to their receiving less notice than they would otherwise have done, from men of science not specially interested in that subject, though those engaged in the same sphere of labour as himself have held them deservedly in the highest possible estimation.

Almost the whole, if not the whole, of the results of Boussingault's investigations relating to agricultural chemistry will be found recorded in his work entitled *Agronomie, Chimie Agricole et Physiologie*, published in five volumes, the first in 1860, and the fifth in 1874. Lastly, the portrait accompanying this notice is from a recent photograph, said to be the best ever taken of its distinguished subject.

Garden Operations.

FLOWER GARDEN, ETC.

The changes of temperature since I wrote last have been so great, ranging from 12° of Fahrenheit to 50°, that it has brought with it the necessity for greater care in the management of bedding plants for the summer. So long as the temperature is above freezing point, and light and ventilation can be given with safety, all may be well with comparatively little trouble, but when extremes of low temperature occur and the plants are kept in a dark and comparatively warm and close atmosphere, the foliage becomes yellow and without substance, and thus peculiarly liable to the attacks of the mould fungus, which is much accelerated by the stagnant condition of the atmosphere. The first necessity for counteracting this baneful influence is ventilation, which must be judiciously and gradually applied, and always on the sheltered side, so as to avoid the bad effects of sharp cutting winds on the tender foliage; the next great necessity is on the first extra fine day to throw all open, carefully remove all signs of mould, and gently disturb the surface of the soil; the last great necessity is the careful use of water. It will generally be found during extremes of low temperature that the plants which suffer least from the ordeal are those which are driest at the roots, but at the same time this must not be carried to excess, because, as I have lately observed, there are some kinds of bedding plants in which the perfect absence of water at the roots would be as fatal as the injury likely to ensue from too much moisture. It will, therefore, be necessary to seize upon the most favourable opportunities, particularly of fine and brisk mild mornings, to apply a sufficient amount of water to all pots which need it, but only in sufficient quantity to retain the vitality of the plants.

Beds of Carnations, Picotees, and Pinks which were planted out in October should be looked over when a thorough thaw occurs, after so severe a frost as that we have lately experienced; they will often be found lifted almost out of the ground, and should be pressed down into their place; and it would be well to give the beds a surface-dressing of a mixture of dry ashes, lime, and soot, as a preventive against damp and vermin. The same process of lifting up the surface by frost, often occurs to Turban and other Ranunculus roots, as well as Anemone beds, and plantations of such should be examined occasionally, the roots pressed down, and a surface-dressing of fine leaf-mould spread over them. See also that the milks have not discovered the Crocus roots, if so they must be diligently trapped, or serious mischief will ensue. Where the beds in the flower garden are edged with *Sempervivum californicum* and *montanum* they should be examined now and then after frost, which is very apt to dislodge them; birds also sometimes take fit of tearing them out by wholesale, for which the gun is the best remedy. I have tried pegging down long lines of fine twine over them, but it is not always effectual. Whilst these operations are in progress it will be as well to cast an eye on the Pansies, Alyssums, Arabises, and other spring flowering plants and press them into position.

Hollyhocks and other choice perennials kept in store in frames must be frequently examined and a decaying matter removed; let them have free ventilation at all times when frost is not severe, as it is a great mistake to coddle them too much: the harder they are kept the less likely will they be to suffer when finally planted out. Bedding *Calceolarias* in cold pits will require attention in the removal of decayed foliage and surface stirring; let them have as much ventilation as possible, in severe weather a moderate protection is all that is necessary, as they are nearly hardy. See that the protective material applied to the tenderer sorts of Tea-scented and Noisette Roses is efficient and secure, as we may still look forward to severe weather for some time. The occurrence of a good ground thaw after a frost should always be seized upon to consolidate the gravel walks by rolling, the grass lawns also should be well swept over and rolled in mild weather. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

The severity of the weather during the last five or six weeks will have considerably retarded the operations in this department. Work at the walls may nevertheless go on during a part of most days, if the operator is provided with boards, or, better still, lengths of trellising made for the purpose of standing upon, but in the absence of some such aid it is impossible for the men to stand long in the slush and puddle that results from continued trampling in the snow, &c. Peaches, Nectarines, Morello Cherry trees, and young fruit trees of whatever description are better for being freed from their supports once a year, thereby facilitating the work of pruning, preventing strangling, and, what is equally important, affording the best possible opportunity for washing the trees with soap and water, or a moderately weak solution of any of the many insecticides that are now to be had, if these are preferred.

Any young trees that were unfortunate enough to come to hand in the early days of the frost, and were stowed away, will still require attention to see that their roots are secure from frost, and not dangerously near any fire-heat, also that rats and mice are not gnawing the bark off. Planting is, of course, impossible until a thaw comes, and should not be attempted then until the ground gets into thoroughly sound condition; in the meantime it will be well to make the best of any opportunity that may occur for pushing the work forward. Old shreds may be picked over and the sound ones plunged into boiling water for a minute or so, which will effectually dispose of any insects or their eggs, &c., that may be sticking to them. Similarly, old nails may be put into any suitable vessel at hand, and be subjected to a roasting or a boiling; the bit of mortar that mostly sticks at the end will then easily come off, and the nail will do again if the point has been preserved. Have nets, &c., in readiness for securing Gooseberry and Currant bushes against sparrows and bullfinches, which are already attacking the fruit-buds here. *F. Harrison, Knowsley, Prescot, Lancashire.*

FRUIT HOUSES.

VINES.—Since my last paper was published we have had some very sharp weather, the thermometer on Christmas Eve falling one degree below zero. Fortunately everything was dry, there was very little wind, and the trees and shrubs being nicely protected by a covering of snow, we may hope to have escaped the disasters of 1860, the last occasion on which we registered more than 30°. Under such conditions in mid-winter early forcing has been carried on under great difficulties, and we may naturally assume that the minimum heats have not been exceeded. Within a few days, however, a genuine thaw set in, the thermometer rose to 50°, and with so acceptable a change the internal temperatures were permitted to rise also. But great care must be observed in the management of early Vines that are now breaking away into free growth, as sudden depressions or draughts may injure the crops to an extent that no after-management can restore. Attend to disbudding, stopping, and tying as growth proceeds, and remove all surplus and ill-formed bunches from free-setting kinds, as soon as the most compact shows, which are generally nearest the spurs, can be decided upon. Young Vines forced for the first time, as well as imperfectly ripened wood on older canes, frequently show loose bunches having a great tendency to run to tendrils. When this is the case a somewhat higher and drier heat will often prove a corrective, and when the Grapes come into flower the free setting Hamburgs will be improved in size and evenness of berry by artificial fertilisation. Many growers make light of artificial impregnation, but having proved to my own satisfaction that both Grapes and stone fruit when grown under glass are greatly improved by it, I have no hesitation in again drawing attention to an operation which is at once so simple and interesting.

Pay attention to the fermenting material on inside borders; turn it over frequently, and introduce fresh Oak leaves as they are required. If the roots in outside borders are to be stimulated, a good coating of fermenting Oak leaves should be placed on the surface by the time the Vines are showing fruit. Maintain a mean temperature of 45° in houses in which late Grapes are hanging. Avoid fire-heat as much as possible, and ventilate when it is applied. All late Grapes that have been properly ripened should now be in the store-room, where they will keep better than on the Vines. Get all pruning finished without delay, in order that the Vines may have time to rest; dress the wounds with styptic, wash the rods well with soap and water, and paint with Gishurst Compound, 8 oz. to the gallon of water. If the foliage has ripened off clean and free from insects the barbarous practice of scraping may be dispensed with, but if spider has gained a footing the loose bark may be rubbed off prior to dressing.

Any alterations and additions required in late Vine borders, hitherto deferred, should now be set about without delay. See that the drainage is ample, as the secret of gaining an abundance of useful roots in internal borders depends quite as much upon the quantity of tepid liquid that they can take, as upon the materials used in their formation. We have just finished storing our late black and Muscat Grapes, and have the inside borders in hand. After taking away a quantity of inert and exhausted material, completely filled with hungry roots, the borders will be made up with rather strong loam from a lime-stone hill on which Oaks grow well, burnt earth and old lime rubble. *W. Coleman, Eastnor Castle.*

FIGS.—Although the Fig in the early stages of its growth is less likely than the Peach or other stone fruits to suffer from fluctuations, a steady bottom-heat of 75° to 80° should be maintained from the commencement of the swelling of the fruit until it begins to ripen, when, due attention having been paid to light, ventilation, and water, a good supply of fresh

Figs worth eating should be fit for gathering from the November started trees early in May. These trees will now be throwing out quantities of fresh young roots in search of food, but instead of allowing them to go direct into the leaves good pieces of turf laid round the rims of the pots will keep the feeders near home until we have more genial weather. Take advantage of gleams of sunshine aided by a little fire-heat for running the house up to 80°, with plenty of moisture in the atmosphere, but until we have a change a night temperature of 60° will be quite high enough. As growth advances, disbudding and the stopping of all gross leading shoots (where space is limited) will require attention; but the finest Figs are always produced by free healthy trees that are grown on the extension principle. If not already started, the second house should be closed at once for giving a supply early in June, and as the trees in this structure will be planted out in inside borders composed of good loam and lime rubble, resting on ample drainage, a series of waterings at short intervals with tepid liquid, at a temperature of 85° to 90°, must be followed up until every particle of soil is well moistened. Figs take quantities of water, and where the borders are properly drained there is little danger of giving them too much, while many promising crops are lost by being kept too dry. *W. Coleman, Eastnor.*

MELONS.—To have ripe Melons by the end of April or beginning of May the seed should be sown now. As to varieties most growers have their own pet sorts, but, however, I may remark in passing for the guidance of those who have not, that Scarlet Gem, Victory of Bath Improved, and Eastnor Castle are three excellent early varieties. The seed should be sown singly in large 60's in light fine loam and leaf-mould, leaving room in the pots for top-dressing when the plants require it; then plunge to the rims in a hotbed made of fermenting material as recommended for Cucumbers, and cover the pots with a piece of clean glass, which, however, should be removed as soon as the plants appear through the soil, when they should be placed within 2 inches of the glass to prevent their becoming drawn. Keep a sharp look-out for slugs, which are very partial to young Melon and Cucumber plants; a ring of lime and soot round the plants will keep them at bay. *H. W. Ward, Longford Castle.*

CUCUMBERS.—Fermenting material having been mixed as advised in last Calendar, and having been turned over a couple of times in the interval, to allow of the rank heat escaping, will now be in a fit state for making a hotbed, which, it is almost needless to say, should be made in a southern position—all the better if under a wall or a high evergreen hedge, or any other kind of shelter from the north wind. The ground on which the hotbed is made should be higher than that surrounding it, so as to prevent the lodgment of water under the bed; where this is not the case, half-a-dozen faggots placed underneath the bed would answer the same purpose. Let the bed be made just large enough to take the frame for which it is intended, having it, however, an inch or two larger than the frame all round. As the work proceeds, beat the dung and leaves down with a fork. Let the bed be made sufficiently high to allow of its shrinking, which will be rather more than one-third its height when completed. When the bed is being made a good old plan is to place a few layers of old Pea-sticks across and along the bed, for the obvious purpose of conducting the heat supplied by the linings to the interior of the bed. When the box is placed on the bed put a shell inside it, which should be 6 or 9 inches shallower than the frame and 1 inch less all round, and of the same shape as the frame, and nailing the battens on the outer side of the shell, so that when it is fixed in the frame there will be a space of 1 inch between the latter and the former, thus supplying a means of top-heat. Another good plan, where the pipes are to be had, is to introduce a dozen perforated pipes in the sides and ends of the bed at about 10 or 12 inches from the surface of the same, the end of the pipes communicating with the outside being stopped, for the present, to prevent the cold getting in, and the stopping removed when the linings are being made. Put sufficient fermenting material inside the frame to raise the bed to a uniform height, back and front, after which 3 inches of short dung, and then, for the present only, 4 or 5 inches of sawdust, or dry leaf-mould, in which, so soon as the plunging material has become warm, young plants must be got ready for the early spring supply of fruit. For this purpose I know of none to beat, if any are so good as, Rollisson's Telegraph. Let the seed be sown singly in large 60's in light rich mould, leaving room for top-dressing the plants when they require it. Plunge the pots to the rim, and place a clean square of glass over them, which must be removed as soon as the plants come up. Of course the number of plants to be raised must be determined by the space which is allotted for their culture, and also in accordance with the demands of the establishment. *H. W. Ward, Longford Castle Gardens.*

PLANT HOUSES.

Of all plant structures there are none that require such a degree of watchfulness at the present season as the greenhouse, which, what with damp to contend with, so dense at times as to spread a pall over everything, followed suddenly again by biting and continuous frosts, as of late, keeps one continually on the alert. In dealing with the latter evil, the thing is to steer clear of rendering the atmosphere too dry, as with the great depression of temperature that suddenly takes place outside, there is naturally a great rush of air from within, and this escapes through every lap and crevice, carrying with it all the moisture so necessary to plant-life. This being the case, the utmost care should be taken to keep the fire as low as the safety of the inmates of the house will allow, much depending as regards the degree of heat that is maintained on the hardness or otherwise of the different subjects under treatment. Where these consist principally of Camellias, Azaleas, Heaths, Epacris, and the ordinary kinds of hard-wooded greenhouse plants, the less artificial warmth there is applied the better, as they are all exceedingly impatient of any coddling or close confinement, of which the first-named are not slow in showing their resentment by at once casting their buds. In cases where a miscellaneous collection has to be treated it is a good plan to arrange the several genera already enumerated at the coolest end of the house, where they can have more air and be less subject to the drying influence of hot-water pipes or flues, which not only make the atmosphere too arid for their welfare, but desiccates the small body of soil they are growing in so much as to cause flagging—a condition that is highly injurious. To prevent this taking place the plants should be looked over at least once daily during the time fires have to be applied, and in the event of severe frost, requiring an increase of heat to keep it out, it may occasionally be advisable to sprinkle the floors and other cool surfaces so as to maintain the atmosphere in a moist, healthy state. On the other hand, during a continuance of dull, damp weather, these cannot well be kept too dry, nor can too much care be exercised in watering, more particularly when there happens to be flowers in the house, the soft petals of which are soon adversely affected by any vapour settling upon them. The mistake many make when using fire-heat to drive damp out and dry the air during foggy days, is in not opening the ventilators at the same time; the result of which is, the evil is aggravated, as instead of the stagnant moisture being expelled, more is drawn up. Although it is highly important that the ventilators should be open, the distance must be entirely ruled by the state of the weather prevailing, otherwise the heavily laden atmosphere outside will overpower that within and make matters worse. A slight crack is generally sufficient if put on at the apex of the house, to which point all heated air has a tendency to rush, carrying with it in its course the damp, that works so much mischief when the temperature of plant-houses is low.

CONSERVATORIES.—These structures may be rendered much more interesting and enjoyable by keeping them at an equable and uniform degree of warmth, which not only conduces to a more comfortable feeling on the part of visitors, but is of the same agreeable nature to the class of plants that are in general use for decorative purposes at this time of year. By maintaining the temperature as nearly as possible at 50° to 55°, all such things as Cyclamens, Primulas, Violets, Lily of the Valley, Heliotropes, Callas, forced Rhododendrons, Azaleas, Lilacs, and many others of that class, will expand their flowers and keep fresh and beautiful for a considerable period. In order to get the three first-named to develop their fine natural colours, they should be arranged near the glass, where they can have the full benefit of what little light and sun we are now favoured with, as well as the extra amount of air such a position affords. Primulas, of all soft-wooded plants, require most careful watering just now, as the tendency with them when wetted at the axils of the leaves and about the collar is to rot off at that particular part, and more especially is this the case with the double varieties, the constitution of which is not so strong, or the habit so robust as the singles. Liquid manure properly diluted will now be of great assistance to these, as also Cyclamens, Cinerarias, and other subjects of a kindred nature that have well filled their pots with roots and are now showing flowers. An excellent stimulant for these, and one that is not offensive used in any house or room, is soot water, and this given freely to plants not only induces them to produce large heads of bloom, but has likewise a most beneficial effect on the foliage, to which it imparts a look of the most luxuriant green.

PITS AND FRAMES.—Damp will now be the great enemy for the inmates of these, and it will be necessary to seize on every opportunity the weather affords to admit air, and pick off any dead or decaying leaves, and give the surface of the soil a stir, which tends greatly to aid root-action and improve its condition. *J. Sheppard.*

THE

Gardeners' Chronicle.

SATURDAY, JANUARY 11, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| TUESDAY, Jan. 14 | { Royal Horticultural Society Meeting of the Fruit and Floral Committees, at 11 A.M. Scientific Committee, at 1 P.M. |
| WEDNESDAY, Jan. 15 | { Sale of English-grown Lilies, &c., at Stevens' Rooms. |
| THURSDAY, Jan. 16 | { Sale of Orchids from Messrs. Veitch, at Stevens' Rooms. |

OF late years, owing to the impulse given to the subject by Mr. DARWIN, we have heard a great deal of the agency of insects in effecting the FERTILISATION OF THE FLOWER. While much has been written on the contrivances of flowers to receive the attention of certain insects to which they are adapted for securing "intercrossing," but little has been observed upon other peculiar structures which exclude the entry of obnoxious and "uninvited guests," who would rob the flower of its treasures without fertilising it at the same time.

To fill up this deficiency in our knowledge Dr. KERNER, of Innsbruck, has published a volume* which, whether we adopt all his conclusions or only some, is one of very great interest, not only for the botanist, but also for the amateur fond of plants. To many a gardener it will be news to hear that in many cases the plant itself is provided with means of defence against the incursions of insects, slugs, and other undesirable visitors. But so it is, and, when pointed out, the wonder will be to many that they never thought of it before. We are, therefore, under obligations to Dr. OGLE for bringing this work under the notice of English readers, and we think we shall be doing a service to our own community by directing their attention to it.

Before detailing the various means by which flowers are protected, Dr. KERNER makes some very pertinent remarks upon inexact observations and the vicious habit of drawing conclusions from them, which are worth quoting:—"For the solution of the questions at issue experiments and observations must be carried out with definite aim, so that all subjectivity may be, as far as possible, excluded." . . . "Any one who builds up a structure of hypothesis, the uncertainty of which is, moreover, increased by his own short-sightedness, must not be surprised to see his building forthwith tumble to the ground." And with reference to the subject of this book he adds:—"Men have tried to explain everything they possibly can by the relation between the shape of the flower and that of the animals that visit it; and, as was unavoidable, in so doing they have overshot the mark, and by this one-sided mode of viewing the matter have overlooked, entirely or in part, other definite advantages not thus to be explained."

The soundness and importance of the above remarks cannot be overrated, but while the author has kept to these principles to the best of his power, he seems now and then to have ridden his hobby rather hard. Thus, in treating of viscid secretions as offering a hindrance to small insects entering flowers by catching them, he considers *Pinguicula* as being no exception to the purpose of glandular hairs. "The primary function of the glandular trichomes (hairs) on the leaves of *Pinguicula* and numerous other plants is certainly, therefore, to keep off those creeping insects, whose bodily dimensions are so small that their visits would not bring about allogamy (*i.e.*, cross-fertilisation)."

But Mr. F. DARWIN's experiments on the absorption of nitrogenous matter by the leaves of *Drosera* have clearly shown that the chief benefit, and a positive one, is conferred upon the reproductive processes, and one is thereby led to infer that the most important or "primary" function of such-like glandular processes is digestion, and not the negative use of keeping off possible foes. Moreover, *P. lusitanica*, which devours minute insects in abundance, is self-fertilising, and *D. rotundifolia* is mostly cleistogamous as well, *i.e.*, the flowers do not usually open.

Again, in finding that ants could not advance on the stems of wild Lettuces because the sharp hooks on their feet cut through the epidermis, and the exuding milky juice glued them down, he does not "hesitate to infer that the milky juice in certain parts of plants is to be regarded as another of the appliances by which flowers are protected from the unwelcome visits of creeping animals."

That the milky juice is not to be regarded as specially adapted for this purpose is obvious, for it abounds in roots, but that the hindrance it affords to ants is, so to say, accidental, seems equally clear; and this remark will apply to some others, but perhaps the minority, of the contrivances described as hindrances to the entry of animals.

Dr. KERNER alludes to the reservoirs of water which many plants retain by means of crowded or connate leaves, as the Teazle, which thus offer an effectual barrier to insects ascending the stems. Without denying the fact that these cups of water do prevent crawling insects from reaching the flowers, which, by-the-by, are again protected by spinescent bracts, Mr. F. DARWIN has given us reason to believe that these cups serve as traps for catching insects, the nutrition from which is probably absorbed by glandular hairs.

A large number of herbs have their flowers protected from snails and soft-bodied enemies by the stems and foliage being more or less covered with sharp-pointed structures of various kinds, and from herbivorous grazing animals as well. These latter also often carefully avoid flowers, such as Buttercups, which are self-protecting by having some acidity, which seems to render them unpalatable.

The chief interest of Dr. KERNER's observations, however, is in the immense variety of floral structures which he has collected to show how the sweet secretions are protected, and all access to them carefully precluded from unwelcome guests. Flying insects of a certain size and shape being the legitimate visitors, flowers are often specially constructed to admit them and no others. It is here, then, that Dr. KERNER is extremely successful, and quite justifies the remark of Mr. DARWIN, in his prefatory letter:—"The general observer . . . will, I believe, come to the conclusion that flowers are not only delightful from their beauty and fragrance, but display most wonderful adaptations for various purposes."

Space will not allow us to reproduce here any of the very curious adaptations of hairy "wheels," "trap-doors," "drop-bars," and other arrangements, all being directed to the above end; but a brief enumeration will show how varied are the methods of exclusion:—1, By secretion of distasteful substances; 2, by isolation in water; 3, by viscid secretions; 4, by prickles; 5, by hairy formations; 6, by bending, crowding, or dilating certain parts; 7, by the temporary suspension of functions; 8, by diverting unwelcome visitors to attractions elsewhere.

In this department, however, as elsewhere, Nature is not absolutely perfect in her success. However seemingly ingenious may be the contrivances, many flowers are nevertheless often illegitimately robbed of their sweet treasures, to say nothing of parasitical fungi, such as the

"smuts" (*Ustilago*), which destroy flowers altogether; and Dr. KERNER instances a case where the proper visitor, a small moth, "passed over some of the flowers," and on examining them he found the corolla-tubes filled with small beetles. Gardeners are also well aware how humble-bees perforate the tubes from without, a fact alluded to by Dr. KERNER, and one which was described in this journal by the Rev. G. HENSLOW in the case of the Scarlet Runner a short time ago; but these instances do not negative the general conclusions which will be unhesitatingly drawn from Dr. KERNER's laborious observations.

Allowing, then, for some instances where the author seems to have stretched a point (and the case of waxy secretions might be added, of which the author says "there can be no possible doubt but that this also can serve to hinder the ascent of crawling insects"—would not gardeners rejoice if the waxy bloom on their Plums could effectually keep off wasps!), the book will be found to those interested in the subject quite as interesting, and, we would add, fascinating, as the *Fertilisation of Orchids*, or other of the inimitable writings of our great naturalist, DARWIN.

— MEXICAN CONVULVULACEÆ. — Looking through a pamphlet by Don MARIANO BARCENA, entitled *Viaje a la Caverna de Cacahuamilpa*, we are reminded, by a coloured plate of an *Eriogonum*, that Mexico contains several very fine *Convulvulacæ* which would be worth introducing. The *Eriogonum* in question BARCENA names *E. Olivæ*, but it had been previously described under the name of *E. spicatum*. It has small tubular flowers, but it is remarkable for its large heart-shaped deep red bracts. *Ipomœa Llaveana* and *globosa* are two other very beautiful species. The former was introduced by HARTWEG, but appears to have been lost. Dr. LINDLEY figured it in the *Journal of the Horticultural Society* under the latter name. *Mina lobata* is another beautiful plant of the same order. It is commonly cultivated in Mexico on account of its ornamental character, and was formerly in this country. It has spikes of red and yellow flowers, with exerted stamens, not at all *Convulvulaceous* in appearance.

— A NEW INSECT.—Some time back it was reported that a new bug had been found in Bavaria, parasitical on the roots of *Abies balsamea* and *A. Fraseri*, two North American Firs. The young trees attacked went off very quickly, and on examining the roots they were found to be covered with small white bugs, which HOLZNER called *Pemphigus Poschingeri*. LICHTENSTEIN, however, has discovered that it does not belong to the genus *Pemphigus*, and he proposes the name *Holzneria Poschingeri* for it.

— THE PARIS EXHIBITION. — The following letter, with a proof impression of an admirable portrait of the Prince of WALES, has been sent to Mr. JOHN WILLS, in acknowledgment of his zealous services in the Horticultural Department:—

"Mulborough House, Pall Mall, S.W.,
December 12, 1878.

"Sir,—As the work of the Royal Commission for the Paris Universal Exhibition is now drawing to a close, I wish to thank you again for the invaluable services you have been kind enough to render as a member of the International Jury.

"I have ordered a copy of the list of awards to be prepared and forwarded to you, as an official record of your labours; but in the meantime I desire further to take this opportunity of expressing my personal obligations for the generous manner in which you responded to my invitation to act as a British juror; and I beg to offer for your acceptance the accompanying proof of my portrait, as a personal mark of our connection in the work of the Paris Exhibition, which has been attended with such satisfactory results.—I have the honour to be, sir, your obedient servant,

"ALBERT EDWARD.
President of the Royal Commission for the Paris
Universal Exhibition of 1878.
"JOHN WILLS, Esq."

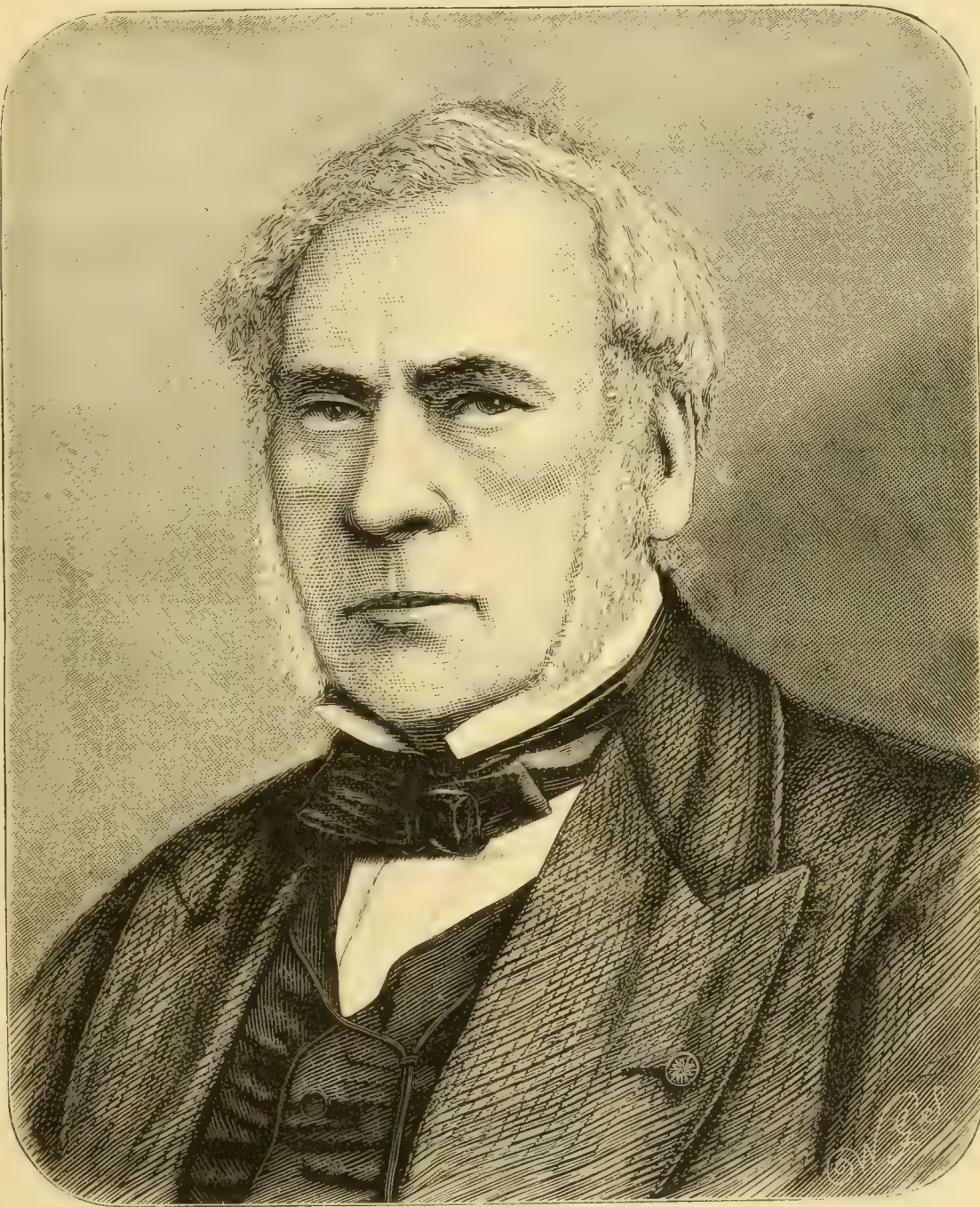
— NEW FORMS OF *PERNETTYA MUCRONATA*. — Considerable interest attached to the new forms of *Pernettya mucronata* exhibited at a recent meeting of the Royal Horticultural Society by Mr. L. T. DAVIS,

* *Flora and their Unfolding Secrets*. By Dr. A. Kerner, Professor of Botany in the University of Innsbruck, with a prefatory letter by Charles Darwin, M.A., F.R.S. The translation revised and edited by W. Ogle, M.A., M.D. C. Kegan, Paul & Co.

Ogles Grove Nursery, Co. Down, and to one of which, *P. mucronata lilacina*, which, with two others, is figured in the current number of the *Floral Magazine*, a First-class Certificate was awarded. We are informed by Mr. DAVIS that these *Pernettyas* are the result of selection from several batches of seedlings, the first lot having been raised from *P. mucronata angustifolia* many years since. Those exhibited at the meeting above referred to were only a few selected from many varieties so produced, so varied also as to present almost endless shades of

and from their thorough hardihood and their dwarf and spreading habit of growth, they are peculiarly fitted to play an important part in winter bedding arrangements as they can be lifted again in spring or in early summer with perfect safety, and may be kept to any height or dimensions by requisite pruning, or the plants can be renewed as readily by cuttings or layers. A charming mixture for a winter bed might be provided by using these *Pernettyas* mingled with such things as dwarf Box, of sorts, various forms of *Euonymus*, *Retinosporas*, &c., and they are very effective as

berries with us." Mr. DAVIS finds there are breeds of *Pernettyas*, some bearing berries more freely than others, and when the bad-berried types are grown they are disappointing. At Hillsborough several varieties, such as *floribunda*, *speciosa*, and some seedlings from *angustifolia*, never show a berry. The common form of *mucronata* is also a very shy fruiter, hardly ever showing a berry in the younger stages of its growth, and only a few at any time; while Mr. DAVIS states that very many of the new varieties he has raised are perfect masses of berries on plants only



JEAN BAPTISTE BOUSSINGAULT.

colour in the berries combined with much diversity in habit of growth and character of foliage. Mr. DAVIS has succeeded in obtaining several very pretty varieties with pink and blush coloured berries, and one almost pure white, that is white with a slight tinge of blush; and there is one distinct creeping type with distinct rose-coloured berries. In making a selection of varieties for distribution Mr. DAVIS has paid as much attention to the free fruiting qualities of the plants as to the colour of the berries, thus exercising a very praiseworthy discretion. The many uses to which these attractive shrubs can be put will naturally suggest themselves; they bear very pretty pure white Heath-like blossoms, which remain long in perfection,

a front row to mixed shrubbery borders, as an edging to a clump of shrubs, or planted for furnishing narrow borders. They might also be employed for dwelling-house and conservatory decoration, though they are most at home in the open air. They are not particularly fastidious as to the matter of soil: they will succeed in any ordinary ground free from lime, but of course would be benefited by the addition of a little peat, leaf-mould, or light fibrous loam—ingredients it is not difficult to obtain; and only in poor sandy soils should manure be used, and then well decomposed. Complaints are sometimes made of *Pernettyas* not producing berries, and it is not at all uncommon to hear people say, "They don't bear

a few inches in height, and they continue to fruit bountifully year after year. It is said there is only one form of a white or blush-berried *Pernettya* in commerce, viz., *P. candida*. This is considered to be a distinct species; it is a shy grower and not very hardy, indeed more suited for a pit or cold greenhouse than for exposure in the open air.

— *GESNERA OBLONGATA* of gardens is a shrubby variety of the old *G. elongata*, and a remarkably free-flowering and handsome plant. It is much used to enliven the stoves at Dangstein. It is of rather straggling habit, with lanceolate ovate leaves covered with a brownish tomentum. The flowers are 1 inch

long, bright scarlet in colour, and borne in axillary four-flowered peduncles. Being easily grown, and almost continuously in flower during the winter, it certainly merits more extended cultivation. It is a native of South America, and was introduced nearly half a century ago.

— **DEATH OF SIR JAMES MATHESON.**—We have to record the death, at Mentone, on Dec. 31, of one of the largest landowners in the Highlands of Scotland, Sir JAMES MATHESON, of Achany, Sutherlandshire, and of Lews, Ross-shire, aged eighty-two. Sir JAMES was the second son of the late DONALD MATHESON, who once held large estates in Sutherlandshire, by his marriage with KATHERINE, daughter of the Rev. THOMAS MACKAY, of Lairg, Sutherlandshire. He was born in the year 1796, and in 1851 was raised to a baronetcy by Lord JOHN RUSSELL, in recognition of his services in alleviating the famine and distress which had prevailed among the fishermen and sea-faring population of the Isle of Lewis. Sir JAMES MATHESON married in 1843 MARY JANE, fourth daughter of the late Mr. MICHAEL HENRY PERCEVAL, and granddaughter of the late Sir CHARLES FLOWER; but as he has died without leaving issue his title becomes extinct. In the modern *Doomsday Book* of Scotland Sir JAMES MATHESON's name appears as the owner of no less than 424,560 acres in Ross-shire and Sutherlandshire, with an income of nearly £20,000 a year. A description of his grounds at Stornoway was given in our columns in March last, p. 401.

— **ROGIERA GRATISSIMA.**—Mr. D. T. FISH, at p. 20, referring to the specimen of this plant in the York nurseries described by us at p. 759 of the last volume, inquires at what temperature the plant has been grown. We are informed that formerly at York the Rogiera used to be treated as a stove plant, but with such poor success that it was hideous to behold. It was then removed to a cool house and planted out, where it has done remarkably well, and has for the last three years or more been quite an attractive object. The temperature of the house where it is growing in winter is from 35° to 45°. All that is done by artificial heat is just simply to keep out the frost in severe weather.

— **ORCHIDS IN BLOOM.**—The following Orchids are now in flower at Messrs. JAMES VEITCH & SONS, Royal Exotic Nursery, Chelsea:—

| | |
|-------------------------|--------------------------|
| Angræcum Chailluanum | Lælia x harpophylla |
| Anæctochilus Petola | Lycaste cruenta |
| x Calanthe Veitchii | Skinneri |
| " vestita | Masdevallia polysticta |
| Cattleya Trianae | " tovarensis |
| Cœloglyne cristata | Nephelaphyllum pulchrum |
| Cypripedium Boxalli | Odontoglossum Alexandræ |
| " Crossianum | " bictonense |
| " x Harrisonum | " cirrhosum |
| " insigne | " cordatum |
| " Maulei | " Hallii |
| " longifolium | " leopardinum |
| " x marmariphyllum | " Lindleyanum |
| " nitens | " luteo-purpureum |
| " javanicum | " Pescatorei |
| " x porphyreum | " prænitens |
| " Roezlii | " Roezlii |
| " x Sedeni | " Rossi |
| " venustum | Oncidium cheiroporum |
| " pardinum | " crispum |
| " villosum | " cucullatum |
| Dendrobium heterocarpum | " Forbesii (many plants) |
| " Veitchianum | Phalenopsis amabilis |
| Epidendrum eburneum | Pleione humilis |
| " Wallisii | Saccolabium giganteum |
| Lælia albida | Sophronites grandiflora |
| " bella | " violacea |
| " anceps | Vanda suavis |
| " Dawsonii | " tricolor |
| " autumnalis | Zygopetalum Mackayanum |

— **TREATMENT OF HEAVY SOILS.**—The best and most obvious remedy for the soil of gardens where it is too adhesive and heavy is the introduction of sand, or something of an equivalent nature, but unfortunately, in most districts where the land is of the character described, sand is so far distant that it costs so much as to render its use on anything but a very small scale out of the question. Against coal-ashes many old gardeners are prejudiced, as, unless passed through a very fine sieve, they are liable to cause Potatoes to have a scabbed, unsightly appearance in their skins; but when screened, so as to make them quite fine, coal-ashes are quite equal in their permanent effects to anything, except clean coarse sand, that can be added. But there is yet another and very effectual way of dealing with land of this description, that is not nearly so often adopted as it deserves to be—we allude to burning a portion of the clay or clay-like soil,

This is not a difficult process, but in many parts of the country it is little understood, and rarely if ever practised. The operation is simple, but needs to be varied according to local circumstances. In the case of new ground of such a description as we are speaking of, the lightest of the surface soil should be taken off and a spit or half a spit of the under heavier material dug out, carrying the work out trench by trench, as in digging, and adding it to the top and sides of the ignited heap as the process of burning goes on with as much breeze or slack as is found requisite, until enough has been prepared to cover the whole surface 5" or 6 inches thick. It then simply requires digging in and incorporating with the soil taken from the top, previous to which the burnt earth should be broken, as the finer it is the better; the effect of the process is lasting. From land of this nature that has been for some time under cultivation, and more of the surface soil moderately free, a greater depth will bear taking off the top before coming to the under heavy stuff that it is intended to burn. The superiority of ground so treated in its ability to grow most vegetable crops will be apparent over such as has nothing more than the usual quantity of manure put into it, as rendering land sufficiently light by the use of manure alone with the help of aëration by exposure to the action of sun and air is slow, for however much it is lightened up by stirring through the spring and summer, a winter's heavy rains generally reduce it much to the condition it previously was in.

— **LATERAL INFLORESCENCES OF AGAVE.**—Dr. GOEPPERT describes in REGEL'S *Gartenflora* several instances of Agaves producing axillary flower-spikes, either in consequence of some injury to the crown, or in consequence of the plant flowering a second or third time. He mentions one instance in which a large Agave (in the botanic garden of Löwen) produced a large normal terminal inflorescence, and the following year five lateral ones, and finally in the third year an extraordinary number of small flowering stems, some of them bearing only one flower. He further relates that when the French landed in 1830 at Sidi Ferruh, they found the neighbourhood of Algiers thickly studded with Agaves. In the summer of 1831 not one of these plants bloomed, and it having been determined to form a camp, many of the soldiers amused themselves with beheading the Agaves. In the spring of 1832 all these mutilated Agaves threw up flower-spikes, and more than 1500 of them were covered with flowers at one time, affording a magnificent spectacle.

— **THE GENUS SAPINDUS AND ITS ALLIES.**—Dr. RADLKOFER, the author of the elaborate monograph of the genus *Serjania*, has recently published an equally complete and critical one of the genus *Sapindus* and its allies. It appears in the *Sitzungsberichte der Mathematisch-physikalischen Classe der K. B. Akademie der Wissenschaften zu München*, heft iii., 1878.

— **THE CULTIVATION OF BAMBOOS.**—The *Bulletin de la Société d'Acclimatation de Paris* contains a series of interesting articles on the cultivation, propagation, &c., of Bamboos, by Mr. CHARLES RIVIÈRE, director of the experimental garden at Hamma, Algeria. We have only space to direct attention to them, which we do because we think they might be useful to some of our readers in the colonies. As we have stated in previous notices, the cultivation of Bamboos is becoming an important industry in the South of France and Algeria. Mr. RIVIÈRE writes after having enjoyed a long period of practical experience.

— **PEACHES IN MICHIGAN.**—A member of the Michigan State Pomological Society, writing to the *New York Tribune*, with reference to a successful meeting of his Society held lately at Paw Paw, states that the Peach "yellows" was the most important topic of the session; and asks:—"Is it not strange that thus far this disease has received so little systematic scientific investigation into its cause? Unless something radical is done immediately in checking it, our 'Peach belt' of Michigan will in four or five years be wiped out of existence. Notwithstanding the statement of Mr. MEEHAN and others in the East, that fungus is the cause of the 'yellows,' we have not on record any course of reasoning by a microscopist of character that proves the statement. There

is abundant evidence that 'yellows' and a certain fungus are concomitant, but it is the impression of our best men that the cause of the disease is as much in the dark as the cause of Pear-blight."

— **THE INFLUENCE OF QUININE ON SILK-WORMS.**—A writer in the *Bulletin de la Société d'Acclimatation de Paris* records the results of a number of experiments with quinine sulphate on diseased silk-worms. A commission which reported on this subject in 1859 stated that silk-worms treated with quinine or gentian never exhibited the same symptoms of cure observed in others which had taken either mustard or valerian; but Mr. CHRISTIAN LE DOUX, being in ignorance of this statement, has made further experiments, with satisfactory results. Worms suffering from *flacherie* were powdered with quinine, and nearly all recovered in a very short time after the application. Some very bad cases of *pebrine*, with open putrid wounds, were successfully treated in the same manner.

— **THE POTATO BEETLE.**—The correct name of the Potato-beetle, according to some zoologists at least, is *Septinotarsa decemlineata*.

— **WALWICH BAY.**—From an article in the columns of our contemporary, *The Colonies*, we abstract the following particulars regarding a spot in the south-west of Africa known as Walvisch or Walwiche Bay, celebrated in botanical history as the home of that most wonderful plant, the *Welwitschia mirabilis*. Its exact locality is given as 22° 53' lat. south, and 14° 23' 30" long. east. The settlement is situated on the sea-shore, in the midst of a sandy expanse 1200 miles long and from 30 to 150 miles broad; not a tree, a blade of grass, or even a Rush growing within 3 miles of the town. The staple food of the natives is said to be a curious prickly plant which flourishes in large tracts, and is known under the name of *nord*. The climate is described as being quite as salubrious as that of the Cape Colony, the Free State, or the Transvaal. The thermometer seldom changes for six months, standing usually by day in the winter at 60° Fahr., and in the summer at 70°, the night temperature out-of-doors being 40°, and indoors 45°, so that a blanket is required all the year round. Good feed for sheep exists 10 or 12 miles from the settlement, where a thick variety of grass grows described as being "somewhat like a prickly shrub;" the sheep also feed on the *nord* seeds. The meat so fed is said to be very good and very tender. Breadstuffs are all imported from the Cape, and no vegetables seem to be grown in the Bay. It is quite practicable, with some care, to establish a garden for Potatoes, Peas, Beans, and Cabbages, which have been grown some little distance up-country at a mission station at Raal Bank, where a Government farm is about to be established for the same purpose. There is a great abundance of cattle in the country, but transport is still very dear, as the Damaras, who own the cattle, will neither sell them nor let them for hire. Mutton can be bought for 1*d.* per pound. Fowls thrive wonderfully. The waters are full of fish, and the variety seems to be as great as the quantity, for there appear to be all kinds of eels, soles, and many other species not found off the Cape or in Simon's Bay. Pelicans, flamingos, gulls, divers, sand snipe, and Cape pigeons also abound, so that altogether living is far cheaper than at the Cape.

— **MONNINA XALAPENSIS.**—This is the name of a rare and pretty Polygalaceous shrub employed for greenhouse decoration at Dangstein. It forms a small bush about 2 feet high, with alternate oblong obtuse leaves, shining and leathery in texture. The flowers are borne in dense terminal racemes 1–2 inches long, and individually are half-an-inch across, with two spreading wing-like sepals of a deep purple colour, whilst the boat-like petals are of a rich yellow, and continue a considerable time in perfect condition. As its name implies, it is a native of one of the Mexican provinces.

— **WATER FOR GARDEN FOUNTAINS.**—The case of the Sevenoaks Water Company v. DOUBBLE, heard recently in the Sevenoaks County Court, is of some importance to water companies and consumers. It appeared that the company had supplied the defendant with water for domestic use for some years, and without giving notice of his intention to do so the defendant had made a connection between the

pipes in his house and a fountain in his garden; the basin of the fountain had an overflow pipe that would take all the water that passed through the fountain, even if it ran day and night. The company's secretary and manager, Mr. F. HUNTER, upon receiving information of this, visited the defendant's premises on July 6, and asked the gardener to turn on the water. He did so, and the company then demanded payment. The defendant, however, refused to meet the claim, and, after many applications, the company gave him seven days' notice to pay, the alternative being that his entire water supply would be cut off. As he remained a defaulter, the latter course was adopted on August 26. The company's manager had calculated that the quantity of water that could pass through the defendant's pipes, if constantly running, would exceed 3,000,000 gallons yearly. The defence was that the fountain had never been used. The Judge remarked that the impression on his mind was that the fountain had been fitted to be used, and the defendant had used it. If people would have such things they must expect to pay for them. Judgment would be for the company for the amount claimed, and costs. *The Builder*.

— THE SALISBURY NURSERIES. — We understand that the business so long and so successfully carried on at these nurseries by the late Mr. JOHN KEYNES has passed, by purchase, into the hands of CHARLES WILLIAMS, Esq., of Salisbury, for one of his sons. The valuation of the stock was made and carried through by Mr. JOHN DOWNIE and Mr. R. A. ARNOTT, both of Edinburgh. The services of Mr. WYATT, so long in a position of trust and responsibility with Mr. KEYNES, have been retained for the nursery department, in which florists' flowers and other specialities will continue to be the leading features, as heretofore, but it is not improbable that an extension will be made in the seed trade department.

— THE WEATHER. — A correspondent of the *Times*, "Strath Dearn," writing under date of Jan. 6, says:—

"It may interest meteorologists to hear that, according to the report of my keeper, an intelligent and practised observer, a spirit minimum thermometer, by CASSELLA, on the morning of Saturday, Dec. 28, marked 7° below zero of Fahrenheit. On Friday, the day of writing, +10°; situation, 3 feet above turf, between 990 feet and 1000 feet above sea, by Ordnance Survey, in sheltered garden, but open to sky. In the open fields thermometer ranges 2° or more lower. Some years back, in a memorable winter, the thermometer in the same place ranged below 0° for a week or more, sometimes down to -10°, once to -13°. I am not aware that so great cold has been noted in the habitable regions of Great Britain; though no doubt it may have occurred in the mountains, where minimum thermometers have not been abounding. My keeper, born and bred a Highlander, writes:—'I have seen many a snowstorm, but not to continue so long as this one.' It began November 8."

— From the Meteorological Office we learn that during the week ending January 6 the weather was extremely changeable; generally mild and damp at the commencement of the week, but much colder and drier afterwards. Temperature again showing very great extremes; the maxima as high as 61° at Loughborough, and 59° in some other parts of England on December 31; and even the minima for that night were as high as 50° at some English stations. A general fall occurred subsequently, so that by the end of the week the minimum thermometer registered lower than 15° over the Midland and Eastern Counties, and below 20° even in the South. The average for the week below the mean in almost all places, the deficit being greatest in the North and least in the South. Rainfall less than the mean in Scotland, Ireland, and the North of England, but very much more in the South of England, the excess being most considerable in the south-western districts, where several heavy falls are reported. Snow very frequent in the North. Wind strong to a gale from the S.W. at the commencement of the week, then veering to N.W., and falling light or moderate. Strong S.E. winds set in over the south-western districts at the close of the week, and increased to a gale at the extreme north-western stations.

— It may interest your readers to know that on Christmas Eve NEGRETTE & ZAMBRA'S thermometer went down to 1° above zero. Another thermometer about 100 yards from it went down to zero. We cannot yet say what injury is done. *John Laing & Co., Stanstead Park Nurseries, Forest Hill, London.*

— GARDENING APPOINTMENTS. — Mr. M. KIRKBY DIXON, lately employed in the Economic department at Kew, has been appointed gardener to Captain TAYLOR, at Glenleigh, Hastings.

NEW FRUITS AND VEGETABLES OF 1878.

THE past season has not been so productive of novelties in the fruit and vegetable department as many of its predecessors, but this need not be taken as any sign of diminution of zeal or interest in the many laudable attempts to improve these products, but rather perhaps to a more just appreciation of what we now possess. The recommendation and introduction of new fruits and vegetables should always be approached with extreme care and caution; variety in this department is of slight importance, the test must at all times be excellence and superiority. To be excellent or worthy of introduction it must be superior in some respects to what we now possess, and our present stocks of both fruits and vegetables are excellent in a high degree. A great amount of injury is thus often committed by the silly recommendations of many who to appear "learned" praise everything bearing a new name, or who, astounded at the magnificent appearance of something under superior cultivation, give it a character for novelty which it can lay no claim to.

It is a very singular fact that amongst Pine-apples, the very fruit which is being less and less cultivated in our gardens, owing to the ease with which they can be cultivated abroad and sent to our markets, there is more novelty than in almost any other class of fruits. True, these fruits were alluded to last year, still they are new and scarce. We have seen and tasted the fruit named Lord Carington, and can safely say there is no better Pine-apple in existence. Lady Beatrice Lambton, so splendidly put before the public by Mr. Hunter, is a magnificent object to look upon, of fine constitution, large, and said to be very good. But our list is not yet exhausted. Mr. Hunter introduces us to another, Lady Florence Lambton, large and handsome like her sister, but uncommonly like a Queen, and we may not require both.

Grapes have brought us no novelty this season, and that is some consolation, as there will be time allowed to properly test all the late introductions. Golden Queen, although fairly well exhibited, has receded in public favour a good deal. Venn's Black Muscat is being gradually merged in the old Muscat Hamburg, and we would just say one word against the growing practice of attaching one's name to a well known sort as the possessor of a superior variety. There are no good and bad varieties of such fruits as Grapes, or Pears, or Apples, &c. They remain constant, and appear different according to cultivation only. But this is a digression.

Amongst Apples, there are several worthy of note that have made their *début* during the past season, none of them, however, being exactly novelties. Baumann's Red Winter Pearmain is a large and extremely handsome highly-coloured fruit, somewhat resembling the Blenheim Orange, and of German origin. It ought to be grown by everybody. Dr. Hogg is a fine large kitchen Apple, resembling in outward appearance and in texture of flesh the White Calville. Barnack Beauty, from Stamford, is a very pretty and useful sort, and a great cropper; and Mr. Killick's King William is an exceedingly pretty and good dessert variety, which is sure to win its way.

In Pears, Mr. Rivers gives us a fine addition to our small dessert sorts in Dr. Hogg, a variety even superior to the Seckle, which it greatly resembles. Mr. William Paul's Thérèse Nevill, is also to be recommended as a good late variety, and mention may also be made of Beurré Léon le Clerc as a very good October fruit, far too little known.

Amongst Plums, the Sultan, a variety sent out by Mr. Rivers some years ago, was especially good last season, and deserves to be extensively cultivated.

Oranges do not often command our attention, but this season we have to notice a very fine variety named The Long, very pale in colour, and of ovate shape, which is sure to secure the attention of cultivators of these fruits.

In Strawberries, a very good variety will be found in Douglas' Loxford Hall Seedling, which is later than the Elton Pine even. Augusta Nicaise must be recommended as a very excellent variety for pot culture—large, a great cropper, and of fine quality.

New Melons are usually abundant, their tendency to vary being irrepressible; but so much here depends on the skill of the cultivator to secure proper quality. Few varieties of Melons are actually bad if properly

cultivated, although but few are really good for want of proper cultivation. Dell's Hybrid and Gilbert's Nettle Victory are two varieties of the greatest excellence, which may almost be depended on to be good under any conditions.

In the VEGETABLE DEPARTMENT new names are at all times profuse, although novelty is often wanting, but here improved selections are often more valuable and superior to mere novelty. It is by careful selection that the high qualities of our vegetables are chiefly maintained, and but occasionally by the skill of the hybridiser. The novelties of this season are not great in number but several of them great in value, we shall therefore but briefly allude to the principal amongst them.

Amongst Peas there are several deserving of notice. Marvel, Laxton's last and best production, is now at last offered to the public. It is without doubt one of the finest quality Peas, and very large. Carter's Telephone is another very remarkable Pea, of enormous size, grand appearance, and good quality. Sharpe's Invincible is also to be highly recommended.

In Potatoes a few very promising varieties have come under our notice, but the triumph of all, and probably one of the handsomest and finest quality Potatoes ever introduced, is Sutton's Woodstock Kidney, raised by our great Potato King, Mr. Fenn, who ought now to be justly proud of his great success. Radstock Beauty is a very pretty red-flaked round, of fine quality; also Vicar of Laleham and Lady Godiva, but very closely resembling the Lapstone. International Kidney is one of the very handsomest of Kidney Potatoes, and an enormous cropper, but, like many other good-looking things, not of first-rate quality. There are no new American Potatoes this season requiring very special mention.

Mr. Gilbert's Cabbage Broccoli is a welcome addition to our winter vegetables, being a sort of intermediate form between the two, and standing the winter well. It is of excellent quality, and quite unique. Among Cabbages attention should be directed to the Early Boulogne, the earliest of all Cabbages, and the Bacalan, a large, very distinct, firm-hearted variety, excellent for autumn use.

In Lettuces we would mention the Bossin as a very large late Cabbage variety, standing the effects of dry weather better than any other variety. Endives make us acquainted with several good additions. Vilmorin's fine curled Picpicks is truly excellent. The white curled is also a distinct and excellent hardy sort, and we must not forget to impress upon every one that the round-leaved Batavian is the only variety of that section worthy of cultivation.

In Beets, Frisby's Excelsior is a very good variety; and amongst Cucumbers, Carter's Model may be mentioned as a very fine sort. Let us hope for a more extended list during the present year of 1879.

AIR TEMPERATURE.

WE borrow from our contemporary, *Nature*, the following abstract of a lecture by Mr. J. K. Loughton, on Air Temperature, its Distribution and Range.

After calling attention to the importance of climatic knowledge, the lecturer dwelt on the fact that though all heat as affecting climate emanates directly or indirectly from the sun, temperatures have but little relation to latitude except when the distances are very great. He illustrated this by reference to isothermal and isabnormal maps, and went on to speak in some detail of the several causes of the disagreement between isotherms and parallels of latitude. Locally there is a very great difference between the temperatures of adjacent localities on account of the sunny aspect or sheltered situation of some as compared to others, as is found in an extreme degree in such places as the Undercliff of the Isle of Wight; but geographically a cause of very considerable importance is the nature of the soil. The air over sandy or sterile ground is heated by direct contact and by radiation to a degree far in excess of what happens to air resting on grass-grown or verdant plains; heat proceeding from an obscure source is unable to escape through the air, just as obscure heat-rays may be caught and accumulated in a closed conservatory or in a glass-covered box, so that the air may be raised to a very high temperature: several instances are on record of a temperature of 130° F. being observed under such circumstances. On the other hand, when the solar heat falls on ground, whether grassy or snow-covered, that will not easily part with it, the air may remain cool, or even cold;

as is found in our every-day experience in summer of the pleasantness of a field path as compared with a high road; and as is shown more markedly by the great power of the direct rays of the sun in the Arctic region, or at elevated stations in the Alps or Himalaya whilst the snow is lying all around, and the temperature of the air is far below freezing-point.

But greater far than the effects of differences of soil are the effects of ocean currents, which warm the air to an almost incredible degree. Mr. Croll has calculated that the surface-water of the North Atlantic, if deprived of the Gulf Stream, would be reduced to a temperature very far below freezing-point; that the heat which the Gulf Stream disperses into the super-incumbent air would, if converted into power, be equal to the united force of some 400 millions of ships such as our largest ironclads. This heat, thrown into the air, is wafted by the south-westerly winds over the north-west of Europe, and very largely over our country. It is this that makes the extreme difference between the climate on this side of the Atlantic and that on the other, that gives us green fields and open harbours during the winter, whilst in Labrador or Newfoundland they are buried in snow or choked with ice.

The carrying power of water is so great as compared with that of air that the climatic effect of winds heated by contact with hot earth is relatively small. The scirocco of the Mediterranean, wind-heated over the great African desert, has often been referred to as the "snow eater" of Switzerland. This has been proved to be a mistake. The snow-eating wind of Switzerland is a wind from the Atlantic, warmed by the Gulf Stream, and rendered dry and hot by the condensation of its vapour as it passes over the mountains. Similar winds have been observed in many different parts of the world—in New Zealand, in Norway, in Greenland, and in North America, where their peculiar dryness, carrying off all moisture, renders the grass so inflammable that the smallest accidental spark lights up a fire which may spread over a country, and is thus the true cause of those immense prairies which are a distinctive feature of North American geography. But such hot winds are quite distinct from such winds as blow from the Sahara, or the Stony Desert of Australia, or from many other sterile tracts of country; winds which are merely the escape of air heated to an extreme degree by contact with the burning soil. These hot winds are for the most part merely disagreeable; but cold winds are very often dangerous; in the North-Western States of America a cold wind, ushering in a violent snowstorm, caused the death of more than 300 people in January, 1873; and in many other localities a cold wind bringing in a sudden fall of temperature through 40° or 50°, is always a cause of grave anxiety. Our English "Blackthorn Winter" in April or May is only one, and a subdued instance of the ill-effects of such cold spells.

The presence of moisture in the air, by checking radiation from the ground by night, or during the winter, softens the rigour of the seasons, makes the summers less hot, the winters less cold. It is this that constitutes the difference between "insular" and "continental" climates; it is the want of the vapour-screen which causes "excessive" climates such as we read of in the far East, where, as near Khiva, a summer of more than tropical heat is succeeded by a winter of Arctic rigour. In a very extreme degree the climate of Astrakhan contrasts with that of Fuegia, and yet the mean temperature of the two is about the same; but in the one the seasons are excessive, in the other the difference is but small. The difference in the products of the two countries is thus very great; on the one hand, plants requiring great heat, but able to withstand the cold; on the other, plants of a more tender nature which can flourish with a very moderate amount of warmth; in the one Grapes and corn, in the other Fuchsias and Veronicas.

In studying climate it is therefore necessary to observe not only the greatest heat and the greatest cold, but also the mean temperature. These can only be observed by means of thermometers, for personal feelings may be the effects of many other causes—of wind or evaporation, or state of health, or peculiarity of constitution, and are absolutely no index to the state of the air temperature.

The lecturer then proceeded to speak of the different kinds of thermometers, several of which were exhibited, and of the several stands for sheltering them. The Meteorological Society has decided positively in favour of the Stevenson stand, and directs its

observers to record the temperature at 9 A.M. and 9 P.M., as well as the highest and lowest, as registered by the maximum and minimum thermometers. He then described some novel and ingenious contrivances for automatic registering, such as the "turn over" of Messrs. Negretti & Zambra, and the "chronothermometer" of Mr. Stanley, and concluded by pointing out that these instruments were but a means to an end, and that the study of climate was the study of Nature in one of her most beautiful and most varied aspects.

WIRING GARDEN WALLS.

SOME little time ago a short discussion took place in these pages on wiring garden walls, in which I ventured to take part, when doubts were expressed by several as to its utility, while others condemned the thing altogether, but I am inclined to think that those who did so must have had a short experience of their use or that the work had been improperly performed, else there could be but little if any

all is done they are driven right in, which brings the trellis in immediate contact with the wall, against the face of which it presses quite hard. The distance apart we drive the studs is 9 inches, and this at the angle the wires take makes a trellis with squares on end of about 6 inches, which is quite close enough to train the branches of Peaches and Nectarines with the greatest precision, as they cannot go far in any direction without intersecting a wire, where if desired a tie may be made. I find that the quickest and most certain way of putting in the studs at exact distances, which is a very important point, is to mark off the spaces on a long rod and rest the same just above the joint where they are to be driven, when they can be placed with the utmost regularity all along the course, and the same again at the ends and bottom parts of the wall. The studs in, the next thing is to cut the wire into lengths long enough for the ends to be fastened at the two points shown, thus, Λ ; as the straining and finishing off can be performed much more easily standing on the ground than could be done if the man engaged at the work were

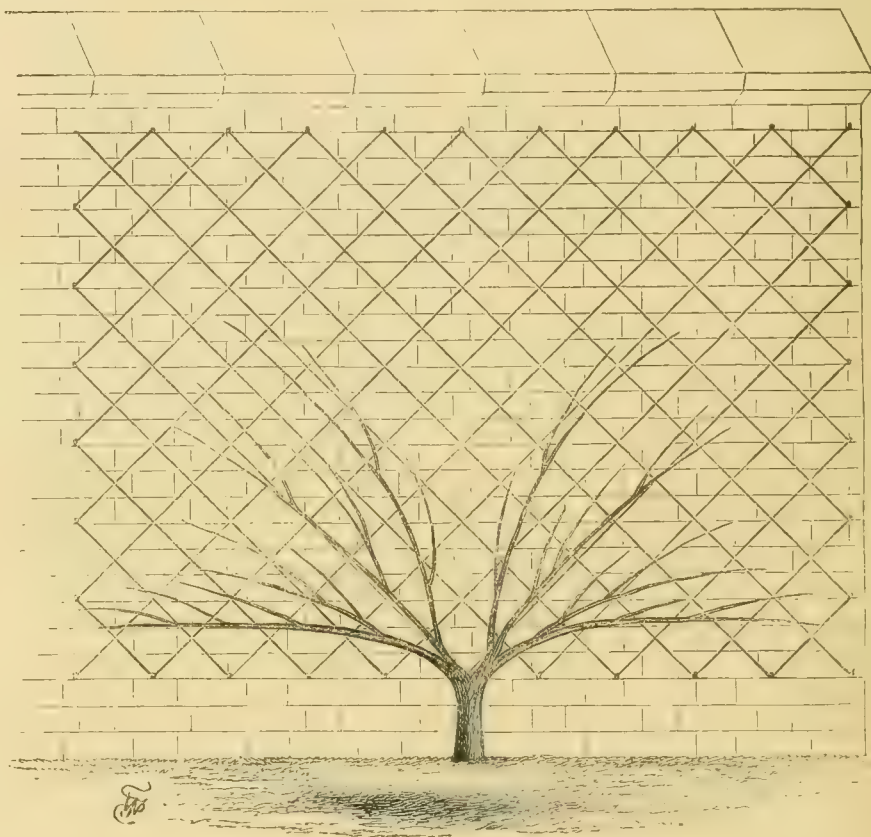


FIG. 7.—A WIRED GARDEN WALL.

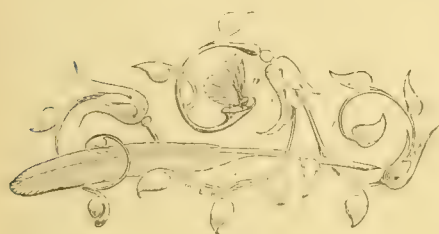
difference in favour of a tree trained by means of nails and shreds, so far as shelter is concerned, over others made fast in their places to wires. If these are far away from the wall, I readily admit that there would be, as the space between allows a cold current of air to get behind the shoots and tender blossoms, whose only safety during sharp frosty nights and biting winds is in nestling close to the warm dry bricks. A small wire about the thickness of a piece of twine cannot keep them away any more than stout shreds behind them would, and the objection to wiring walls on this head therefore falls to the ground.

If the wiring is done as I have seen it in many places I am not surprised that it should result in failure, and in order to give you an idea of how it is carried out here I send you a rough sketch (fig. 7), and will state how it is put up as plainly and concisely as I can, so that any one having a handy man may do the work for themselves, as we did.

The studs shown are round, and of galvanised iron, neatly made, and about 4 inches long, and just thick enough to admit of being driven easily into the joints of the bricks, from which, till the straining and tying where the wires cross is complete, we allow them to project a little so as to facilitate the work, but when

in a raised position by being either on a ladder or platform. In order to get the wires perfectly straight we run chalk lines on the wall, in the way a sawyer manages when marking timber to be sawn into planks, as otherwise in threading the wires alternately one under the other they could not be got into their proper position. The trellis being chalked out on the wall, shows exactly at a glance where each wire is to go, and a tap up or down, as the case may be, soon puts them in their places. By threading the wires under and over in the manner stated, the trellis is altogether more rigid and has greater stability, and if the straining and fastening off be properly done, the whole will be as tight as a drum. The tying at the corners of the squares is managed by using small soft metal wire, which is placed once round and twisted by means of a pair of pliers, and then cut off nearly close, when the projecting ends are bent down so as not to come in contact with the branches of the tree and chafe the bark. If a diamond-shaped trellis is preferred instead of one with squares, all that is necessary is to put the top and bottom studs 2 or 3 inches nearer together than those at the ends, which will make the alteration required. This form I think looks the best of the two, and would be very

neat and useful on a house for training Clematis, Roses, or any creepers that are generally planted for adorning buildings, and be far better than such abominations as nails and shreds defacing and spoiling the walls. For supporting Pears, Plums, and Cherries, wires strained vertically or horizontally answer very well, as once their branches are properly trained they always remain in the same position, but with Peaches and Apricots the case is different, as the tying and laying in of their shoots has to be frequently attended to if the trees are kept in anything like proper order. With a trellis similar to the one shown, much time may be saved during the summer months by using Privet twigs instead of ties, as the points may be put behind the wires and so made to hold the shoots in their place. There is one thing that ought to be seen to before putting up these permanent trellises, and that is the condition of the joints of the walls they are to be placed on, and if the mortar is rotten and bad it should be raked out and repointed with cement, which will not only keep the wet from entering and perishing the bricks, but destroy innumerable insects, and prevent them founding a home in the future. *J. Sheppard.*



Home Correspondence.

Bottom-heat for Vines.—Very much has been written on this subject during the last few months: it is certainly an important matter, and very necessary is it that the subject should be discussed calmly and dispassionately, and, above all, practically. The subject has occupied the attention of horticulturists for many years; and the fact that so much difference of opinion exists in regard to it would lead to the belief that no general and definite conclusion has been arrived at. My experience in Vine forcing is not a very limited one, and I have seen it attempted with more or less success in many different ways. At the outset it may be as well to remark that a very broad line indeed ought to be drawn between theoretical knowledge and that derived from practical experience. In theory it looks well to form a Vine border so that it should rest on flagstones, with an arrangement of hot-water pipes underneath to form a chamber of heated air. This has been tried. I believe I am right in saying that a vinery was built and borders formed at considerable expense on this plan in the Marquis of Tweeddale's garden at Yester, but it did not answer. Another plan that has been frequently adopted has been to place a limited number of hot-water pipes amongst the drainage at the bottom of the border. I have had the care of houses arranged in that way, and in some instances the Grapes did not colour so well as they ought to have done; in another case the crop was altogether excellent for the first few years, but in five or six years the degeneration was very rapid. I am not in this case prepared to say that it was owing to the use of the hot-water pipes underneath the border, but merely record this as a matter of fact. Certainly, as far as my experience has yet gone in this direction, I would not in any way use hot-water pipes for heating the borders of permanent vineries. I am well aware of the testimony of good gardeners to their beneficial effect in certain cases, but I have a very strong conviction that the benefits are more apparent than real, and that in no case will the benefits be equal to the amount expended on the heating apparatus, and the after labour in heating, and expense of fuel. At p. 687 of last year's volume I made some remarks on covering outside borders, and as that article was the occasion of some courteous remarks from Mr. Hinds and "J. S.," I would like to state my experience during the last fifteen years with an early vinery at Loxford Hall. That house is 25 feet long and 16 feet 6 inches wide, and the Vines were planted just fifteen years ago this spring. After the second year, and for nine or ten years after, I cut black and white Grapes from the house that were more often in the first than in any other position at the great London shows. I had great faith in dung beds in the early part of my experience. We had a large heap of manure in the house from the time of forcing during the first two or three years; it was a deal of trouble getting it in and occasionally

turning it; it was objected to, also, as unsightly, and we soon discontinued the practice, and I also found that the roots did not work into the part where the manure lay thick and was not removed. I still have great faith in the steam from fermenting stable manure, and our plan now is to have a ridge of it laid against the back wall of the house, and this is turned every morning and kept in a steaming state by frequent renewals. There is generally a high enough temperature in the border inside; it is outside the house that the state of the border claims attention, and it is certainly of considerable importance that the best means of maintaining an equable temperature should be devised. I can only obtain one heating medium, and that is stable manure placed on thick enough to cause fermentation. As I have already stated, the heat from this subsides very rapidly, and some portions, often the largest part, of the covering material has been wet, sloppy, and quite cold when we were ready to water the border. Being placed in such circumstances I have longed for a quantity of dryish leaves, which cannot be had here at all. Since writing the article at p. 687 I have read the opinion of one of our best Grape growers, Mr. David Thomson, of Drumlanrig Gardens. He says, at p. 105 of *Fruit Culture under Glass*, "There is much difference of opinion as to whether, in the case of early forced Vines, applying a bed of fermenting material all over the surface of the outside border a short time before forcing commences is any more effective—in the absence of any means of heating from below—than simply to cover the border to a considerable depth early in autumn with some dry material, to conserve the heat which exists in the soil at that time. I once tested a border that had been covered up early in autumn with 1 foot of leaves, and then thatched with straw, and found, on plunging a thermometer in the soil to the depth of 15 inches, that in sixteen minutes it rose to 60°. I regularly cut Grapes in April from the Vines in this border, with all the roots outside the vinery, and never applied any other means of heating." I had not seen the above passage when I recommended the borders to be covered with dry straw, &c., but it certainly bears out in a singular manner the system that I advocated. Dry oat-straw will keep heat in and cold out better than any other material I am acquainted with. Before placing on the covering I water the border with the water heated to about 85° or 90°, and previous to commencing to force the wooden shutters are placed on to throw off the cold autumn rains. There are some cultivators who do not approve of any covering for the outside borders, and if in practice they have been successful with that treatment they would do well to continue on the same lines. It is a well-known fact that the roots of early forced Vines do not show any signs of activity until the Vines are well in leaf. Mr. Hinds takes exception to my statement that pot Vines should be started with a bottom-heat of 85°, but if he carefully reads my article he will find that I stated that the surface of the bed might not be more than 75° or 80° where the roots were. I never plunge quite to the rim of the pots. Further, I say that the bottom-heat will decline in a month, and that the purpose of the bottom-heat has been served by causing a more regular break. I think most cultivators will bear me out in saying that this is so, and I have proved the truth of it many times. Mr. Hinds does not say that he has been more successful with his pot Vines since he left off starting them with bottom-heat; and he further states that any one accustomed to forcing can tell when the stored up sap is exhausted, and that if root-action is deficient bottom-heat may be applied. Now I have been accustomed to forcing Vines every year since I was an apprentice, and have never noticed the exact time at which the stored up sap became exhausted, and I would, rather than trust to finding out this at a critical time, apply the bottom-heat at starting. I am well aware that there is great danger in over-doing pot Vines with bottom-heat, and was on that account rather careful to define the limit of the temperature of the bed in which the pots were to be plunged. *J. Douglas.*

Carnations and Picotees.—Will you or any of your readers versed in vegetable physiology, kindly give me an explanation of the following phenomena in the cultivation of the Carnation and Picotee? Year by year, understanding from experience the advantage of a change of air in promoting healthy stock, I have exchanged one to two hundred or more pairs of Carnations or Picotees with friends located on the hills of Yorkshire or Derbyshire. As there is a difference in the period of bloom between my situation and that of my friends of some twenty-one to thirty days, so there has been always an earlier maturity of the layer, and my stock has been ready for potting up for winter at latest by the last week in September or first in October, and has therefore become fully established before the arrival of my northern contingent, generally a fortnight thereafter. Nevertheless, and this is the problem I respectfully beg an explanation of, though these plants are less advanced, as I have already said,

and fail to fill the winter pot with such a mass of root as the home-grown stock, they start into growth earlier in the spring, spindle for bloom earlier, and come into bloom earlier than stock acclimatised to the situation. Can this be occasioned by the greater heat, and the greater dryness of the situation they have been transferred to? or are there other causes beyond the philosophy of your humble servant? To make the story complete, I should report my friends inform me the stock transferred to their cooler air is invariably earlier in bloom than plants to the manner born. *E. S. Dodwell, Clapham, S.W.*

Epping Forest.—Mr. Wallace's article alluded to in recent issues is altogether a most instructive and interesting one, but I venture to think that Mr. Wallace, who was probably not in England in the winter of 1860-61, considerably overrates the hardness of many species in the climate of Epping Forest, e.g., such trees and shrubs as *Cupressus Lambertiana*, *Pinus insignis*, *Myrtles*, *Coronillas*, *Cistuses*, *Cunninghamia*, *Escallonia*, shrubby *Veronicas*, *Acacias*, *Eucalyptus*, &c. The *modus operandi* also that he proposes, viz., planting large tracts thickly with exotics of perhaps doubtful hardness, and raised at considerable expense to be afterwards thinned out, would be very costly. If, however, the ground were first planted thickly with Larch or such other quick-growing trees as would suit the nature of the soil at any given part of the Forest, while the exotics were being grown in nurseries to a size which would admit of their being planted out at permanent distances, then not only would these last be greatly benefited by the shelter of the "nurses," but the thinnings of the Larch, &c., would go a long way towards paying the cost of the whole scheme. And there is no doubt that if this were carried out as proposed by Mr. Wallace, Epping Forest would become in another generation the most delightful resort to the Londoner that it is possible to conceive. I may add that having myself planted a small pleasure-ground geographically, I have been much struck with the rapid growth of the Californian Conifers compared with those from the Eastern States and Eastern Asia. *Alfred O. Walker.*

The Poor Birds.—More bad weather for the poor little birds. They were evidently full of hope, and twittering joyfully in anticipation, but winter has again returned, and their troubles, I fear, are coming thick. A few evenings ago, when outside frost and cold were in the ascendant, I was looking round my charge to make sure that my numerous family of plants were carefully protected from danger, when I observed a little wren, running first on the top of our greenhouses, then on the ventilators, then on the spouting, all round. I venture to say there was not one opening left untried. I could see by this that my friend "Jenny" wanted lodgings, which I gladly gave by opening the door, and I was much pleased to see my visitor take the open invitation of staying with me that night. A few nights later I was in another department, when my little friend was again seen seeking lodgings. I at once opened the door, and the bird came in with full confidence, and seemed satisfied he was on important duty. I stood still to observe the result, and had the pleasure of seeing that small bird commence a search after insects in the most systematic and business manner imaginable—up and down the *Lapagerias*, every leaf, every stem was examined; up and down the *Dendrobiums*, round the *Masdevallias* and *Cattleyas*, up the walls, into every crevice, every opening wherever an insect could live. I believe there was not a square inch of that house that was not thoroughly searched by that bird; and I feel certain that many insects, the fathers and mothers of thousands, must have been devoured by this small bird. I should feel very sorry to deny my little friend a lodging at any time, and I should feel it a crime to kill or destroy one. *William Payne, Belmont, Taunton.*

The Sarsen Stones at Reading.—I was meditating this letter when Mr. Threlton Dyer's appeared in your last issue. The stones in question are amongst the earliest reminiscences of my school days, when we looked upon them as the White-knights' tombstones. Most, if not all of them, are, as Mr. Dyer supposes, Sarsen or Grey-wether sandstone. Mr. Whitaker (*Quart. Journ. Geol. Soc.*, vol. xviii.) agrees with Conybeare in thinking that these blocks, which are concretionary in origin, may have come from the Reading beds (or Plastic Clay of early geologists) sometimes, or, he thinks, from the Blackheath or Oldhaven beds, the loose sand having been removed from the downs by denudation. The main source of them, however, is admittedly the Upper Bagshot beds. These are the beds which still cover the beautiful wastes of Frimley, Chobham, Ascot, Bagshot, Hartford Bridge, Sandhurst, and much of what at Reading we like to think of as Kingsley's country. The saccharine sandstone blocks occur chiefly in the upper part of this formation, which is over 200 feet thick, and are found by "sounding"

with iron rods. They are often exposed in cuttings, as notably in the railway carried through Ascot in 1877, so the Duke of Marlborough might have got them nearer Reading than his titular downs. The larger stones of the outer circles, those arranged in trilithons, at Stonehenge are Grey-wethers; but the inner circles are of greenstone, a rock of igneous origin, resembling, according to Professor Ramsay, that of Cambrian age in North Pembrokeshire, Caernarvonshire, and Montgomeryshire. The "altar-stone" is of feldspathic hornstone, a rock abundant in these counties. The blocks are certainly not drifted, *i.e.*, ice-borne boulders, however they reached their present site; nor is there any evidence of glacial action, to my knowledge, in Wiltshire. The tasteful use made of the stones at the Wilderness by Mr. Lees is beyond my praise; but for any one who may wish to go "sounding" for Grey-wethers or otherwise to build a sandstone fernery, without imitating the Duke's vandalism, I can only say that they may readily drape it most beautifully with Blechnum, Hart's-tongue, Polypody, Osmunda, Asplenium, Trichomanes, and Lastrea æmula, and other common Ferns. *G. S. Boulger, 11, Burlington Road, W.*

—It really is too bad of these scientific men, of whom Mr. Thiselton Dyer is a notable example, that they do not hesitate to shake to pieces all our dearest beliefs and tumble down the most beautiful and treasured traditions. As I gazed upon the huge boulders at Reading, to which I recently alluded, I felt for them an unwonted degree of respect as my guide told the story of their transference in primeval times from the Welsh hills to the downs of Marlborough through the instrumentality of ice floats, as who would not regard with admiration such unwonted and improbable voyagers? Mr. Dyer comes upon the scene, however, and with a dash of his pen upsets all this pleasant tradition, and reduces these big stones to a very matter-of-fact origin. [Is it really less wonderful than the other explanation? EDS.] I cannot doubt but that his account is true, every outline of the giants shows that ages ago they were subject to extreme liquid friction; there are no sharp edges or points, but the wear has been regular and almost insensible. No longer the examples of imperfect oral tradition, they now demonstrate the truths of geological science, and the learned may well regard them as exponents of a marvellous fact in the physical history of the earth. It is no doubt hard to have all one's cherished ideas and fancies thus rudely shaken, but no doubt, just as in the case of these Druid stones, so in that of a hundred things the heroes of tradition—not one of them perchance has the least tangible basis. The Boscobel Oak has been exhibited as an imposter, the famous sayings of Wellington and Nelson were never uttered, for the historian, as well as the scientist, will ruthlessly expose the baselessness of all these beliefs. Fortunately, when fact is stripped of all its fiction, we shall still have in books a glorious world of fiction in which to revel, and wherein we shall make no mistakes. *A. D.*

Mealy Bug on Vines.—I have recently taken charge of a large garden, in which I find two or three vineries in which the Vines are very much infested with mealy-bug, as well as a lot of fine Fig trees on the back wall of one of the vineries. Will any of your correspondents who have had the misfortune to deal with Vines under such circumstances, kindly advise me what plan to adopt to eradicate the pest? I think of trying paraffin oil and soft water, as recommended in the *Gardeners' Chronicle* some time since, carefully cleansing the Vines and washing them twice or three times during the winter, and thoroughly washing woodwork and walls, and removing and burning the surface soil. If any better plan for securing freedom from this pest can be suggested, I shall be very thankful if the information can be given through your pages. *Vitis.* [See next column. EDS.]

The Schoolmaster Potato.—These long winter evenings gives one ample time for thinking about crops for the coming season, the most risky of which now-a-days is the Potato. Of the long list of varieties now before the public, it is necessary to be very careful what one buys and plants. I have heard so much in praise of Schoolmaster, the one thing needful being care in cooking, that my thoughts were very much in favour of trying this variety for the main crop, and Mr. Turner's advertisement in last Saturday's *Gardeners' Chronicle* had decided me. I know that Mr. Turner will not lend his influence to push into prominent notice a variety he does not believe in, and I attach much importance to Mr. Barron's testimonial; two other testimonials in the advertisement give one confidence in the Schoolmaster, and besides, Mr. Douglas seems to regard it as a capital cropper. But since coming to this conclusion, very grave doubts have arisen in my mind whether I shall be wise in ordering the stock of Schoolmaster, as advertised by Mr. Charles Turner and others, for on referring to Messrs. E. Webb & Son's catalogue I find there a very highly elaborated coloured sketch of Webb's "Improved" Schoolmaster

Potato, at the price of the old variety. Of course, Messrs. Webb's being an "improved" variety of Schoolmaster, should be the Eureka of Potato growers, but if I recollect rightly Schoolmaster was sent out only two or three winters since by Mr. Turner, so that I am somewhat "floored" by finding an "improved" variety, with its character sufficiently fixed and in sufficient stock to send out at a very moderate price in so short a time. Potato culture has now so much deserved attention that an account of the improvement, how obtained, when and where, would be gladly welcomed by Potato growers. *W. D.*

The Philosophy of Florists' Flowers.—Will you permit me to invite the attention of your readers to the republication of the valuable "Essays on the Philosophy of Florists' Flowers," by the late Rev. George Jeans, in the volume of the *Florist and Pomologist* for the year now ended? Originally published in 1849, they contain a clear definition of the principles on which the true florist rests in his efforts to mould his flowers to his requirements; and to me, in these later days, it has been a source of regret that there has been, even in the high places of floriculture, such an apparent ignorance of these principles, and such a ready assumption that the laws of the florist are matters merely of whim or caprice. When I occupied a seat on the Floral Committee of the Royal Horticultural Society I was frequently met with the remark, "Oh, I don't judge flowers from a florist's point of view!" as though the florist's point of view could be, if intelligently instructed, other than in accordance with the immutable laws of beauty. But if your readers will give to these most valuable essays the attention they deserve and will command if the reading be once begun, they will surely in the future absolve florists as a body from the assumption of either whim or caprice; whilst as a pursuit they will arrive at the conclusion, in the words of Mr. Jeans himself, "it is as little to be branded as childish, and is not less rational as a recreation, than any other part of horticulture." May I hope shortly to see a review of these essays from the editorial pen? *E. S. Dodwell.*

Gros Colmar Grape.—This was sent to me by M. Vibert, after he removed to Angers in 1840. It does not generally set well with many of our American Grape growers, but with others it is noble and fruitful. *R. B.*

Paulownia imperialis.—In answer to Mr. Colebrook, p. 819, I beg to inform him that the Paulownia imperialis at Ashted Park received no protection during the twelve years it was under my charge, neither have I at any time heard of its having had any previously. It is planted in a position where it receives good shelter from the surrounding trees, which are of great height and large proportions. Near and about that spot the subsoil is chiefly chalk, within a short distance from the surface; but undoubtedly a preparation of soil was made for its reception at the time of planting. *Thomas Carlton.*

Primula sinensis.—Having read Mr. Clarke's remarks respecting his Primulas, allow me to state that my Primulas are far larger than his, most of them being larger than a five-shilling piece, and I have over 700. I have been told by a number of competent persons that my Primulas (not only this year, but in previous years) are as fine a strain as ever they saw. Every year I pick out the largest, the most frimbriated flowers, and the freest blooming plants, and keep them by themselves, so as to save them for seeding, and as I have a great demand for cut flowers at this time of year, I pay particular attention to Primulas, also Cyclamens. Of Cyclamens I think I have as good a strain as could possibly be had. *John Clews, Headfort Gardens, Kells, Co. Meath.*

Another Insecticide.—Four gallons of weak soapsuds with two tablespoonfuls of refined coal-oil used with the syringe kills mealy-bug and all insects known to plant growers. I have used it the past two years, and hope some of my London friends will make a note of this. *R. B.*

Young Gardeners' Lodges.—Long live "Comme-il-faut"! His suggestions in the *Chronicle* of the 28th ult., respecting young gardeners' lodges, deserve to be responded to by all employers and gardeners who have the well-being of their young men at heart. It seems a very strange thing that young gardeners' lodges should, as a rule, be so totally out of keeping with the other buildings of a well-kept establishment. There are a good many neat and comfortable lodges to be met with, and I can point out one of not a few which I know, *i.e.*, the young gardeners' lodge at the Castle Gardens, Arundel, which is a bright example. I have not got a photograph of this lodge, but perhaps Mr. Wilson, who designed it, could let you have one. It is a pretty brick building, consisting of three bedrooms, one

sitting-room, a kitchen with a nice range, pantry, and a lavatory, all of which are comfortably fitted up to suit their various requirements. This lodge is in every way worthy of the gardens of its noble proprietor, England's premier Duke, as it is also of Mr. Wilson's good taste. *H. L.*

The Distance to which the Vine Roots will Extend.—A short time since, while conversing with a friend, an old Grape grower, in one of his vineries, one of the men called his attention to an old Raspberry bed at some distance, about to be destroyed, and where a commencement for trenching the ground had been made the man supposed he had found a quantity of Vine roots. Upon repairing to the spot it was plain that the man's conjectures were correct, as where the first trench had been taken out, there the young feeding roots of the Vines were present in such quantities as to give unmistakable evidence that they had found something that suited them. From 7 or 8 inches below the surface to a depth of half a yard lower down, the healthy crow-quill fibres were interlaced in all directions. My friend opened his eyes in earnest, as upon stepping the ground, we found that the trench was removed some 33 yards from the front wall of the vinery, bearing directly northwards from it. The Raspberries I learnt had occupied the bed for nearly a score of years, and had been managed on the right principle of keeping the land clean by hoeing and heavy mulchings of manure, which each winter were pointed in only a few inches deep. Here the Vine roots, after traversing the long distance from the originally prepared border, had found that which they liked. The Vines, I understood, have for some years been forced, so as to come in tolerably early, and the house was shut up the first week of the past December. My friend, who is a believer in a good body of fermenting matter on the border, had, as usual, provided the combination of leaves and stable litter of which the bed was made, although he confessed he had not been able to find any active roots in the border, and he looked somewhat taken aback when I reminded him that he had made a slight mistake in the place where he had put on his root-warming materials. He had acted after the fashion of an old gentleman I once knew, who at the close of a convivial meeting found his ideas somewhat hazy, but was nevertheless so far mindful of his sore throat that, previous to a somewhat lengthy drive, he was particularly anxious about his muffler being well warmed before putting it on, but when he arrived home his wife discovered the muffler tied carefully round the outside of his boot, just above the ankle. On making some allusions about the strength of the port he had imbibed having had something to do with the position where the muffler was placed, he persisted that he had tied it on in the right place round his throat, and urged that it must have slipped down! Now it was evident my friend's muffler, intended for quickening up the roots of his Vines, had not, like the old gentleman's, slipped down, but the roots had most decidedly been so ungrateful for the provision made for them, that they had slipped into the garden a very long way beyond its reach. In their case I wonder where the next autumn's fermenting-bed will be placed. When the soil suits them it is nothing uncommon for the roots of Vines to travel so far as these. A similar case as to distance came under my notice two or three years ago, but in this instance it was an old Strawberry-bed of which they had taken possession. *T. Baines.*

Rhododendrons as Game Covert.—My experience of Rhododendrons as game covert differs materially from that of Mr. D. T. Fish, as will be seen by what I wrote respecting them some time back, and so well are our keepers pleased with them that their cry is still for more, to meet which we are now grubbing up a quantity of Sycamore stubs, with a view to extend and add to the groups already formed. Instead of engendering damp, they are great absorbers of moisture, their hair-like roots forming a perfect network in the soil to sustain the immense profusion of foliage with which the numerous branches are always clothed. As a part proof of their absorbent powers, I may state that a portion of a wood here, that used only to grow Alders, and was so wet as to be unpleasant walking, is now full of grand bushes of Rhododendrons, and the ground is always in a far better condition than before they were planted. No doubt but there are several causes that have conduced to this improved state of things, one being, that the Alders having been cut down, has opened a way for more light and air, and another, that being naturally deeper-rooted plants, they took their supplies from a lower level than the Rhododendrons now do, hence some of the difference in favour of the latter. As regards the density of these very beautiful shrubs, much depends on where they are planted, as when under trees in woods, where they get a good deal of shade and less light than in the open, their habit is altogether more spare and spreading, and not having any spines like the Holly, Brambles, &c., to form an obstruction, they are just the thing

game like to make use of as a hide. When they are required for this purpose, small clumps interspersed about the woods near rides are the best, as there they answer the double purpose of shelter and ornament without occupying much land that may be turned to more profitable uses. In cases where the soil is too dry for Rhododendrons, Box is sure to succeed, and if protected when first planted by running wire netting or a rough hedge of bushes round till it gets a good start, rabbits seldom interfere with it after. In a wood here where they abound we have a great many very fine specimens of this shrub, and except in severe winters when we get a long continuance of snow on the ground, the branches are never injured by them to any appreciable extent, and even then they do not attack the old bark. Those, therefore, who want rabbit-proof evergreens may with safety plant Rhododendrons and Box. *J. S.*

The Champion Rock Potato.—This is, as it was represented to be, a disease-resisting Potato about here, and so far as I have proved it on our heavy soil, an excellent late Potato. Not one tuber did we find diseased, while in the next bed one-third of the old Rock was diseased, and all our other varieties were more or less diseased. The only objection I see to it is its tall strong shaw, which requires more room to develop than does the old Rock, but if it further proves disease-resisting in various soils and situations, it will amply repay wider setting. I firmly believe it will prove a very valuable field Potato generally in fair seasons, and I would fain advise most people to try it in their fields. The shaw retains its freshness till frost, and hence its resisting nature. *Henry Knight, Floors.*

Rose Thé Bon Silene was sent to me about 1836 by M. Vibert, of Longueumeaux, near Paris. It is the forcing Rose, *par excellence*, of all others to date. It has fine long large buds of a dark rosy red, opening to a delicate pink, with a delicious odour, and not fully double. Cut when one-third grown and opened in a cool temperature it surpasses all others, having a fine footstalk and rich foliage. There are tens of thousands cut every day for our bouquet-makers. Boston growers have entered into it so largely that the Rose passes under the cognomen of Boston Bud. *R. B., Philadelphia.*

Pelargonium Lady Scarborough.—With regard to winter-flowering Pelargoniums, mention may be made of Lady Scarborough, which though of the sweet-scented section, is of great utility for cutting, as you may cut the flowers, which are small, twigs and all. It is a very pretty flowering plant, but flowers in late autumn and winter best, and hence it is most useful in every way. It is best raised every year from cuttings put in in spring and early summer, as is recommended for the other sections. *H. K.*

Protection in Winter.—Such a winter ought not to be without profit in teaching us how better to cope with the weather, as the lesson is plainly visible; and if in some way we can prevent the sudden transition by affording slight shelter, we may do much to lessen the mischief sharp frost works among the things we have to do with in gardens. It is surprising what a help a little dry straw or bracken is when strewn over the heads or around the stems and collars of any plants, and if either of these materials were used more freely for such purposes on the advent of hard weather much loss that now frequently occurs might be avoided. The thing is to have all ready to hand when wanted, that what is intended to be covered may have the shelter applied at short notice, for should frost again take place between this and the end of March we may not be favoured as we have been this time. Where slugs and snails are not over troublesome half decomposed leaf-soil affords an excellent protection among young Lettuces and Cauliflowers, when under walls or handglasses, and if they have this and a few evergreen boughs laid over them their safety may be looked on as certain. Leaves in a less advanced stage are best for such things as Tea Roses and many other plants of that class, and these may be kept from blowing about by a handful of dry Fern laid over them, and made fast by having some Laurel or Fir branches stuck in around, which will not only keep it secure, but take off any unsightly appearance such dead matter would otherwise present to the eye. *J. S.*

Sarracenia Drummondii v. alba.—This is a singular and interesting herbaceous perennial, found in bogs and swampy ground in North America. It has a thick, tufted, brownish purple root-stock, from which arise elegant, tapering, and perfectly upright leaves to the height of 2 feet or more in well grown plants. The leaf is round and hollow, forming a kind of long funnel-shaped pitcher. At the top the leaf or pitcher is about 2 inches in diameter, pure white, charmingly netted with dark purple veins. When the leaf is fully developed the pitcher opens,

and then has an overarching, recurved, and undulated lid. The plant is so easily grown, and is so peculiarly beautiful that it is somewhat surprising we do not see it more frequently in cultivation. We lately saw a fine display of it with Messrs. J. Backhouse & Son, of York. The plants were grown in a cool frame with a west aspect, the lights being always kept shut to ensure a close humid atmosphere. We also noticed some which were tastefully interspersed amongst a forest of dwarf Gleichenias. Their tall, stately white and purple pitchers towering up above the Ferns formed quite a novel and pleasing feature. *R. P.*

Stott's Monarch Rhubarb.—Seeing your illustration of a bundle of Rhubarb, I have been led to wonder whether many of your readers are acquainted with Stott's Monarch Rhubarb, grown by Messrs. Stuart, Mein & Allen, Kelso, N.B. It is not only superior to any Rhubarb I have ever tasted, but it is almost unique in its delicious flavour, its tenderness, the lateness at which it can be used, and its length and bulk of stalk. Its size should make it a capital market Rhubarb, and for its other qualities no one having once grown it would care to grow any other sort. *W. H. C., Kensington.*

Insecticide: Soluble Phenyle.—During the last few weeks attention has been drawn to various forms of insecticides, and it may be of some interest to add (more especially in reference to the inquiries of "W. G. B. A.") with regard to carbolic acid and soluble phenyle that permission has been obtained from the French Government by Messrs. Morris, Little & Son, of Doncaster, by whom the soluble phenyle is manufactured, to try its effects on a large scale in destroying the Phylloxera and improving the condition of the Vines in one of the great Vine-growing districts. As the mention of carbolic acid in conjunction with it may lead to some misapprehension, it is perhaps better to observe that this mixed fluid called soluble phenyle differs materially from carbolic acid, as it is free from its powerfully injurious and corrosive effects, which is an important matter with regard to possible accidents in application, and I have also information from the manufacturers (this being a matter that I could not personally test) that it is non-poisonous. The fluid contains fertilising salts, which tend materially to assist the growth of plants. *O.*

The Smallest Orchid in the World.—It is not worth while perhaps to correct a mistake of such very little moment, but as I am satisfied that my excellent friend Baron von Mueller, from what he says at p. 818 of your last volume, must have mixed up two distinct plants, I may be allowed to state that I was personally for years well acquainted with the special specimen of the Orchid in question, which was established on an escarpment of sandstone rock, where it did well, and was therefore not soon placed in a conservatory. This Orchid was discovered by the Rev. Robert King, of Morris College, Liverpool, New South Wales, an accomplished botanist, named by him *Bolbophyllum moniliforme*, and presented by him to my brother. It flowered I believe every year, and was never supposed to be of any other genus. *G. M.L.*

The Destruction of the Buds of the Gooseberry and Currant.—Your remarks in last week's issue of the *Gardeners' Chronicle* are opportune at this season of the year. In past years I have had recourse to the plans you recommend. I find the same as you express, that the tits and bullfinches take no notice of the white thread. The wash, so long as it remains on the trees, may deter the birds from their raids, but I find the first heavy rain washes off all the soot and lime, consequently it requires to be frequently applied to be of use. If any plan could be devised whereby the wash could be made to adhere to the trees it might be more effectual. If any of your correspondents, who may have been successful in stopping these small depredators would give their experience, they would confer a boon on many gardeners who, like myself, are subject to much annoyance yearly from partial loss of crops, not to mention the disfigurement of bushes. *Robert Sawyerby, Shirburn Castle Gardens, Oxon.*

Foreign Correspondence.

MORTOLA, NEAR MENTONE: Jan. 1.—The enclosed list of plants in flower in the open air in my garden here on New Year's Day shows a larger total than in the two preceding years; this I attribute to the greater amount of rain that has fallen exercising a beneficial influence on this region, which too often suffers from drought and excess of sunshine.

The very severe winter which prevails over the greater part of Europe has also been felt in a marked degree

along this coast. On the 12th of last month the country down even to the seashore was covered with snow—an exceedingly rare occurrence; the temperature showed two or three degrees of frost, a small piece of ornamental water in my garden being covered with ice a quarter of an inch in thickness; nevertheless I cannot find that I have any plant actually killed by the cold. At Cannes, which is much more exposed to northerly winds, the case is far different, and I saw last week in passing that place the *Aralia papyrifera*, *Wigandia Vigierii*, *Phytolacca*, &c., frozen and dead.

That insect pest, *Phylloxera*, fortunately for the Vine cultivators, has not yet made its appearance in Italy. The Custom-house authorities are certainly zealous if not very discreet or consistent in their endeavours to arrest it at the frontier, which is one mile distant from this place. Potatoes, cuttings, and even bouquets are instantly seized and confiscated. English young ladies taking some pet Fern or other plant collected at Mentone with a view of conveying it to England when their travels in *la bella Italia* shall be ended, are not a little vexed at being deprived, often without explanation, of their treasure, and at seeing it ruthlessly thrown into the sea. A botanical friend paid me a visit last spring; on arriving at the Custom-house many specimens of plants he had collected and dried in the South of France were taken out of the pressing paper, pounded up to powder, and then burnt. His intense disgust was not lessened the next day by observing that the Custom-house officers allowed a much larger lot of dried plants, to wit, a load of hay for my horses, &c., to pass from France into Italy without comment! *Thomas Hanbury.*

Plants Growing in the Open Air in the Garden of the Palazzo Orsini, Mortola, near Mentone, in Flower on January 1, 1879.

| | |
|-----------------------------------|---------------------------------|
| Abutilon (many var.) | <i>Hypericum canariense</i> |
| Acacia iteaphylla | <i>Iberis sempervirens</i> |
| " <i>Lophantha speciosa</i> | <i>Jasminum azoricum</i> |
| " <i>ovata</i> | " <i>nudiflorum</i> |
| " <i>retinoides</i> | <i>Justicia arborea</i> |
| " <i>saligna</i> | <i>Kleima articulata</i> |
| <i>Azathaea celestis</i> | " <i>ficoides</i> |
| <i>Agave Verschaffeltii</i> | " <i>odora</i> |
| <i>Atonia capensis</i> | " <i>nerifolia</i> |
| <i>Aloe ciliaris</i> | <i>Lantana Cammara</i> |
| " <i>africana</i> | <i>Lavandula multifida</i> |
| <i>Antirrhinum</i> (many var.) | " <i>pinnata</i> |
| <i>Anemone coronaria</i> | <i>Lavatera californica</i> |
| <i>Aralia dactylifera</i> | <i>Lobelia</i> |
| " <i>Scheffleri</i> | <i>Lophospermum scandens</i> |
| " <i>papyrifera</i> | <i>Malva fragrans</i> |
| " <i>Sieboldii</i> | " <i>capensis</i> |
| " <i>hederifolia</i> | <i>Mitrandia Barclayana</i> |
| <i>Arbutus Unedo</i> | <i>Medicago arborea</i> |
| <i>Arum Arisarum</i> | <i>Melanthus Trimeniana</i> |
| <i>Aster elongatus</i> | <i>Mesembryanthemum lupinum</i> |
| " <i>maritimus</i> | " <i>tigrinum</i> |
| <i>Baccharis halimifolia</i> | <i>Moricandia arvensis</i> |
| <i>Bougainvillea glabra</i> | <i>Narcissus</i> (two vars.) |
| <i>Bouvardia leiantha</i> | <i>Neja falcata</i> |
| <i>Bellis rotundifolia</i> | <i>Nicotiana glauca</i> |
| <i>Buddleia americana</i> | <i>Othoona carnosia</i> |
| " <i>Lindleyana</i> | " <i>triphiervia</i> |
| " <i>madagascariensis</i> | <i>Pachyphytum bracteosum</i> |
| " <i>salicifolia</i> | <i>Passerina hirsuta</i> |
| <i>Camellia japonica</i> | <i>Passiflora princeps</i> |
| <i>Callitris quadrivalvis</i> | <i>Petunia</i> |
| <i>Cantua penduliflora</i> | <i>Plumbago capensis</i> |
| <i>Casuarina quadrivalvis</i> | <i>Primula sinensis</i> |
| <i>Ceratonia Siliqua</i> | <i>Polygala Dalmaisiana</i> |
| <i>Cestrum aurantiacum</i> | " <i>virgata</i> |
| " <i>roseum</i> | <i>Polygonum platycentrum</i> |
| <i>Cheiranthus Cheiri</i> | <i>Punica Granatum</i> |
| <i>Chimonanthus fragrans</i> | <i>Rhoeo coccinea</i> |
| <i>Chrysanthemum fœniculaceum</i> | <i>Khaphiolepis indica</i> |
| " <i>frutescens</i> | <i>Rhus excisa</i> |
| <i>Cineraria maritima</i> | " <i>trifoliata</i> |
| <i>Cistus albidus</i> | <i>Rosa</i> (many vars.) |
| <i>Citrus</i> (three vars.) | <i>Russelia juncea</i> |
| <i>Clematis cirrhosa</i> | <i>Salvia azurea</i> |
| <i>Colletia bictoniensis</i> | " <i>coccinea</i> |
| " <i>cruciata</i> | " <i>ericalyx</i> |
| <i>Conyza glutinosa</i> | " <i>farinacea</i> |
| <i>Correa alba</i> | " <i>frutescens</i> |
| " <i>cardinalis</i> | " <i>Grahami</i> |
| <i>Corylus Avellana</i> | " <i>Heeriana</i> |
| <i>Cotyledon luridum</i> | " <i>lantifolia</i> |
| " <i>macranthum</i> | " <i>leunurioides</i> |
| <i>Crassula sp.</i> | " <i>princeps</i> |
| <i>Cyperus alternifolius</i> | " <i>semiatrata</i> |
| <i>Datura alba</i> | <i>Schinus Molle</i> |
| <i>Diosma alba</i> | <i>Senecio angulatus</i> |
| <i>Diplopappus filifolius</i> | " <i>longifolius</i> |
| <i>Duranta inermis</i> | " <i>macroglottus</i> |
| <i>Echium frutescens</i> | " <i>mikanoides</i> |
| <i>Elæagnus crispata</i> | " <i>oxyriacifolius</i> |
| " <i>reflexa</i> | <i>Sempervivum arboreum</i> |
| <i>Eriobotrya japonica</i> | <i>Sida</i> |
| <i>Eriocephalus africanus</i> | <i>Solanum cyananthum</i> |
| " <i>filifolius</i> | " <i>jasmnoides</i> |
| <i>Ephedra altissima</i> | " <i>verbascifolius</i> |
| <i>Eucalyptus globulus</i> | <i>Sparmannia africana</i> |
| " <i>Melanoxylon</i> | <i>Spiraea Reevesiana</i> |
| <i>Eupatorium micranthum</i> | <i>Tacsonia mollissima</i> |
| <i>Euphorbia abyssinica</i> | <i>Tasmania tephrosperma</i> |
| " <i>globulus</i> | <i>Tecoma capensis</i> |
| " <i>oxystegia</i> | <i>Teucrium fruticosum</i> |
| " <i>splendens</i> | <i>Veronica</i> (many vars.) |
| <i>Euryops Athanasia</i> | <i>Viburnum Tinus</i> |
| <i>Gasteria latipunctata</i> | <i>Vinca</i> |
| <i>Geranium</i> (many var.) | <i>Virgilia capensis</i> |
| <i>Globularia Alypum</i> | <i>Visnea Mocanera</i> |
| <i>Gomphostachys arborescens</i> | <i>Vittadenia triloba</i> |
| <i>Heliotropium peruvianum</i> | <i>Yucca pendula</i> |
| <i>Helleborus viridis</i> | " <i>plicata</i> |

Notices of Books.

Memoirs of the Botanic Garden at Chelsea, *belonging to the Society of Apothecaries.* By the late Henry Field. Revised, corrected, and continued to the present time by R. H. Semple, M.D. Printed for private circulation.

Among the Botanic Gardens of Europe that at Chelsea, though among the smallest, is one of the most interesting. Its history is a record of fluctuation—now prosperous, now starved for want of funds, now again flourishing, it might take the motto of the city of Paris—*Fluctuat nec mergitur*—as its device. Two centuries have now elapsed since the garden was established by the Society of Apothecaries, a body remarkable for their zealous promotion of the sciences bearing on medicine, at a time when their importance was not so generally recognised as it now is. Nearly two centuries ago the Cedar trees, of which one only, and that a wreck, now survives, were planted. About the same period John Evelyn, a good judge, visited the garden, and after noting the innumerable varieties of simples there cultivated, goes on to speak of the heating of the stoves. "What was very ingenious was the subterraneous heat, conveyed by a stove under the conservatory, all vaulted with brick, so as he has the doores and windowes open in the hardest frosts, secluding only the snow."

In 1695 the garden came under the management of Mr. Doody, commemorated in Doodia, and esteemed as a botanist by Ray and Jussieu. Petiver was another botanist connected with the garden, who managed to carry on his studies in the midst of the distractions of a large medical practice. In 1709, and perhaps before that date, Petiver was Demonstrator of Botany to the Society. In 1722 Sir Hans Sloane, a famous London physician, and a keen naturalist, made over the garden to the Society "to have and to hold for ever" on payment of a yearly rent of £5, and on condition that fifty plants, grown in the garden and well preserved and dried, should be given to the Royal Society of London annually till the number should amount to 2000. Should the garden be used for any purposes than those of a physic garden then the ground was to lapse to Sir Hans or his descendants, to hold the same in trust for the President and Fellows of the Royal Society on the same conditions, or for the President and Fellows of the College of Physicians, subject to the same conditions. The Society was now virtually in possession of the garden, and speedily appointed Philip Miller, a man who conferred great honour on the garden of which he had charge, and who takes rank as the prince of botanic gardeners. A director, or *Prefectus Horti*, was also appointed in the person of Mr. Isaac Rand (Randia), who acted also as Demonstrator of Plants. In 1732 a greenhouse and two hothouses were erected at the cost of the Society, Sir Hans Sloane laying the first stone, and in the following year the statue of the distinguished benefactor above-mentioned, which still stands in the garden, though the features are well-nigh obliterated by the corroding effects of a London atmosphere, was erected. In 1736 Linnæus paid a visit to the garden—a circumstance which gives opportunity to the author for a brief account of the Linnæan system, which, brief as it is, might well have been omitted.

In 1732 there seems to have been some unpleasantness between the *Prefectus Horti* (Mr. Rand) and the gardener, Mr. Philip Miller: both these botanists published catalogues of the contents of the garden. Amongst other names of botanists more or less connected with the Chelsea garden are Dr. Samuel Dale, Mrs. Elizabeth Blackwell, the authoress of a *Herbal*; Mr. William Hudson (*Flora Anglica*), William Curtis, the publisher of the *Flora Londinensis*, and the founder of the *Botanical Magazine*; Mr. William Forsyth, and others of whom slight memoirs are given in the volume before us.

Mr. Field's original work was concluded in 1820, and the history of the garden from that time to the present has been continued with greater literary skill by the present editor, Dr. Semple. Dr. Semple begins his portion of the work with an admirable account of the Society's "herborisings," and a well written memoir of Mr. Thomas Wheeler, whose peculiarities of manner and sterling excellence furnish occasion for a biographical notice which will be read with as much pleasure by the general reader as by those who are interested in the fortunes of the garden. We cannot refrain from citing one story which, among many, is characteristic of the man. Mr.

Wheeler was apothecary to St. Bartholomew's Hospital, where he was a great favourite with the pupils and on one occasion "he was descending on the follies of superfluities in dress. Young Lawrence, afterwards the distinguished Sir William Lawrence, Bart., said, with his usual assumed gravity, 'Well, but, Mr. Wheeler, how can you support such a doctrine while you wear such a superfluity as this?' lifting up the small queue or pigtail which Wheeler wore. Thus taken aback, the old man confessed that it was superfluous. 'Yes, my dear sir, you are right; we are too prone to preach one thing and to practise another. I never thought of it; cut it off, sir—pray cut it off,' and Lawrence forthwith performed the operation requested!"

In 1830 botanical lectures were first regularly given to the medical students of the metropolis, and not merely, as heretofore, to the apprentices of the Society only, and these lectures were of very great service to students. In 1835, after a short tenure of office by Mr. Gilbert Burnet, Dr. Lindley was appointed to deliver these lectures, and the present writer retains an abiding sense of their value and of the assistance which the garden afforded some quarter of a century ago to the botanical student. Lindley's idea was to supplement the ordinary systematic courses of lectures given at the several hospitals by practical demonstrations of medicinal and other plants which the garden afforded. Taking any plant as it seemed at random, he picked it to pieces before the pupils, and by the aid of a black board and a piece of chalk he gave what in medicine would be called a "clinical lecture." Notes of these lectures are before us as we write, and remain among the most cherished reminiscences of our student days. Dr. Lindley made various suggestions as to the better management of the garden, and seems not to have got on very well with the then gardener, Mr. William Anderson, who though of rough manners was of a generous disposition, as the following story illustrates. It appears that the Emperor of Russia presented him with a diamond ring of the value of one hundred guineas, in return for the care he had bestowed on some valuable Orange trees belonging to His Majesty. "Those who remember Mr. Anderson's tall and burly form and his ordinary coarse and old-fashioned style of dress will be inclined to wonder, first, how a diamond ring of such value would be consistent with the rest of his attire; and, secondly, what kind of ring it must have been to fit the gigantic finger of the wearer. The ring, however, was constructed specially for the purpose intended, and Mr. Anderson was of course very careful of it and proud of possessing it, although he very seldom wore it. But on his death this valuable ornament could nowhere be found, and after ransacking all his drawers and cabinets in vain, a pawnbroker's ticket was at last discovered, showing where the costly trinket had been pledged. It turned out on investigation that Mr. Anderson had been induced on some occasion to help a necessitous friend, and not having the money sufficient to enable him to do so had actually pawned this keepsake for the purpose!"

Mr. Anderson died in 1846, and was succeeded by Mr. Robert Fortune, who resigned his appointment in 1848 on being selected to proceed to China to collect Tea plants, and was followed by Mr. Thomas Moore. The modern history of the garden is then briefly touched on by Dr. Semple, who contributes a sympathetic memoir of the late N. B. Ward.

We have alluded to the valuable aid this garden has afforded to those students who were really interested in botany, and to the prizes offered by the Society. The gold medal of the Society was considered among London students as the blue-ribbon of botany, and it is interesting to see among the names of the recipients of these prizes those of William Jenner, now Sir William Jenner, Professor Huxley, Golding Bird, and many now eminent physicians and botanists. We regret that Dr. Semple has not been able to include the names of some of those who attended the lectures in the early summer mornings at Chelsea, for among them he would assuredly have found the names of many men now eminent as physicians or surgeons. The walk to Chelsea, the hour or two spent in the garden, the ride home on the steamboats, formed delightful changes to medical students, the more studious of whom in those pre-athletic days had but little chance of getting fresh air or exercise. One of the latest steps taken in connection with the garden is one quite in consonance with the general policy of the Society of Apothecaries—we

allude to the facilities granted to young girls to study botany, and to the encouragement offered to them by means of examinations and prizes.

About an acre has recently been added to the garden by removing an inner wall and appropriating the space intervening between the old garden and the Thames Embankment, alongside which a very handsome iron fence has been erected. The garden is thus thrown open to public view from the south side, and forms an interesting feature in passing along the high road. Of late years the hardy collection of medical plants has been extended, and is now one of the best near London, and exceedingly useful to students. Besides these a considerable portion of the garden is devoted to other hardy plants, arranged in groups under their natural orders. Altogether the garden is in a more efficient condition for educational purposes than it heretofore has been.

The work contains plans of the garden in its present state, and a list of the hardy medicinal plants cultivated, so arranged that they can readily be found by its aid.

We congratulate Dr. Semple on having produced a volume peculiarly interesting to those who have a personal knowledge of the garden, and hardly less so to the general reader.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JAN. 3, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|--------------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | | | |
| Jan. 1. | In. | In. | | | | | Dew Point. | Average Direction. | |
| 2 | 29.87 | +0.08 | 33.0 | 28.1 | 4.9 | 30.5 | 86 | NNW. | In. 0.29 |
| 3 | 29.27 | -0.50 | 46.0 | 28.8 | 17.2 | 37.7 | 95 | S. W. | 0.62 |
| 4 | 29.68 | -0.08 | 37.0 | 29.0 | 8.0 | 33.2 | 82 | WNW. | 0.00 |
| 5 | 29.97 | +0.22 | 35.2 | 28.0 | 7.2 | 31.7 | 88 | N.W. | 0.00 |
| 6 | 30.06 | +0.32 | 31.0 | 22.7 | 8.3 | 27.1 | 85 | W. | 0.00 |
| 7 | 29.79 | +0.05 | 33.1 | 27.0 | 6.1 | 30.1 | 79 | WNW. | 0.00 |
| 8 | 29.52 | -0.21 | 33.6 | 24.8 | 8.8 | 29.6 | 81 | S.E. | 0.00 |
| Mean | 29.74 | -0.02 | 35.6 | 26.9 | 8.7 | 31.4 | 85 | variable | sum 0.91 |

- Jan. 2.—A fine day, but very cloudy. Snow and rain fell in early morning. Very cold. Lunar halo at night.
- 3.—A miserable damp day. Rain throughout. Temperature decreased after 0.30 P.M. Cold at night.
- 4.—Dull and gloomy till evening, then cloudless. Cold.
- 5.—A fine cold day. Little mist after 3 P.M. Hoar frost. Cloudless at night.
- 6.—A dull day. Raw cold. Misty. Hoar frost.
- 7.—Overcast and dull throughout. Very cold. Windy. Temperature fell steadily after 11 A.M.
- 8.—A very fine day. Strong wind. Very cold. Beautifully clear and moonlight at night. The atmosphere was unusually clear at night, and objects were seen at a far greater distance than is usual.

LONDON: Barometer.—During the week ending Saturday, January 4, 1879, in the suburbs of London the reading of the barometer at the level of the sea decreased from 29.51 inches at the beginning of the week to 29.50 inches by the morning of December 29, increased to 29.85 inches by noon on January 1, decreased to 29.50 inches by the evening of the same day, increased to 30.13 inches by the afternoon of the 2d, decreased to 29.34 inches by the morning of the 3d, and increased to 29.99 inches by the end of the week. The mean daily readings were below their respective averages on every day in the week except Thursday, when the mean value was 0.08 inch above the average; the greatest departures in defect were December 29, 0.56 inch; 30th, 0.55 inch; 31st, 0.51 inch; and January 3, 0.50 inch. The mean reading for the week at sea-level was 29.67 inches, being 0.12 inch below that of the preceding week, and 0.35 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 56½° on December 30, 54½° on the 31st, and 50½° on January 1, to 33° on January 2; the mean value for the week was 46½°. The lowest temperatures of the air observed by night varied from 28° on January 2 and 28½° on the 3d to 48½° on December 31; the mean for the week was

34½°. The mean daily range of temperature of the air for the week was 11½°, the greatest range in the day being 18½° on January 1, and the least 5° on the 2d.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—December 29th, 41° 3, + 3° 9; 30th, 51° 1, + 13° 8; 31st, 51° 3, + 14° 1; January 1st, 41° 1, + 3° 9; 2d, 30° 5, — 6° 4; 3d, 37° 7, + 1°; 4th, 33° 2, — 3° 4. The mean temperature of the air for the week was 40° 9, being 3° 8 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 77½° on the 29th of December, 76° on the 30th, and 71° on the 31st; on Jan. 2 the highest reading was 43°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 25°, both on the 1st and 2d of January; 36° on the 3d, and 27° on the 4th; the mean of the seven lowest readings was 33°.

Wind.—The direction of the wind was variable, and its strength brisk.

The weather during the first part of the week was very mild, but was cold during the latter part.

Rain fell on six days during the week, the amount measured was 1.91 inch.

Snow fell on January 1 and 2.

A lunar halo was seen on January 2.

The weather was very changeable during the first three days of January.

ENGLAND: Temperature.—During the week ending Saturday, January 4, the highest temperatures of the air observed by day were 56½° at Blackheath, 55° at Truro and Cambridge, 54½° at Nottingham, and 54° at Norwich; the highest temperature of the air at Sunderland was 49°, and at Brighton, Hull, Bradford, and Leeds, all 51°; the mean value from all places was 52½°. The lowest temperatures of the air observed by night were 15° at Nottingham, 16° at Hull, 20° at Wolverhampton, 22° at Leicester, 23° at Bristol, Norwich, and Sheffield, 23½° at Cambridge, and 24° at Bradford and Leeds; the lowest temperature of the air at Truro was 34°, and at Plymouth was 33½°; the mean from all stations was 24½°. The range of temperature in the week was the greatest at Nottingham, 39½°, and the least at Plymouth and Brighton, 20°; the mean range from all places was 28°.

The mean of the seven high day temperatures was the highest at Truro, 52½°, Plymouth 51½°, and Brighton 47°; and the lowest at Hull, 40½°, and Leicester, 41½°; the general mean from all places was 44½°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 30°, Nottingham and Hull 30½°, Leicester 32½°, and Sheffield, Bradford and Leeds all 33°; and the highest at Truro, 41½°, and Plymouth 40°; the mean from all stations was 34½°. The mean daily range of temperature in the week was the least at Brighton and Sunderland, both 8½°, and the greatest at Nottingham, 12½°; the mean daily range of temperature from all places was 10½°.

The mean temperature of the air for the week from all stations was 39½°, being 4° lower than the value for the corresponding week in 1878. The mean temperature for the week was the highest at Truro, 47°, Plymouth, 45½°, and Brighton, 42½°; and the lowest at Hull, 35½°, Wolverhampton, 35½°, and Nottingham, 36½°.

Rain or snow fell five or six days in the week at most places. The largest amounts measured were at Plymouth, 3.38 inches, Bristol, 2.76 inches, Truro, 2.45 inches, Brighton, 2.08 inches, and Blackheath, 1.91 inch, at other places the amounts varied from three to seven-tenths of an inch; the average fall over the country was 1½ inch.

The weather during the week was generally dull, and the sky cloudy. Snow fell at many places. On December 30 and 31, 1878, the weather was exceedingly mild everywhere.

A solar halo was seen at Cambridge on January 1.

SCOTLAND: Temperature.—During the week ending Saturday, January 4, 1879, the highest temperatures of the air observed by day varied from 51° at Perth, 50½° at Paisley, and 50° at Leith, to 44½° at Aberdeen; the mean value from all places was 48½°. The lowest temperatures of the air observed by night varied from 11° at Greenock, 15° at Perth, 16° at Aberdeen, and 18° at Dundee, to 26° at Glasgow. The mean range of temperature from all stations in the week was 29°.

The mean temperature of the air for the week from all stations was 34½°, being 5° lower than that of England and 7° lower than the value for the corresponding week in 1878. The highest were 36½° at Glasgow and Leith, and 35° at Paisley; and the lowest were 32½° at Aberdeen and 33½° at Greenock.

Rain.—The amounts of rain and melted snow measured during the week varied from 2 inches at Greenock to half an inch at both Dundee and Leith; the average amount over the country was 1.12 inch.

DUBLIN.—The highest temperature of the air was 53½°, the lowest was 22½°, the range was 31°, the mean was 37°, and the amount of rain and melted snow was 0.35 inch.

JAMES GLAISHER.

Obituary.

THE late spell of severe cold, which proved so fatal to many aged gardeners, has not spared some younger men, and amongst these as worthy a passing record to his memory is CHARLES JOHN HIGGS, who for the past nine years had been gardener to Mrs. Crawshaw, at Caversham Park, near Reading. Up to recently apparently hale, hearty, and robust, he was taken off at the comparatively early age of thirty-six, on Boxing Day last, in what well might be termed the full vigour of strength and manhood. Whilst yet a lad Mr. Higgs entered the service of Mr. Jones, nurseryman, Henley-on-Thames, and was for some time in that employ; then he removed to Southampton, there for a time undertaking the duties of foreman in the market establishment of Messrs. Oakley & Watling, and again changed to the charge of the gardens at Crabwood, near Southampton, the residence of Mr. Rolles Driver. Here for several years he was enabled to display his energies in many and varied improvements, and gave his employer the most entire satisfaction. During his residence at Crabwood he became not only a member of the committee, but also a permanent exhibitor of the Southampton Horticultural Society. He also joined most thoroughly in the establishment of a society limited to his own immediate locality, to which his hearty support was given, and that society flourishes now that some thirteen years have passed since its formation. Becoming ultimately anxious to obtain a larger sphere of work, he succeeded in obtaining charge of the gardens at Caversham Park, where he soon made a good reputation as a prominent exhibitor at the Reading shows until the death of Mrs. Crawshaw removed the chief garden influence. He was well and widely known, and deservedly esteemed.

—The death is announced of Mr. HENRY CORBET, for many years editor of the *Mark Lane Express*, at the age of fifty-eight years. Mr. Corbet, who was well known as a vigorous writer on agricultural subjects, and the author of a prize essay on "Farm Leases," had been suffering from paralysis for three years, and gradually sank from the effects of the disease. At the end of 1875 he was compelled to retire from active work, and although he first tried change of air and scene, it soon became apparent that recovery was hopeless. His death took place on Sunday morning, December 29.

—We have also to record the death, on Saturday the 4th inst., at his residence, Whittington Hill, near Lichfield, of Mr. JOHN HOLMES. The deceased gentleman, who was in his 81st year, was a cousin of Mr. Edward Holmes, of the Whittington Nursery, and was for upwards of twenty years a partner in the firm of Fisher, Holmes & Co., of the Handsworth Nursery, near Sheffield.

Answers to Correspondents.

AMERICAN BLIGHT: Fern. Wash the trees with a mixture of paraffin (a wineglassful to 4 gallons of water, keeping it well mixed); apply with a scrubbing-brush, and wash shortly afterwards with clean water, which can be applied with a syringe or garden engine.

CARRIAGE-DRIVES AND WALKS: C. W. S. The moss you complain of arises from excess of moisture. If the drainage is not efficient, this, then, is the first and fundamental remedy. Supposing this is not the case, you can kill the moss by sprinkling salt on the roads in dry weather next spring, or water with dilute carbolic acid, the strength of which you had better try on a small scale. It will do no harm to the walk; but, like the salt, must be kept away from grass or herbage forming the margin.

CHANGE OF ADDRESS: We are asked to state that Mr. Alex. McKenzie's address is now Tower Chambers, Moorgate Street, E.C.

CUCUMBERS: S. B. G. Several separate treatises on the growth of Cucumbers have been published, but they are probably all out of print. You cannot do better than carefully read and apply the remarks given in our Calendar of Operations, which is provided to meet such cases as yours.

FLORA OF CENTRAL AMERICA: R. P. We do not know of any complete work. Information must be sought in various works and periodicals.

FORMATION OF A VINE BORDER: Enquirer. The whole space for the border ought to be excavated to a depth of 3 feet; place in the bottom a foot or

more of drainage; broken bricks answer well. A drain should be laid about 6 inches deeper along the front of the border. Over the brickbats place a layer of freshly-cut turves with the grass side under. If this cannot be obtained, some straw or other material will do. It is to prevent the finer mould from mixing with the drainage. Then as to the compost, the more simple it is the better. If good turfy loam can be obtained, this will do without anything added to it. We have seen borders made with the composts recommended by good Vine growers, such as crushed bones, charcoal, lime rubbish, and manure mixed with loam; and the results from pure turfy loam alone were as good, if not better, than those obtained from the more elaborate composts. It is easy to add manure from the surface afterwards. If crushed bones and charcoal can readily be obtained, add 1 cwt. of bones and 2 bushels of charcoal to every five loads of the loam. The border should be raised a foot above the level of the surrounding ground. If turfy loam cannot be had use the mould that was dug out, and if it is poor soil, add to it one part of manure to six of the soil, including the bones and charcoal.—*Lindon Hill.* The above will answer your question.

HEATING: Lindon Hill. It is evident from your explanation that the pipes are not properly laid. If the valves are opened the water should circulate easily enough. Probably the levels are not right.

HEATING GREENHOUSES: Querist. Our recommendations were made on the supposition that it was a single apparatus you required, but if you have separate divisions, and want to keep one hotter than the other, and to introduce stop-valves, &c., you will do little good with the earthenware pipes, and had better at once adopt iron pipes, with the india-rubber ring joints. If you adopt the earthenware, it must be glazed—the ordinary glazed drain pipes—surely you can have no trouble in procuring these.

INSECTS: A Beginner. The insects received are the common black beetles in the winged state. They are very destructive in houses, and should be got rid of at once with Chace's Beetle Poison, or by any other means.

NAMES OF FRUIT: H. Weyringer, Vienna. We do not recognise any of the Apples, nor are we able to say if they are known in France. They are distinct from any of our English sorts, or at any rate having been grown in a different climate they have a very different appearance, and are of a different texture to any of ours.

NAMES OF PLANTS: J. M., Kettlewell. *Cœlogyne Gardneriana*.—*H. Jarvis*, 1, *Epidendrum alatum*; 2, *Dendrobium* sp., send better specimen.—*A. W.* 1, *Croton glandulosus* (are we at liberty to publish your experience with this plant?); 2, *Adiantum æthiopicum*; 3, *Blechnum australe*; 4, *Nephrodium macrophyllum*.—*Inquirer.* We cannot help you, not having preserved the leaf. Indeed it is very rarely that an unfamiliar plant can be named from leaves only.—*W. A. H.* The grass appears to be *Panicum plicatum*. We cannot undertake to name the *Crotons*.—*A. G. M.* 1, *Nepenthes distillatoria*; 2, *Polystichum capense*; 3, *Pteris quadriaurita*; 4, *Lastrea tenericaulis*; 5, *Microlepia platyphylla*; 6, *Blechnum occidentale*.

WORKS ON ORCHIDS: R. P. Yes, there do exist works on Orchids in plenty. You should specify more particularly what you want. If you require a complete enumeration up to the present time we fear there is nothing to suit you. You will have to consult several works and periodicals.

COMMUNICATIONS RECEIVED:—H. C. W.—D. T. F.—E. G.—B. S. W.—B. J.—W. H.—W. G. S.—D. B.—H. W. W.—R. D.—A. R. (we will try and answer your question in our next).—Y. Z.

Markets.

COVENT GARDEN, January 9.

Our market still keeps quiet, with no alteration in values. Large consignments of St. Michael Pines are reaching us, prices being very low. *James Webber, Wholesale Apple Market.*

| PLANTS IN POTS. | | s. d. s. d. | |
|-------------------------|------------------------|-------------|--------|
| Arum Lily, or Rich- | ardia æthiop., doz. 18 | 0-24 | 0 |
| Azaleas, per dozen | .. 24 | 0-60 | 0 |
| Begonias, per doz. | .. 6 | 0-12 | 0 |
| Bouvardias, per doz. | 18 | 0-24 | 0 |
| Camellias, per dozen | 18 | 0-60 | 0 |
| Cinerarias, per doz. | 12 | 0-18 | 0 |
| Cyclamens, per doz. | 12 | 0-30 | 0 |
| Cyperus, per dozen | 6 | 0-12 | 0 |
| Dracæna terminalis | 30 | 0-60 | 0 |
| —viridis, per doz. | 18 | 0-24 | 0 |
| Epiphyllum, per doz. | 18 | 0-60 | 0 |
| Erica Caffra, p. doz. | 6 | 0-9 | 0 |
| —gracilis, p. dozen | 9 | 0-12 | 0 |
| —hyemalis, p. doz. | 12 | 0-42 | 0 |
| Euonymus, var., doz. | 6 | 0-18 | 0 |
| Ferns, in var., p. doz. | 4 | 0-18 | 0 |
| Ficus elastica, each | 2 | 6-15 | 0 |
| Foliage Plants, vari- | ous, each | .. 2 | 0-10 6 |
| Hyacinths, per doz. | 6 | 0-18 | 0 |
| Hyacin., Kom., doz. | 12 | 0-18 | 0 |
| Mignonette, per doz. | 6 | 0-9 | 0 |
| Myrtles, per doz. | .. 6 | 0-12 | 0 |
| Palms in variety, | each | .. 2 | 6-21 0 |
| Pelargoniums, scar- | lets, zonal doz. | .. 6 | 0-12 0 |
| Primulas, per dozen | 6 | 0-12 | 0 |
| Solanums, per doz. | 6 | 0-18 | 0 |
| Tulips, per dozen | .. 9 | 0-18 | 0 |

| CUT FLOWERS. | | s. d. s. d. | |
|-------------------------|------------------|-------------|-------|
| Abutilon, 12 blooms | 0 | 6-1 | 0 |
| Arum Lilies, 12 blms. | 6 | 0-18 | 0 |
| Azaleas, 12 sprays | .. 1 | 0-3 | 0 |
| Bouvardias, per bun. | 1 | 0-4 | 0 |
| Camellias, per dozen | 3 | 0-18 | 0 |
| Carnations, per dozen | 2 | 6-4 | 0 |
| Cyclamen, 12 blooms | 0 | 6-1 | 6 |
| Deutzia, 12 bunches | 6 | 0-12 | 0 |
| Epiphyllum, 12 blms. | 1 | 0-3 | 0 |
| Eucharis, per doz. | .. 6 | 0-18 | 0 |
| Gardenias, 12 blms. | 12 | 0-24 | 0 |
| Heliotropes, 12 sp. | .. 0 | 6-1 | 0 |
| Hyacinths, 12 spks. | 4 | 0-12 | 0 |
| —Roman, 12 spks. | 2 | 0-4 | 0 |
| Lily of Val., 12 sprays | 3 | 0-9 | 0 |
| Mignonette, 12 bun. | 12 | 0-18 | 0 |
| Narcissus, paper- | white, 12 sprays | .. 2 | 0-6 0 |
| Pelargoniums, 12 spr. | 2 | 0-4 | 0 |
| —zonal, 12 sprays | 1 | 0-2 | 0 |
| Primula, double, per | bunch | .. 1 | 0-2 0 |
| Roses (indoor), doz. | 2 | 0-12 | 0 |
| Tropeæolum, 12 bun. | 2 | 0-6 | 0 |
| Tuberoses, per dozen | 3 | 0-6 | 0 |
| Tulips, 12 blooms | .. 1 | 0-3 | 0 |
| Violets, 12 bunches | 4 | 0-9 | 0 |

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|----------------------|-------------|
| Apples, 1/2-basket | 1 6-50 | Oranges, per 100 | 4 0-80 |
| Cobs and Filberts, lb. | 0 9-10 | Pears, per doz. | 4 0-80 |
| Grapes, per lb. | 3 0-80 | Pine-apples, per lb. | 2 0-40 |
| Lemons, per 100 | 3 0-100 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0-.. |
| Globe, doz. | 2 0-40 | Lettuces, Cabbage, | |
| — Jerusalem, bush. | 4 0-.. | per doz. | 1 6-.. |
| Asparagus, Fr. sprue, | | Mint, green, bunch. | 1 6-.. |
| per bundle | 1 6-.. | Onions, young, bun. | 0 4-06 |
| — Fr. giant, p. bun. | 18 0-.. | Parsley, per bunch. | 0 4-.. |
| Beans, French, p. 100 | 2 0-.. | Peas, per quart | 12 0-.. |
| Beet, per doz. | 1 0-20 | Potatoes, new, basket | 1 0-.. |
| Brus. sprouts, bush. | 10 0-.. | Radishes, per bunch | 0 10-3 |
| Cabbages, per doz. | 1 0-20 | — Spanish, doz. | 1 0-.. |
| Carrots, per bunch | 0 4-06 | — New Jersey, doz. | 2 0-.. |
| Cauliflowers, per doz. | 2 0-30 | Rhubarb, doz. | 10 0-.. |
| Celery, per bundle | 1 6-20 | Shallots, per lb. | 0 6-.. |
| Chilis, per 100 | 2 0-.. | Seakale, per punnet | 2 6-.. |
| Cucumbers, each | 1 0-20 | Spinach, per bushel | 4 0-50 |
| Endive, Batav. dozen | 1 6-.. | Sweet Potatoes, per lb. | 0 6-.. |
| Garlic, per lb. | 0 6-.. | Tomatoes, per dozen | 2 6-30 |
| Herbs, per bunch | 0 2-04 | Turnips, p. 12 bunch. | 3 0-.. |

The Potato market is quiet, and without alteration in prices:—
Regents, 100s. to 130s.; Early Rose, 110s. to 120s. per ton.

SEEDS.

LONDON: Jan. 8.—The seed market has this week been better attended, and there has been a gradually improving demand for farm seeds. The most striking feature of the present season is the unusually low range of values current for all varieties. As regards red Clover and Cowgrass the yield in all the sowing districts of this country is, without doubt, very large; but the quality is for the most part disappointing—the seed in nearly every instance lacking size as well as depth of colour. In American red there is no quotable alteration: the imports into the United Kingdom have been throughout remarkably light, nor does any great or speedy increase in the shipments hither appear probable. With respect to Trefoil the hardening tendency lately noted has continued to make further progress. The satisfactory quality and the extreme cheapness of the new Alsike are attracting more and more attention. For white Clover the trade is steady but quiet. Rye-grasses, both Scotch and Irish, although low in price, are still neglected: the same can be said of French-Italian. There is a better sale for Haricot Beans and boiling Peas. Canary and Hemp seed move off slowly on former moderate terms. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday trade was very dull for Wheat, and prices had a downward tendency. The supply of English Wheat was short, and the condition of the produce unsatisfactory. Good malting Barley was scarce and fully as dear. Sundry parcels were neglected. Malt was dull and without change. Oats and Maize were in limited request, and prices were with difficulty supported. Beans and Peas were purchased sparingly on recent terms. Flour was inactive and cheaper to sell. —On Wednesday there was very little demand for cereal produce, and the tone of the market remained weak. For English Wheat prices were almost nominal; and foreign was cheaper where pressed for sale. Oats, Maize, flour, and other classes of produce had a similarly dull and unsatisfactory market; but as regards fine malting Barley, which continues very scarce, prices were decidedly firm. —Average prices of corn for the week ending Jan. 4:—Wheat, 39s. 7d.; Barley, 38s. 10d.; Oats, 20s. 3d. For the corresponding term last year:—Wheat, 51s. 8d.; Barley, 43s. 1d.; Oats, 24s. 5d.

HAY.

Tuesday's Whitechapel report states that the market was only moderately supplied with fodder; and that trade in consequence showed a slight improvement at firm prices. Prime Clover, 100s. to 108s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 38s. per load.—There was a moderate supply of fodder at market on Thursday with a fair trade; prices were rather better for best Clover:—Prime Clover, 100s. to 110s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 38s. per load.—Cumberland Market quotations:—Superior meadow hay, 84s. to 92s.; inferior, 65s. to 74s.; superior Clover, 110s. to 120s.; inferior, 80s. to 94s.; and straw, 38s. to 44s. per load.

POTATOS.

The Borough and Spitalfields report states that the supplies were rather limited, and for the better kinds trade remained steady. Inferior Potatoes were dull and irregular:—Kent Regents, 100s. to 115s. per ton; Essex ditto, 80s. to 100s.; flukes, 110s. to 140s.; Victorias, 110s. to 135s.; Champions, 80s. to 90s. per ton.—The importation into London last week was upon a very small scale; 3102 bags were received from Hamburg, 150 tons 200 sacks Rouen, and 158 tons from Dahouert.

COALS.

There was a good demand for house coals on Monday, and prices advanced 1s. per ton; Hartley's, however, receded 6d. per ton. On Wednesday, in consequence of the continued cold weather, there was an active demand for house coals, and prices further advanced 6d. per ton. Quotations:—Springwell West Hartley, 14s. 3d.; Walls End—Lambton, 20s.; Original Hartlepool, 20s. 6d.; Wear, 19s. 3d.; Tunstall, 18s. 9d.; Thornley, 19s. 6d.

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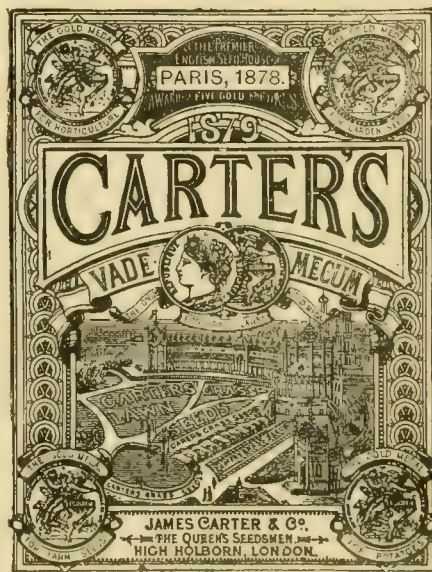
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PEAS, Cattell's Giant White Marrow, 3s. per quart.
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CUCUMBER, Kirklees Hall Defiance, 1s. 6d. per packet.
LETTUCE, Cattell's Leviathan Cos, 2s. 6d. per packet.
Cattell's Hardy White Cos, 1s. 6d. per packet.
ONION, Cattell's Mammoth, 1s. 6d. per packet.
PARSLEY, Cattell's Exquisite Curled, 6d. and 1s. per packet.
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RHODODENDRON PONTICUM, 12 to 18 inches, and very bushy.
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Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and trained trees in great variety, all full of vigour, and warranted true to name. Descriptive Price List, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for a penny stamp.

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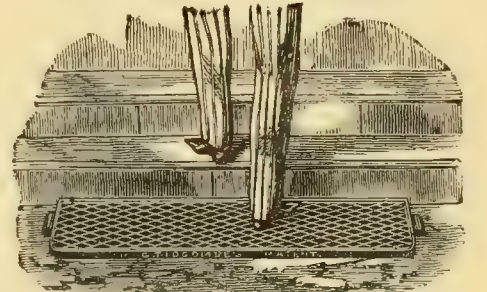
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NEW SYSTEM of AIR and WATER-TIGHT
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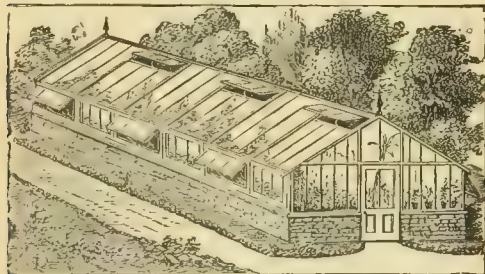
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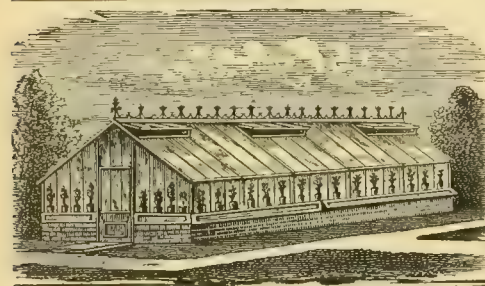
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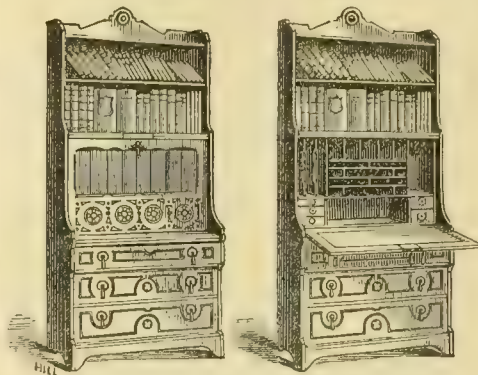
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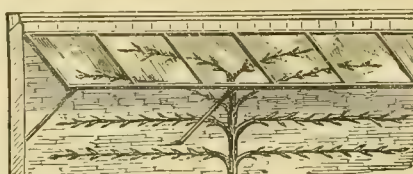
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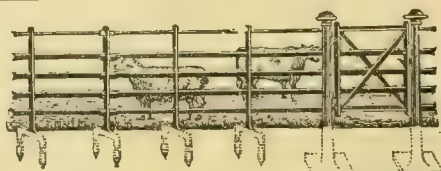


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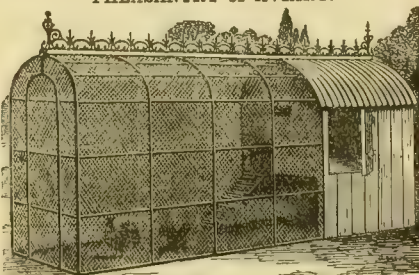


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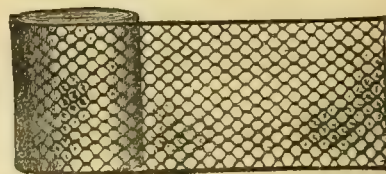
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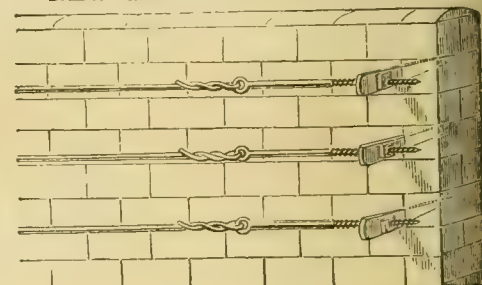
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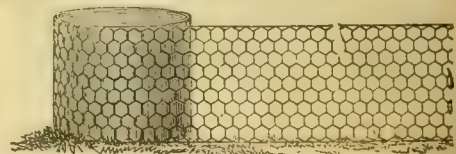
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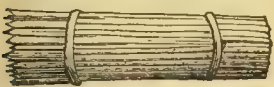


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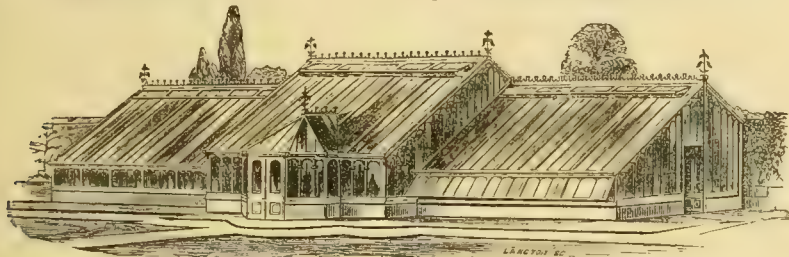
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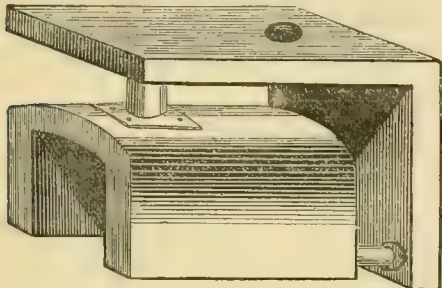
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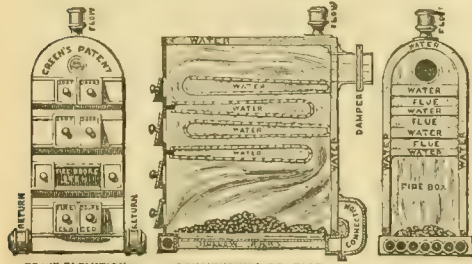
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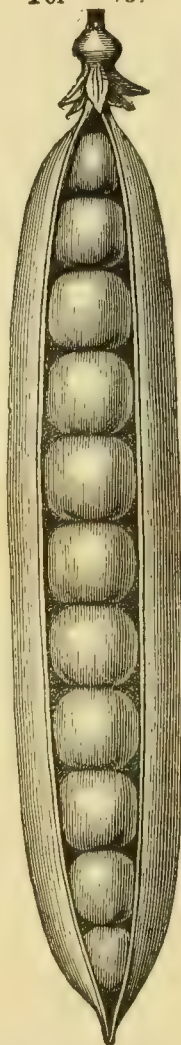


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SATURDAY, JANUARY 18, 1879.

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NEW CUCUMBER.—Stanstead Rival is a genuine novelty, and will take its place as the best Cucumber grown. Sealed packets 2s. 6d. each. The Trade supplied.
JOHN LAING and CO., Seedsmen, Forest Hill, S.E.

SEED POTATOS.—We have a large stock of the principal varieties, free from disease—mostly grown upon moss land. Priced LISTS and every detail on application.
LITTLE and BALLANTYNE, Seed Growers, Carlisle.

To Gardeners.

WANTED TO PURCHASE, six or eight large Plants, averaging 6 to 10 feet high, and about same width, of **CAMELLIAS**, alba plena, fimbriata, candidissima, Lady Hume's Blush, and imbricata. State lowest cash prices.
C. WILSON, Nurseryman, Kendal.

WANTED TO BUY, a quantity of QUICKS.

Apply to **ALFRED WINFIELD**, Seed Warehouse, Gloucester.

WANTED, Large, Over-grown, White AZALEAS, in EXCHANGE for fine Plants of **STEPHANOTIS FLORIBUNDA**.

JAMES HOADE, opposite Railway Station, Addlestone, Surrey.

WANTED TO PURCHASE.—Dobson and Lancashire Lad GOOSEBERRIES, Standard Keswick APPLES, SWEET BRIER, strong transplanted. Reply, stating price and quantity, to
FRUIT GROWER, 16, Crown Court, Russell Street, W.C.

Cucumber Plants.

WANTED, 40 TELEGRAPH (true).
W. L. MAITLAND, Merton Abbey Nursery, Surrey.

The Finest Primula of the Season.

First-class Certificate, **R. H. S.** Jan. 14, 1879. **SUTTON'S RUBY KING.**—"Most striking and magnificent in appearance."—*Gardeners' Chronicle*. Price 5s. per packet, post-free.

The Finest Primula of the Season.

Large Silver Banksian Medal, **R. H. S.** Jan. 14, 1879. **SUTTON'S RUBY KING.**—"Quite surpasses all the crimson Primulas we have hitherto seen."—*Gardeners' Magazine*. Price 5s. per packet, post-free.

The Finest Primula of the Season.

Deep Blood Red. Perfectly distinct. **R. H. S.** Jan. 14, 1879. **SUTTON'S RUBY KING.**—"The most beautiful of the Chinese Primulas."—*Garden*. Price 5s. per packet, post-free.

SUTTON and SONS, The Queen's Seedsmen, Reading, Berks

SELECTED STOCKS of GARDEN, FLOWER, and FARM SEEDS.—New Seed LIST for 1879 is now ready, and will be sent post-free to any one on application.
LITTLE and BALLANTYNE, The Queen's Seedsmen, Carlisle.

Trade Price Current—Seeds—1879.

THE LAWSON SEED and NURSERY COMPANY (LIMITED), have issued their ANNUAL CATALOGUE of SEEDS, and if any of their Customers have been inadvertently overlooked, copies will be sent on application.
1, George IV. Bridge, Edinburgh; 106, Southwark Street, London, S.E.

Special Offer to the Trade.

WOOD and INGRAM have just compiled a Special LIST of NURSERY STOCK, including a fine lot of extra transplanted BRITISH OAK, which they can offer in quantities, at a reduced rate. Free on application.
The Nurseries, Huntingdon.

LIBERIAN COFFEE SEED.—A large consignment of this season's fresh seed, in the berry, just arrived in splendid condition. Can be viewed and purchased in original Liberian packages.
THOMAS CHRISTY and CO., 155, Fenchurch Street, E.C.

To the Trade.

NUTTING and SONS having now posted their Annual Wholesale Garden, Agricultural and Flower Seed CATALOGUE to all their friends, if not to hand, on application another shall be immediately forwarded.
NUTTING and SONS, Seed Merchants, 60, Barbican, London, E.C.

Fit for Immediate Working.

ROSA MANETTI and R. MULTIFLORA DE LA GRIFFERIAIE, 25s. per 1000, £10 per 10,000.
A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

To the Trade.

CHOICE GARDEN and FARM SEEDS, of reliable quality, for Market Gardeners and Seedsmen. Our Priced LIST is now ready, and will be sent post-free. Apply to **HARRISON and SONS**, Seed Growers, Leicester.

To the Trade.

EDWARD HOLMES offers Standard APPLES and Standard PEARS, cheap. Sorts and price on application.
Whittington Nursery, Lichfield.

GRAPES THIS YEAR.—Splendid well-ripened short-jointed Canes for immediate fruiting. Apply to **JAMES DICKSON and SONS**, Newton Nurseries, Chester.

BLACK HAMBURG VINES, and other leading sorts, in Fruiting and Planting Canes. Prices, &c., on application to **F. R. KINGHORN**, Nurseries, Richmond, Surrey.

Vines—Vines—Vines.

J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

HAMPTON COURT BLACK HAMBURG VINE.—Strong fruiting well ripened Canes of this well known Grape, 5s., 7s. 6d., and 10s. 6d. each; Planting Canes, 3s. 6d. each. Also a good stock of most of the best kinds.
T. JACKSON and SON, Nurseries, Kingston, Surrey.

Scarlet Runners.

HURST and SON can offer the above to the Trade at special rates, on application.
6, Leadenhall Street, E.C.

SEAKALE, ASPARAGUS and RHUBARB Roots, for forcing, exceptionally fine. For special quotations apply to **H. THORNTON**, 1, Maxwell Road, Fulham, S.W.

To the Trade, &c.

ASPARAGUS, GIANT.—Splendid Roots for Planting and Forcing in immense quantity.
EWING and CO., Norwich.

SALES BY AUCTION.

Hardy and Greenhouse Plants and Bulbs.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, January 22, at half-past 12 o'clock precisely, **CAMELLIAS** from Ghent, Standard and Dwarf **ROSES**, **FRUIT TREES**, **HARDY** and **ORNAMENTAL TREES** and **SHRUBS**, **GOOSEBERRY** and **CURRENT TREES**, **RASPBERRY CANES**, **HERBACEOUS PLANTS**, **CLIMBING PLANTS**, **GLADIOLI**, **LILiums**, **ANEMONES**, **RANUNCULI**, &c.
On view morning of Sale, and Catalogues had.

Lilies.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, January 23, at half-past 12 o'clock precisely, a quantity of **CHOICE LILIES** and **OTHER ROOTS**, including good flowering bulbs of **Lilium neilgherrense**; the white flowers of this magnificent Lily are deliciously fragrant and of great substance; it bears several flowers on a stem, each flower nearly 1 foot long. Also good flowering bulbs of **Lilium neilgherrense tubiflorum**; this variety has the tube much narrower up to the mouth, where it reflexes suddenly, so as to display more of the inner surface: figured in Wight's *Lilies Plantarum India Orientalis*. The rare **Lilium columbianum**, **L. Browni**, **L. parvum**, **L. Wallichianum**, **L. Krameri**, the beautiful "**L. speciosum Kraetzerei**," the new **L. Batemanii**, and some bulbs of that large and remarkable Aroid **Godwinia gigas**, and some good bulbs of the rare and handsome **Crinum australe**, **C. giganteum** and **C. americanum**; an importation of **Lilium Wallichianum**, the "prince" of the longiflorum section, a very scarce and beautiful Lily, flowers about 9 inches in length, colour a delicate creamy white, externally tinged with yellow and green; 6000 **Lilium auratum**, **L. longiflorum**, **Lilium Thunbergianum**, **staminosum**, **L. Krameri**, just arrived from Japan in splendid condition.
On view morning of Sale, and Catalogues had.

Auction Mart, Opposite the Bank, E.C.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, at the Mart, on **MONDAY** NEXT, at half-past 12 o'clock precisely, 5000 very fine **BULBS** of **LILium AURATUM**, 4000 **L. Krameri**, **L. speciosum album** and **rubrum**, **L. tigrinum**, fl.-pl., **L. Thunbergianum staminosum**, and 800 **L. Talsta Zurii** from Japan; a Collection of rare English-grown **LILIES**, unusually fine roots, including several varieties of elegans, **Washingtonianum** giganteum, **parvulum**, **Scovitzianum**, **Davuricum**, **Brownii**, **chalcidicum**, **candidum**, and others; **Cypripedium spectabile** and **occidentale**; an assortment of **CAPE BULBS**; 400 Standard, Half Standard, and Dwarf **ROSES**; 2000 fine double **TUBER ROSES**, 1500 **Tuberous-rooted BEGONIAS**, and **GLOXINIAS**, **GLADIOLUS**, **TIGRIDIA GRANDIFLORA**, &c.
Catalogues at 98, Gracechurch Street, E.C.
N.B.—Messrs. P. & M. having had the cases of **Lilium auratum** opened, are enabled to report that the bulbs are all in fine condition, and for the most part very large.

Preliminary Notice of an Important Sale of

LILIES from JAPAN, including 5000 **auratum**, 1500 **tigrinum** **juncundum**, 500 **Leichtlinii**, 3000 **Thunbergianum staminosum**, 1000 **longiflorum**; also 13 beautiful varieties of **Acers**, **Iris** and **Nymphaea**, together with a splendid assortment of **ENGLISH GROWN LILIES**, a number of first-class **PERENNIALS**, **tuberous-rooted BEGONIAS**, **CAPE BULBS**, **North American** and other **hardy ORCHIDS**, 2000 **American TUBEROSES**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above at the Mart, on **MONDAY**, January 27.

Full particulars next week.

West Wickham, Kent, S.E.

Close to the "Swan Inn." Three miles from Beckenham and Bromley Stations.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Kirkcaldy to **SELL** by **AUCTION**, without reserve, at The Nursery, as above, on **THURSDAY**, January 30, at 12 o'clock punctually, 3000 **Common and Portugal LAURELS**, 2 to 5 feet; 1500 **HOLLIES** and **YEWs**, 3 to 5 feet; **CEDRUS DEODARA**, 1000 **BERBERIS**, 2000 **Spruce** and **Scotch FIRs**, 2000 **PINUS AUSTRIACA**, **LIMES**, **PLANES**, **BORDER SHRUBS** of sorts, 500 first-class **Standard ROSES**, well trained and **Pyramidal FRUIT TREES**, &c.

View prior to Sale. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, City, E.C.

Preliminary Notice of Important

FORTHCOMING SALES by **PROTHEROE AND MORRIS**.

FEB. 4, 5, and 6.—**KING'S ACRE NURSERIES**, Hereford, by order of Messrs. Cranston & Co. Several Acres of first-class Nursery Stock, in the finest condition for removal.

FEB. 7.—**THE RECTORY**, Wickham, Newbury, Berks, by order of the Executors of the late Rev. W. Nicholson. The whole of the choice Greenhouse Plants and Effects, including 150 beautifully furnished specimen **Camellias**, in tubs and pots, varying in height from 4 to 12 feet.

FEB. 11.—**WEST HAM and PLAISTOW**, Essex, by order of Mr. W. Holmes. Clearance Sale of General Nursery Stock.

FEB. 13 and 14.—**THE NURSERIES**, Taunton, by order of Mr. W. Hockin. Clearance Sale of Nursery Stock.

FEB. 18 and 19.—**THE NURSERY**, Exeter, by order of Messrs. Lucombe, Pince & Co. General Nursery Stock.

FEB. 25.—**EXOTIC NURSERY**, Tooting, S.W., by order of Mr. R. Parker. Important Sale of thriving young Nursery Stock.

Catalogues may be obtained of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Linden House, Turnham Green.

CLEARANCE SALE.—Valuable Growing **TIMBER**, **Green OAK**, **CEDAR** of **LEBANON**, choice **SHRUBS** and **EVERGREENS**, quantity of **BUILDING MATERIALS**, large **TANKS** and **Slate CISTERN**, **HEATING APPARATUS**, and **MISCELLANEOUS EFFECTS**, nearly new **BUILDER'S CART**, **VAN**, powerful **HORSE**, &c.

MR. JAMES H. GREEN is instructed to **SELL** by **AUCTION**, on the Premises as above, on **TUESDAY**, January 28, at 11 for 12 o'clock, the Land being required for Building purposes, the whole of the valuable growing **TIMBER**, choice **SHRUBS** and **EVERGREENS**, **BUILDING MATERIALS**, **HORSE**, **VAN**, **SPRING CART**, &c.

Catalogues may be had at the Estate Offices, 72, King Street, Hammersmith, W.

In re William Skirving, Deceased.

To **NURSEYMEN**, **GENTLEMEN**, **LOCAL BOARDS**, **PLANTERS** of **PUBLIC PARKS**, **CEMETERIES**, and **PRIVATE GARDENS**, &c.

MESSRS. BRANCH AND LEETE will **SELL** by **AUCTION**, on **MONDAY**, February 17, and several following days, at 12 o'clock each day, at the extensive Nurseries in Walton, near Liverpool, the whole of the important and well-grown **NURSERY STOCK**, consisting of **Forest** and **Ornamental Trees**, **Fruit Trees**, **Evergreen** and **Deciduous Shrubs**, **Quick**, **Stove** and **Greenhouse Plants**, **Vines**, **Herbaceous Plants**, &c. A few of the leading items are **Elms**, **Birch**, **Scarlet** and **Common Horse Chesnut**, **Limes**, **Mountain Ash**, **Poplars**, **Willows**, **Laburnums** ranging up to 15 feet high, strong oval-leaved **Privet**, fine trained **Plums**, **Cherries**, **Apples**, **Pears**, &c. Of **Hollies** the stock is very extensive, the variety great and of all sizes up to 15 feet; **Rhododendrons**, **Irish** and **Golden Yews**, **Cupressus**, &c.

The stock can be inspected any day prior to the Sale. Noble-men, Gentlemen, and others laying out fresh grounds or re-arranging those at present existing will find this an opportunity very rarely to be met with: and the high standing enjoyed by the late William Skirving, Esq., is a sufficient guarantee for the great excellence of the stock.

Catalogues will be ready in due course. Any information required can be obtained from **J. W. DAVIDSON**, Esq., Accountant, 10, Cook Street; or at the Offices of Messrs. **BRANCH AND LEETE**, Hanover Street, Liverpool.

Second Advertisement.

MESSRS. CAPES, DUNN, AND PILCHER have the pleasure to announce that, in pursuance of further instructions from **T. M. Shuttleworth, Esq.**, who has recently purchased another residence, they will **SELL** by **AUCTION** at Howick House, near Preston, on **TUESDAY** and **WEDNESDAY**, April 15 and 16, without the slightest reserve, the entire and unique **COLLECTION** of **STOVE** and **GREENHOUSE SPECIMEN EXHIBITION PLANTS**, **Azaleas**, **Fine-foiled Plants**, **Gleichenias**, **Tree** and other **Ferns**, together with **Orchids**, **Camellias**, and other plants of a miscellaneous character. The specimens to be offered are now in grand condition, and they will be invaluable for the coming season to Exhibitors.

Catalogues will be ready at the end of February, and may then be obtained from the Auctioneers, 8, Clarence Street, Manchester.

In consequence of the death of the Proprietor, **MR. GEORGE ROGERS**, that old-established **NURSERY** and **SEED BUSINESS** has now to be **DISPOSED OF**. To an energetic man with moderate capital it is a rare opportunity. The property is freehold, and close to the town. Purchase-money about £1000, part of which may remain on mortgage.

Reference to Messrs. **MINIER, NASH, AND CO.**, 60, Strand, London, W.C., and all information from Mrs. **ROGERS**, The Nurseries, Uttroter.

In the South-Eastern District.

About four miles from Covent Garden, well situated, in an improving locality.

SMALL NURSERY, comprising about 1 acre of Ground, Dwelling-house, Cottage, and five large Greenhouses. Lease, twenty years unexpired. Rent £60 per annum. Price for interest in lease and stock, £175.

Messrs. **PROTHEROE AND MORRIS**, 98, Gracechurch Street, E.C.

To **Florists**, **Horticulturists**, and **Market Gardeners**.

TO BE LET, by Tender, for a term of four and three-quarter years, a **LARGE GARDEN**, well planted with choice **Fruit Trees** (chiefly supplied by Mr. Thomas Warner, of The Abbey, Leicester), also containing large **Vineries**, 118 feet long by 16 feet 6 inches wide, divided into five compartments, well stocked with choice **Vines** in full bearing; also a **Cucumber-house** and other conveniences. Good supply of water; also the use of seven Rooms in Private Dwelling-house (the other part of this house is occupied, but is thoroughly separated and kept private from the part to be let.)

The whole Premises occupy an area of one and three-quarter Acres, and have been specially designed for the business of a **Fruiterer**, **Florist**, and **Market Gardener**.

Arrangements for keeping a **Horse** and **Cart** upon the Premises can easily be made.

The above is well situated, within three minutes' walk of a **Railway Station** and 5½ miles from **Leicester**.

Application to view to be made to Messrs. **C. C. ELLIS, MUNDAY AND CO.**, 19, St. Swithin's Lane, London, E.C.; or to Mr. **CHARLES COX**, 13, Market Street, Leicester, from whom all information can be obtained.

Tenders to be sent to the said Charles Cox not later than **January 25**, who will not be bound to accept the highest or any Tender.

To Florists and Nurserymen.

TO BE LET, with immediate possession, the **GARDEN**, forming the centre of **Princes Square**, **Kennington Cross**, S.E., with the **Glasshouse** thereon, fitted with **Hot-water Piping**; also a small **DWELLING HOUSE** adjoining, with extra Land (if required). Apply, Messrs. **WARING AND NICHOLSON**, Surveyors, 53, Parliament Street, Westminster, S.W.

Borough of Burslem.

To **NURSEYMEN**, **GARDENERS**, &c.

THE CORPORATION INVITE **TENDERS** for a supply of **TREES** and **SHRUBS** for **PLANTING** in the **CEMETERY**; also **TENDERS** for **DOING** the **PLANTING**. Specification, List of Trees and Shrubs, and particulars, with Forms of Tender, on application to the Borough Surveyor. Tenders, sealed and endorsed "Trees and Shrubs," or "Planting" (as may be), are to be sent to me not later than the 21st instant. The lowest or any Tender not necessarily accepted.

The Corporation also invite applications for the **APPOINTMENT** of **FOREMAN GARDENER**, to Superintend the **Planting** and **Laying-out**. Applications, in the handwriting of the applicant, stating age and salary required, and enclosing three recent testimonials or giving three references, to be sent to me not later than the 21st instant.

J. W. POWELL, Town Clerk.

Town Hall, Burslem, January 3, 1879.

The Best New Pea.

CARTER'S TELEPHONE.—First-Class Certificate Royal Horticultural Society.

"A very remarkable Pea, of enormous size, grand appearance and good quality."—*Gardeners' Chronicle*.

Price 2s. 6d. per pint (in sealed packets only). See **STERLING NOVELTIES**, gratis and post-free, from **CARTERS**, The Queen's Seedsmen, High Holborn, London.

Caution.—Sutton's Novelties.

MESSRS. SUTTON find it necessary to state that their **Novelties** can only be had direct from them. Every packet bears their Registered Trade Mark. Descriptive particulars on application.

The Queen's Seedsmen, Reading, Berks.

To Florists and the Trade.

LILY OF THE VALLEY, 3s. per dozen blooms; **MAIDENHAIR FERN**, 6s. per dozen bunches. Cash with order.

C. WILSON, Nurseryman, Kendal.

Seeds.

CUCUMBERS.—Pearson's Long Gun, 1s. 6d. per packet; Pearson's Telegraph, 1s. per packet.

CATALOGUES of all Seeds on application.

J. R. PEARSON, The Nurseries, Chilwell, Notts.

CATALOGUES.—His Excellency **Pierre Wolkenstein** will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to **S. E. PIERRE WOLKENSTEIN**, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

To the Trade.

DAHLIAS, 20,000 (pot roots).—CATALOGUES and price on application to Messrs. **KELWAY AND SON**, Langport, Somerset.

MR. GEORGE BUNYARD, **HORTICULTURAL VALUER**, **NURSEYMAN**, **SEEDSMAN**, and **FLORIST** (of the firm of **Thomas Bunyard & Sons**), Maidstone, Kent. Valuations made for Probate, Partnership, Incoming or Outgoing Tenants, or other purposes. Terms on application.

DREADNOUGHT CUCUMBER.—The finest Black-spine, and the best paying market variety extant: warranted true. Seed, five for 1s., fourteen for 2s. 6d. **POPE AND SONS**, 120, 121, 122, Market Hall, 3, Great Western Arcade, Birmingham.

WM. CUTBUSH AND SON beg to announce that their **SEED CATALOGUE** for 1879 has been posted to all their Customers. Any one not receiving a copy they would be glad of intimation to that effect, when a duplicate shall be forwarded.

Highgate, London, N., and Barnet Nurseries, Herts.

JAMES FARRAR AND CO. beg to announce the publication of their **Wholesale CATALOGUE** of **SEEDS** for the present season, which will be forwarded post-free on application.

Seed Warehouse, 86, Golden Lane, Barbican, London, E.C.

Green and Variegated Ives of Sorts,

Large and small-leaved, in eight kinds.

ROBERT PARKER, having a surplus stock of fine Plants in pots of the above-named, will be pleased to dispose of them in quantities, at very low prices. Names, sizes and prices, per dozen, 100 or 1000, will be given on application.

Exotic Nursery, Tooting, Surrey, S.W.

PINUS AUSTRIACA, 35s. per 1000, stocky, twice transplanted plants, about 2 feet; **CUPRESSUS LAWSONIANA**, 1-yr. seedling, 12s. per 1000, 2s. 6d. per 100; **PINUS LARICIO**, 1-yr. seedling, 2s. 6d. per 1000. **JAS. HATHERELL**, Brooklands, Weybridge, Surrey.

EDWARD HOLMES begs to offer:—

LIMES, 5 to 6, 6 to 7 and 7 to 9 feet, of fine quality.

Also **AUSTRIAN PINES**, 5 to 7 feet, safe to move.

Price on application.

Whittington Nursery, Lichfield.

The Best Frame Cucumber.

SUTTON'S DUKE OF CONNAUGHT, remarkably handsome, and the finest white-spined variety known. Perfectly level, from 22 to 26 inches in length, very uniform, with a bright green skin, well covered with bloom, spine scarcely discernible, and the fruit very little ribbed. Wonderfully small handle, and decidedly superior for exhibition.

1s. 6d. and 2s. 6d. per packet, post-free.

Send for **SUTTON'S LIST OF NOVELTIES**, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

American Tuberose.

DOUBLE and **PEARL.**—We have just received a consignment of above. The bulbs are very fine. Samples and prices on application.

HOWCROFT AND WATKINS (Successors to Charlwood & Cummins), Seedsmen, 14, Tavistock Row, Covent Garden, London, W.C.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE will be pleased to make special offers of all the leading varieties of **SEED POTATOS** they have grown this season. The prices will be found very advantageous to purchasers. Seed Growing Establishment, Wisbech.

Notice!—See

RICHARD LOCKE'S Special Offer of **ROSES**, **SEAKALE**, **ASPARAGUS**, **MANETTI STOCKS**, **Seedling BRIERS**, in *Gardeners' Chronicle*, pages 3 and 4, January 4, 1879.

To the Trade.

LAXTON'S FILLBASKET PEAS, **LEAMINGTON BROCCOLI**, and **BRUSSELS SPROUT SEED**. For price apply to **J. AND W. MYATT**, Mile End, Colchester.

Wholesale Seed Catalogue.

LITTLE AND BALLANTYNE beg to acquaint those of their Customers who may not have got a copy of the above, by any inadvertence, that another will be sent on application.

Seed Growers and Nurserymen, Carlisle.

Superbly Illustrated Chromolithographic

GARDENING GUIDE and **SEED CATALOGUE** for 1879. The most beautiful chromolithographic Gardening Guide yet published. Post-free 12 stamps. To be deducted by purchaser when ordering.

C. R. FREEMAN AND FREEMAN, Economic Seedsmen, Norwich.

The Best Frame Cucumbers.

CARTER'S MODEL.—The model of what a Cucumber should be—handsome, productive, delicious.—Mr. G. Goodacre, Gr. to the Right Hon. the Earl of Harrington.

Price 3s. 6d. and 2s. 6d. per packet, post-free.
KELWAY'S PARAGON.—Figured in the *Gardeners' Magazine*, November 16, 1878, and described as "decidedly A1."
 Price 3s. 6d. per packet, post-free.

See **STERLING NOVELTIES**, gratis and post-free, from **CARTERS**, Queen's Seedsmen, High Holborn, London, W.C.

KENTISH FRUIT TREES of every description, in 300 varieties, including some dwarf Pyramid Fruiting APPLES suitable for windy districts, at extraordinarily low prices. Before purchasing elsewhere send for **SPECIAL LIST** to

T. EVES, Gravesend Nurseries.—Established 1810.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf **ROSES**, **FRUIT TREES** of all sizes, **Scarlet** and other **RHODODENDRONS** well set with buds, **CONIFERÆ** and **EVERGREENS**, and **DECIDUOUS TREES** for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

TO THE TRADE.—**PEARS**, Williams' Bon Chrétien and Hessel, Standards, 75s. per 100; **PLUMS**, Victoria, Dwarf-trained, 140s. per 100; **CHERRIES**, Standard, 75s. per 100; also trained **PEACHES** **APRICOTS**, and **APPLES**.

CATALOGUES on application to **WILLIAM FLETCHER**, Ottershaw Nursery, Chertsey, Surrey.

SEEDLING and TRANSPLANTED FOREST TREES.—One of the largest general Nursery Stocks in the kingdom, inspection of which is invited. Cheap through rates. Special prices to large purchasers. Samples on application.
LITTLE and BALLANTYNE, Knowfield Nurseries, Carlisle.

Roses, Fruit Trees, and General Nursery Stock.
W. B. ROWE solicits the inspection by Nurserymen of his extensive stock of the above, which are well-grown, and fit for removal.
 Barbourne Nurseries, Worcester.

To the Trade.

OSBORN and SONS can still supply a quantity of Dwarf Maiden **PEACHES**, **NECTARINES** and **APRICOTS**, and a few Standards.
 Also the following **FRUIT TREE STOCKS**:—Common and Brussels Plum, Pear, Crab, Paradise, Quince, and a few Cherry and Brompton Plum.

Prices on application.
 The Fulham Nurseries, London, S.W.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
 The Ottershaw Nursery, Chertsey.

The Best Early Pea.

SUTTON'S EMERALD GEM.

From Mr. P. Pirie, Gr. to the Right Hon. Lord Stanley of Alderley.—"Your Emerald Gem Pea is the earliest variety I have grown. Sown with other early sorts it came in fully a week before them, and is very productive and of good flavour."
 Price 2s. 6d. per quart.

Send for **SUTTON'S LIST of NOVELTIES**, gratis and post-free on application.
SUTTON and SONS, The Queen's Seedsmen, Reading.

One Penny Each.

GLADIOLUS BRENCHELYENSIS.—The finest scarlet Gladiolus in cultivation, also **FLORIBUNDUS**, nearly pure white, fine sound Flowering Bulbs, any quantity, from 1 to 10,000, at the above price. A few thousand Smaller Bulbs, mixed, at 5s. per 100. Also **HOLLYHOCKS**, fine seedling plants, at 3d. each, 2s. 6d. per dozen, 1s. 100. Double **DAISIES**, Red, White, and Hen-and-Chickens, 5s. per 100; Double dark Crimson, 6s. per 100.

CATALOGUE for 1879, containing 500 Illustrations, post-free or 1s.
BIDDLES and CO., The "Penny Packet Seed Company," Loughborough.

The Best Green-Fleshed Melon of the Year.

DELL'S HYBRID.—The only green-fleshed Melon deemed worthy this year of the Royal Horticultural Society's First-Class Certificate. Smooth, deep yellow, netted skin, small stalk, pale green flesh.
 "All that we have tasted were delicious."—*Gardeners' Chronicle*.

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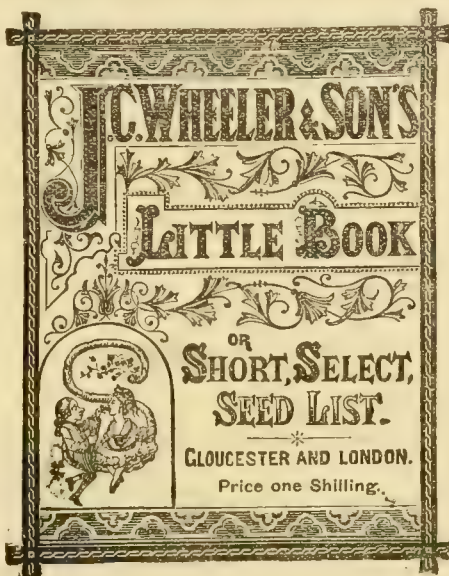
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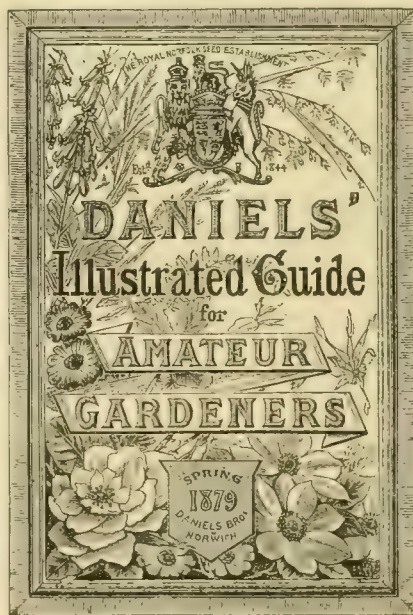
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F. G. has much pleasure in announcing that he is the Introducer of the above-named New Mignonette, which is now acknowledged to be the finest variety ever exhibited. It caused quite a sensation at the great Show at South Kensington, on May 2, 1877, being the variety that attracted the marked attention of Her Majesty the Queen.

Price 1s. per packet.

Extract from the *Journal of Horticulture and Cottage Garden*, June 7, 1877.

"This is the finest Mignonette that has come under our notice. It is the same variety that attracted the attention of Her Majesty the Queen at the great Exhibition at South Kensington, on May 2, 1877.

Extract from *The Garden*, May 4, 1878.

NEW MIGNONETTE.—Mr. GALLOP sends us from Brighton specimens of his new Mignonette, which is very distinct in appearance and very fragrant, even when grown in ordinary soil, and flowered so early in the season. It is a good sign to see attention devoted to distinct or improved varieties of such plants as the Mignonette.

Extract from the *Gardeners' Chronicle*, May 11, 1878, page 598.

MIGNONETTE, NEW SPIRAL, MILES'.—We have been favoured by Mr. F. GALLOP, of Brighton, with a small example of this fine variety of Mignonette. The season is early yet for good examples, but the spikes of flowers before us, though grown only in a small 60-pot, are very fine, proving that this strain still retains its excellent character.

To prevent disappointment, procure seed in the Original Packets, bearing my Name and Address.

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GEORGE'S NEW HYBRIDS.

Selected by Mr. J. George from an unrivalled and splendid collection. The colours will consist of White, Primrose, Orange, light and deep Rose of various shades. Some of the varieties have been exhibited during the past season at the Royal Botanic Gardens, Regent's Park, and awarded a First-class Certificate; in addition to the above, several varieties, not yet in commerce, are included in the mixture, consequently many new and beautiful varieties may be expected to be produced from the seed now offered.

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Directions for Sowing.—The seed should be sown from February to March, in a warm greenhouse or frame, and then grown on in a steady heat; the plants will then begin to bloom in July, and continue flowering for months. Soil: loam, leaf-mould, and peat, in equal proportions, with a little silver-sand.

See article in *Gardeners' Chronicle*, page 792, Dec. 11, 1878.

CAUTION.—Having purchased the stock of seed from Mr. J. George, every genuine packet of Abutilons should bear my name and address.

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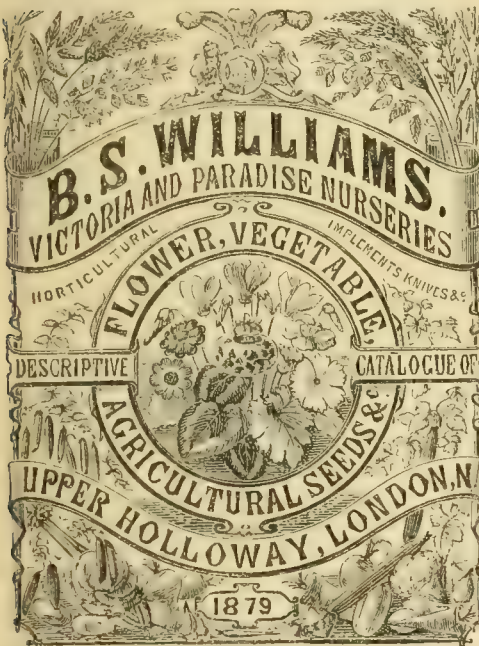
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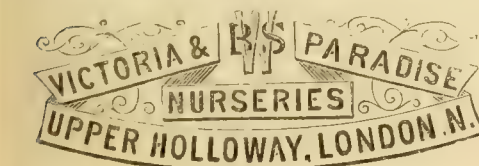
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SATURDAY, JANUARY 18, 1879.

BOTTOM-HEAT.

THOSE who possess even a limited knowledge of the laws which govern vegetable life need not be reminded that heat is as indispensable to the existence of plants, more or less in proportion to their individual requirements, as it is to that of animals. The climate of the particular country to which a plant happens to be indigenous, needs to a considerable extent to be imitated in temperature, or the plant refuses to grow, although with plants, as in the case of animals, even from the highest to the lowest, we see the efforts that Nature makes to adapt herself to circumstances, often adverse. The comparison may be said to be not a happy one, inasmuch as in vegetable life there exist the consecutive seasons of activity and dormancy such as the greater portion of animals do not undergo to so marked an extent; but it is sufficient for the purpose to remind us that heat is the primary element indispensable to the existence of everything possessing life.

When plants exist under artificial conditions, such as the immense number now cultivated in this country which are indigenous to climates much warmer, or more equable than our own, it becomes necessary to take means to supply them with a temperature somewhat equal to that under which they are found in their native habitats, although there are exceptions to this in the case of some plants that hail from hot regions, and which are found to do better under a considerably lower temperature, especially during their season of rest, than that which they would be subject to in their native country. This no doubt is attributable to the different and more exciting influence which artificial heat exerts upon them as compared with that of the sun when in a state of Nature, and which if it were in all cases found admissible would still be impossible, even with the aid of the best appliances, to imitate. Although it is a comparatively easy matter to give plants cultivated under glass a temperature near or identical to that in which they exist naturally, yet it is impossible to accommodate them in the matter of the two equally important elements, light and air, to say nothing of the altered conditions under which their roots are placed.

Although heat is the primary moving power in vegetable life, the manner in which its influence is brought to bear on plants, especially their heads, is very different in different parts of the world. In the sun-scorched plains of many of the hottest regions air and earth alike are almost always hot, the principal difference being that the air during the dry season contains comparatively little moisture, whilst the earth becomes so thoroughly baked and dried up that vegetable life undergoes a period of what may be termed forced rest. There is atmospheric as also earth heat in plenty to keep up continual growth, but the almost total absence of root-moisture precludes the possibility of this. When the rainy season commences there is little or none of the gradual transition from a dormant to an active state, that occurs in countries where there is a spring-time; on the contrary, the reeking earth and saturated air excite instantaneous growth in a way difficult to realise by the dwellers in more temperate climes. In countries that are subject to great heat in summer, and after this to a gradual decrease in

the sun's power, and consequent lowering of the temperature until it becomes cooler for a season—and from such the great portion of our tender cultivated plants come—it follows that vegetable life goes to rest through the reduction in the temperature, even in these climates that know no winter in the sense that we experience it. During this time the heat of the earth in which the roots are placed becomes gradually reduced, and reaches its lowest point when the mean day and night temperature of the air is at the lowest, after which it must of necessity begin to rise with the sun's returning power. The earth absorbs heat slowly, through the greater or less amount of stagnant air in its upper surface, its warming powers being still further retarded by the natural disinclination of heat to descend, consequently it does not regain the heat it has lost during the period of the lowering temperature of the air nearly so quickly as the air is warmed by the sun's increasing force; therefore the above-ground parts of plants—that is, their stems, branches, buds, and leaves—are placed under the growth-exciting influence of heat continually in advance and excess of the roots until the turning period has arrived in the hot season, when the force of the sun again begins to wane, after which the conditions are reversed, by the earth being warmer than the air, until the lowest point of the air temperature is again reached.

I would here recommend those who look upon bottom-heat in the measure now usually applied as all but indispensable to the successful cultivation of plants from hot countries, to consider this fact, and I think they cannot fail to see that applying it as is ordinarily done—at the commencement of the growing season, in a volume equal to, or often considerably above that in which the heads of the plants are placed—is diametrically opposed to the condition under which they are found in a state of Nature, where the earth-heat is in excess of that of the air only at the time that the season's growth is being matured. [In the tropics the earth is always warmer than the air. EDS.] For though, as I have already implied, in many cases it does not answer in cultivation to attempt to imitate exactly the conditions under which the plants naturally exist, yet, at the same time, experience proves that it is not sound practice to go so far in opposition to Nature as to subject the roots to a greater amount of heat than the stems and branches at that period of the growing season, wherein naturally the reverse conditions exist.

Something of a similar nature, but less decided in its influence, occurs in those countries which experience very hot summers and equally severe winters, from the latter of which there is no cessation until the outburst of summer commences, so sudden and uninterrupted that vegetation is at once impelled into activity through the influence of the sun's rays and sun-warmed air acting on the stems, branches, and buds of such as are deciduous, with the leaves also of evergreens. And this again, be it borne in mind, takes place without time elapsing for any corresponding or proportionate increase in the temperature of the earth in which the roots are placed, and which during the severe protracted winter has been subjected to a very great reduction of temperature. This condition is of the greatest importance, and most clearly stands in direct refutation of the doctrines and preconceived ideas of those who persistently maintain that in the cultivation of plants where artificial heat is employed to grow them heat should also be afforded without exception to the roots as well. Such persons found their argument on the false assumption that in this they are only following the example set by Nature, than which, so far as general application goes, nothing can be more opposed to facts.

From what I have seen in my own practice

with a very large number of plants, both such as require the application of heat in this country to grow them as also in the case of those that are subjected to forcing, I feel convinced that there is nothing more erroneous than the idea that all will be benefited by being submitted to bottom-heat. And these views have been supported by what I have observed in the practice of others. The fact is, that to simultaneously subject the roots and head of a plant to an equal heat at the time it is started into growth, unless the roots of the plant in question, when in a state of Nature, commence to extend at the same time with branch development, is to completely subvert the order of things. It is indisputable that a very large number of the plants that are forced, or that require heat to grow them, do not naturally begin to extend their roots until a considerable, or, in some cases, a large amount of shoot and leaf development has taken place, the roots during the interim merely acting the part of conveying food and moisture to supply the demands of the above-ground portion of the plant. In such the evident mistake is committed of setting both ends going, that is, top and bottom at once, where Nature says, through her workings, that the top must be in advance of the bottom.

With those plants whose roots begin to extend at the same time as the shoots, or precede the latter, as occurs with many bulbous subjects, the case is wholly different. With some of these, when submitted to artificial heat, as for instance in the forcing of bulbs, bottom-heat is an advantage, or may even be said to be a necessity. With this, as with many other things, it is not in the use but in the abuse that the mistake lies. Nor are the prevailing ideas on this subject difficult to account for: the at one time generally accepted conclusion, that the food of plants was wholly supplied through their roots (a conviction that the facts taught by science have much yet to do before it is removed), and the almost general supposition that the roots of plants, when not undergoing any extension, were not in a condition to convey the requisite food for the requirements of the head, coupled with the very taking doctrine that the food-supplying roots should always be actively in advance of the shoots, has led to the belief which has so far found acceptance. If it were necessary or beneficial to plants generally that their roots should be subject to as high a temperature as their tops at the time that leaf and shoot growth commences, the natural order of things in this respect would not have been as it is.

Bearing upon this very important subject of the use of bottom-heat, there is one thing that appears to be lost sight of, or nearly so—that is, close examination of the roots of the various plants in cultivation, so as to ascertain their condition of extension or otherwise at the time when top-growth commences, when there is enough heat to excite this, but no bottom-heat applied. Sufficient reliable data on this point would be of incalculable use in enabling the cultivator to determine what plants would and what would not be benefited by the application of bottom-heat at the same time that their above-ground portion was subjected to heat enough to excite growth; then it would not be, as now, given indiscriminately, but applied at a time when it would assist natural development, not to force it into activity before its allotted time. I was just commencing experiments in this direction upon all the plants within my reach likely to afford evidence in the matter, both tender subjects that require heat in which to grow, and also such hardy, or all but hardy, plants as are usually forced, but through circumstances over which I had no control the opportunities for my observations were cut short. It is a matter in which more might be done to guide the cultivator in his treatment of a very great number of the most important plants subject to cultivation under glass than probably any other. Who will undertake it?

T. Baines.

(To be continued.)

New Garden Plants.

SELAGINELLA VICTORIÆ, Moore, *Bull's Cat.* 1878; *Id. Florist and Pomologist*, 1878, 90, with figure.*

With the general habit and aspect of *Selaginella Wallichii*, this plant is abundantly distinct, and one of the most beautiful of all the tropical Club-mosses. Though no doubt closely allied to that species, as just intimated, it is on close comparison seen to differ obviously, especially in the mode of development which obtains in the branches. Those in both species closely resemble the frond of a Fern, but those of *S. Victoria*, instead of diminishing gradually to the point through each successive branch nearer the apex being shorter, as happens in *S. Wallichii*, are formed of nearly equal-sized parallel branches, the terminal one being of the same size and form as the rest, so that the branches may in this case be compared to an imparipinnate leaf.

S. Victoria is of scandent habit, the old stems becoming somewhat bare towards the base and throwing out new shoots from the apex after a period of rest. These climbing stems are produced at intervals on the creeping caudex, are clothed with the alternate ovate spreading branches, which are flat and closely pinnate, remarkable for the symmetrical arrangement of their pinnae or branchlets, and thus having much resemblance to the symmetrical fronds of a bipinnate Fern. The small alternate branchlets or pinnae are usually simple and about an inch in length, the basal ones being sometimes forked: all the branchlets, whether forked or simple, on the fertile portions, are terminated by a slender quadrangular spikelet of from 1 inch to 1½ inch or more in length, the spikelets being somewhat paler than the fronds, which are of a deep green.

The plant has been imported by Mr. Bull from the South Sea Islands, and is known in herbaria from other Pacific stations, having previously been associated with *S. Wallichii*, from which, however, when seen growing, it proves to differ materially in the points we have above referred to. The accompanying figure (fig. 8), from Mr. Bull's catalogue, though it gives a fair general conception of the character of the plant, fails to convey an adequate impression of the graceful elegance of the species when seen in the growing state. T. Moore.

ODONTOGLOSSUM ANDERSONIANUM LORATUM,
n. var.

A very curious variety, of middle size in the flower. There are numerous, small, elegant dark cinnamon spots on the base of the sepals and petals. The main feature is found in the lip, which bears rather spreading narrow side lobes. I never saw them before, since they are usually broad and confluent with the chief lobe in the type plant. It flowered last autumn with C. Winn, Esq., of Birmingham; and I have to thank for it Mr. B. S. Williams, of the Victoria and Paradise Nurseries, Holloway. H. G. Rehb. f.

DANGSTEIN.

To the horticultural public any introductory remarks as to the whereabouts or the leading features of Dangstein are scarcely necessary, as it has for many years past been notable as the home of a rich collection of exotics—not of one particular class only, but representing to a greater or less degree almost every class of cultivated plants, and the importance of it has been considerably enhanced in consequence of the high cultural skill that has been brought to bear upon it. It is, however, not without a feeling of deep regret that we hear that this fine collection will at no distant date be disposed of by sale on account of the decease of its late owner, Reginald Nevill, Esq., whose name, as well as that of Lady Dorothy Nevill, has so long been intimately associated with horticulture, and whose liberality in throwing open their beautiful gardens daily throughout the year for its inspection by visitors of all grades has been greatly appreciated by persons far and near.

An afternoon in mid-winter is not a very suggestive time to see any garden at its best, neither in such a short space of time can sufficient justice be rendered to a collection of plants so full of interest as this, therefore our remarks must necessarily be confined to those that most engaged our attention.

* *Selaginella Victoria*.—Stem scandent, 2–3 feet high or more, continued by new terminal growths, regularly branched, becoming bare below; branches flat, ovate, very regularly pinnate, not decrescent to the apex, but terminating in a branchlet similar to the lateral ones; branchlets ½ inch wide, simple, those of the fertile branches about 1 inch long, set about ¼ inch apart, the basal ones often forked; leaves oblong-falcate, entire, the anterior base cut away, the posterior produced; midrib distinct; intermediate leaves much smaller, semioval, acuminate, parallel; spikes slender tetragonal, terminating the branchlets, 1–2 inches long.—South Sea Islands, Hort. Bull. T. M.

Entering first the Palm-stove, a spacious structure, 80 feet long and 50 feet wide, devoted to a general collection of tropical plants, too numerous to specify a tenth part of them, one here finds not only the plants in general cultivation, but a host of old favourites, that are too unfrequently met with, having long ago been discarded for more novel, if not more beautiful introductions.

There are some very fine examples of Palms, comprising *Maximiliana regia*, *Salal Blackburniana*, *Corypha australis*, *Livistona borbonica*, the Peruvian Wax Palm (*Ceroxylon andicola*), and near it a fine

here under the name of *B. farinosa*, may be seen, as well as various species of *Calathea*, including *C. (Maranta) zebrina*, *Veitchiana*, &c.

Graceful climbers of more or less rarity adorn the rafters, pillars, &c., amongst which we noticed *Aristolochia trilobata*, bearing a copious supply of fruits. Suspended to the rafters is a remarkably fine set of *Stanhopeas* growing in large baskets, comprising nearly all the kinds in cultivation, and which during the flowering season fill the house with the peculiar aromatic fragrance they exhale. Other Orchids, too, are grown in this way, such as the handsome *Acineta*

netted *A. Petola*, *Dawsonianus*, *intermedius*, &c.; also the rare *Nephelaphyllum pulchrum*, *Microstylis purpurea*, the rich velvety *Goodyera pubescens*, and others. Suspended above the case is a very fine specimen of the Stag's-horn Fern (*Platycerium grande*), with immense fronds both barren and fertile. A numerous collection of bulbous plants fills the stages at the back, including many species and varieties of *Hippeastrum*, *Amaryllis*, *Pancratium*, &c., whilst in the central bed are huge tubs containing fine examples of *Crinum asiaticum* and the lovely *C. amabile*.

Economic plants also are strongly represented in this house, for here we find large specimens of the Rose Apple, Coffee, both Arabian and Liberian, Pepper, Ginger, Sarsaparilla, Upas, Matico, Vangueria, Camphor, Bow-string Hemp, Lemon Grass, Cardamon, Patchouli plant, and many others.

Passing now to the conservatory, which is 50 feet in length by 30 feet in breadth, we find a central bed partially occupied by *Camellias*, the remainder by New Holland and other plants of large size, whilst gracing the rafters and pillars are well-known climbing plants, amongst which may be mentioned a finely grown *Lapageria rosea*, and the more curious than pretty green flowered Rose. The stages are tolerably gay with the ordinary winter flowering greenhouse plants, among which the rare little *Trichinium Manglesii* from the Swan River, with its globose heads of pretty pink blossoms, was doing good service. A neat handsome flowering shrub under the name of *Monnina xalapensis*, also caught our eye, and was mentioned in a previous issue. Arranged in a row at the back were half-a-dozen huge specimens of the elegant Australian *Gleichenias*, growing in pans 3 feet across. They are all of about the same dimensions, being 7 feet high, and 4 feet in diameter. The species comprise *G. flabellata*, *dicarpa* (*heciostophylla*), *circinata* (*microphylla*), and *Spelunca*.

Adjoining this house is a tropical fernery of about the same dimensions, very tastefully and naturally arranged with central and side beds, elevated about a yard, with a narrow serpentine path winding between them, which with the verdant hue of the surroundings has a very pleasing effect. In Ferns the collection is particularly rich, representing as it does a very considerable number of the kinds in cultivation. This house is filled to overflowing with plants of all sizes, the largest amongst which may be mentioned. The graceful *Cyathea insignis*, with a stem about 5 feet high, and an immense head of fronds striving for more room to develop itself; *Dicksonia* (*Cibotium*) *Schiedei*, with a stem about the same height, but with a much larger diameter, is a splendid specimen and in vigorous health. Near it are large plants of *Marattia cicutifolia* and *purpurascens*, whilst towering above it is a fine example of the gigantic *Angiopteris evecta*. Of *Didymochlena truncatula*, *Dicksonia squarrosa*, *D. Youngiæ*, and *Hemitelia horrida*, there are fine plants; also of *Goniophlebium subauriculatum* and *verrucosum*, two of the best Ferns for suspended baskets, with fronds several feet in length, whilst various kinds of *Lygodium* adorn the roof.

From here we descend a few steps to a small lean-to house 36 feet by 10 feet, with a north-westerly aspect, devoted to the charming filmy class of Ferns, which is one of the chief attractions of the place, for here we see on one side, planted on a sloping bank, large masses of the Killarney Fern (*Trichomanes radicans*) and its varieties in most robust health, alternating with equally grand masses of the Tunbridge Filmy Fern (*Hymenophyllum tunbridgense*). On the opposite side are fine examples of *Todea superba*, *hymenophylloides*, *Fraseri* and *Wilkesiana*, also large masses of *Trichomanes trichodeum*, *pyxidiferum*, a superb piece of *T. reniforme*, with its peculiar-shaped fronds, 3 or 4 inches across; *T. alatum*, *maximum*, and many others of less size; *Hymenophyllum asplenoides*, *hirsutum*, *polyanthum*, *flexuosum*, &c.; fine masses of *H. demissum*, *Wilsoni*, and others. The thriving condition of all as well as the effective manner of their arrangement at once impresses the visitors.

We come next to a well-built and extensive range in three compartments, comprising first the orangery, where, on entering, we are at once confronted by a healthy batch of the neat little *Nertera depressa*, in company with the equally desirable variegated form of *Sibthorpia europæa*, also a good lot of the curious Australian *Nardoo* (*Marsilea macropus*), with its woolly Clover-like leaves borne on slender erect stalks 1 foot high. Here are handsome trees of various kinds of Orange, but chiefly the small Tangierine variety, also a pair of the South African Kei or Kan



FIG. 8.—SLAGINELLA VICTORIAE. (SEE P. 74.)

specimen, similar to it, named *Cocos Naia*; *Caryota urens*, and numerous other species of less stature, including the very elegant *Cocos Weddelliana*, which was flowering freely. *Cyathea medullaris*, with a stem 13 feet high, spreads its magnificent head of fronds amongst those of the Palms and the huge foliage of the Bananas, which latter are thriving vigorously and fruiting abundantly, both the red and yellow varieties, while gigantic *Pandani* and lofty *Bamboos* tower above and mingle with the rest. Cycads are represented by a grand specimen of *Cycas revoluta*, the rare *Stangeria paradoxa*, both male and female, the latter bearing a cone at the time of our visit; *Dion edule*, and others. Fine plants of a magnificent *Bromeliad*, *Billbergia vittata* var. *macrantha*, grown

Barkeri and *Humboldtii*, of which there are fine examples; also several kinds of the pendulous-stemmed *Dendrobies*, all apparently in the most robust health.

We come next to a case in which are arranged a choice selection of dwarf plants remarkable for their ornamental foliage, including such exquisite objects as *Bertolonia guttata*, *Van Houttei*, *superbissima*, &c., various *Sonerilas*, *Fittonias*, small growing *Marantas*, several silvery-leaved *Peperomias*, &c., and, last but not least, some few examples of the gorgeous-leaved *Anæctochili*, which in days gone by formed a numerous set, and was considered one of the chief features in the collection. The species represented now are *A. Lowii setaceus* and its variety *cordatus*, the golden-

Apple trees (*Aberia caltra*), with dark evergreen leaves and long spines, which annually produce abundance of fruits, which are Medlar-like in form, of a bright orange colour, and of a peculiar flavour, but are said to make an excellent preserve. Being dioecious the fruit-bearing tree requires to be artificially pollinised, but in favourable seasons this is done to a great extent by bees. Passing through an orchard-house well stocked with standard fruit trees and with Vines overhead, and which also afforded protection to several hundreds of Strawberry plants for forcing purposes, we come to the principal Orchid-house, which is 50 feet long and 24 feet wide. This singular tribe has always received especial attention, and forms one of the characteristic features in the collection, and it is exceedingly well represented, from the gorgeous *Cattleya* to the somewhat inconspicuous *Pleurothallis*. At the time of our visit the *Calanthes* were finely in flower, comprising every kind, *C. Veitchii* being particularly floriferous. Among those that most attracted our attention were the *Dendrobies*, which were particularly numerous—the larger specimens comprising several of *D. nobile*, with the variety *Wallichianum*, *D. fimbriatum* and variety *oculatum*, *moschatum*, *tridentium*, *chrysotoxum*, *Farmeri*, *Paxtoni*, *Griffithii*, and others. *Cypripeds*, too, are remarkably well grown, for we noticed large plants of *C. caudatum* and variety *roseum*, the rare *C. Lowei*, *Dayanum*, *Harrisianum*, *Stonei*, *hirsutissimum*, *Veitchii*, *Schlimii*, *Pearcei*, *longifolium*, &c. Of *Cattleyas* may be mentioned *C. gigas*, *Dowiana*, the true *C. labiata*, numerous varieties of *C. Trianae* and *Mossiae*, &c., strong pieces of the rare *Cymbidium eburneum*, *Mastersii*, &c.; a host of *Oncidiums*, *Epidendrums*, *Maxillarias*, *Laelias*, *Lycastes*, &c.; some handsome specimens of the fine *Sobralia macrantha*, and of *Renanthera coccinea*, which flowered well last year. Adjoining this is a small house occupied by a few succulent plants, including *Stapelias*, *Aloes*, *Agaves*, *Gasterias*, also *Bromeliads*, such as *Plecairnias*, *Tillandsia*, *Nidularium*, and many others.

Parallel to this runs a low span-roof house, 103 feet long, 13½ feet wide, divided into four compartments, the first being devoted on one side to a collection of various species of *Gymnogramma* of various sizes, whilst the other is occupied by a case containing such of the species of *Trichomanes* and *Hymenophyllum* as require a higher temperature than afforded in the house devoted to the other portion of filmy Ferns previously mentioned. Amongst these we noted a peculiar Scale Moss (*Symphogyna sinuata*), which strikingly resembled a filmy Fern, having erect frond-like and pellucid leafy expansions 1½ inch long, and sinuated at the margin; the other portion of the house is taken up by small specimens of stove plants of more or less rarity. In the adjoining compartment is a small tank for stove aquatics, and one in which are growing about a dozen small plants of the remarkable lattice-leaved plant, *Ouvirandra fenestralis*—small indeed compared with the plants grown in this same house some years ago, which specimen developed between 200 and 300 leaves, some of which measured 24 inches in length, including the petiole (see *Gardeners' Chronicle*, 1865, p. 1039). On the opposite side stood a very fine example of *Anthurium Scherzerianum*, and by its side the white-spated *A. Patini* was flowering freely. Arranged at the back we noticed large pans of *Selaginella* of various kinds in vigorous health. Suspended in baskets over the tank were *Utricularia montana*, a most desirable plant, producing large white Orchid-like flowers; also several kinds of *Nepenthes*—*N. Rafflesiana*, *distillatoria*, *Sedeni*, &c.; whilst below were several pots of cuttings of the same in various stages of propagation. The next division is filled with different kinds of *Gardenia* on one side, and the other with a mixed collection. The next and last is devoted partially to a select set of Ferns, among which we noted a goodly lot of the rare little *Lindsaea cultrata*, the tiny *Davallia parvula*, *Rhipidopteris peltata*, and the violet-scented *Aspidium fragrans*. Overhead a spreading plant of *Bougainvillea glabra* covers the roof, affording a beautiful display when in flower, which it does annually in great profusion.

We come next to a lean-to house with a northern aspect, containing a remarkably well-grown collection of the so-called insectivorous plants, probably unequalled in the country, comprising all the species and varieties of *Sarracenia*, with the exception of the recently produced hybrids; *S. flava* and varieties, *S. Drummondii* and varieties, and *S. purpurea*, are particularly fine. The

huge plants of the rare and curious *Darlingtonia californica* at once excited our admiration. In some the pitchers are nearly 2 feet in length, and well coloured. On a shelf above a large quantity in various sized pots are thriving admirably. *Droseras*, too, are well represented, also *Dionaea muscipula* and *Cephalotus follicularis*. The gorgeous *Disa grandiflora* and its varieties has had special attention paid to its culture, and the results are evident in plants not often seen in such grand condition. *Disa Herschellii*, we noticed, also finds a place here. Among other cool Orchids grown here the *Masdevallias* attracted us most, for here was the chaste *M. tovarensis* flowering profusely with a score or more of scapes. *M. Veitchiana*, *Harryana*, *Davisii*, *Lindenii*, *igneae*, &c., we noticed in large masses, besides various kinds of *Odontoglossum*, *Ada aurantiaca*, and other cool-house Orchids, not omitting the handsome *Epidendrum vitellinum* and its larger-flowered form, *majus*. The lovely *Luculia gratissima* covers the end wall of the house, and a capital position it appears to be in as far as health and vigour are concerned.

The next is a small house adjoining the East Indian Orchid-house. In this is a fine lot of *Odontoglossum*, comprising *Alexandrae*, *cirrhosum*, *Hallii*, *cariniferum*, *luteo-purpureum*, *hystrix*, *gloriosum*, *pulchellum* and var. *majus*, and many others, all in thriving condition.

The next house is devoted to warmer house Orchids, chiefly East Indian. *Vandas* form a striking feature, being of large size and very healthy: the kinds are *V. insignis*, *tricolor*, *suavis*, *teres*. *Aerides* and *Saccolabiums* are numerous represented, also *Dendrobiums* by small plants on shelves, &c., notably *D. Wardianum*, *McCarthyi*, *Falconeri*, *Bensoniæ*, &c.; also fine examples of *Angraecum sesquipedale* and *eburneum*. Trained to the back are two or three kinds of *Vanilla*, which answer the purpose well; and to the rafters several species of *Nepenthes*, developing numerous pitchers, including *N. Hookerii*, *phyllanthophora*, *hybrida*, *maculata*, *distillatoria*, and others.

From here we pass through a range of vineries and Peach-houses, which afford protection to a large stock of plants for bedding purposes; and a range of forcing and propagating pits, in which is a large stock of small pots of stove and other plants.

We come now to the kitchen garden, which, of course, at this season is not very attractive, but the visitor may at a glance see that this important department is not overlooked.

We next wended our way towards the mansion, which is of the Grecian style of architecture, situated on a considerable eminence and commanding a very extensive view of the surrounding country with the South Downs in the distance. On the western side is a tastefully designed flower garden, and beyond this a small but choicely stocked Pinetum, and on each side of the drive near it are thriving specimens of *Decdar*. On the eastern side, in a sheltered dell, there are numerous half hardy shrubs and other plants, which, considering the late severe weather, were in a very thriving condition. Amongst them we noticed large plants of *Camellia*, *Phormium tenax*, *Desfontainea spinosa*, the hardier kinds of Palms, various Bamboos, and many others. Here, as in every part throughout the place, the visitor cannot fail to be impressed by the scrupulous cleanliness and order which prevail, and which, together with the high cultural perfection exemplified in every department, is in itself sufficient evidence of the skill and extensive knowledge of Mr. Vair as a gardener, under whose superintendence the collection has been developed from its commencement, and whose kindly manner and willingness to impart information may be added to the many pleasant reminiscences that a host of visitors have carried with them from Dangstein; more especially will it be gratefully remembered by those of the craft who have been so fortunate as to serve under his direction, and amongst whom is *An Old Dangsteinite*.

PAMPAS GRASS PLUMES.—The Pampas-grass (*Gynerium argenteum*) has magnificent soft silky plumes, nearly 2 feet long, that are much prized for parlour decoration in the States. This grass succeeds in California far better than it does in any Atlantic State, according to the *American Agriculturist*, and its plumes are much finer than those produced elsewhere. According to a Santa Barbara paper, Mr. Joseph Sexton of that place has this year forwarded 40,000 plumes to San Francisco, mostly to be sent from there to Eastern cities.

JOHN SADLER.

MR. JOHN SADLER, the newly-appointed Curator of the Royal Botanic Garden, Edinburgh, whose portrait will be found on p. 81, was born on February 3, 1837, at Gibleston, in Fifeshire. Since 1854 Mr. Sadler has been the zealous and efficient assistant to Dr. Balfour, the Professor of Botany in the University of Edinburgh. The duties of this office, including the selection of specimens grown specially for the use of the students of the largest class of botanical students in the kingdom, have necessarily given Mr. Sadler a familiarity with the details and working of the garden such as few others, if any, can have. Mr. Sadler has also acted as secretary to the Botanical Society of Edinburgh since 1858, and has been Lecturer on Botany in the Edinburgh Royal High School since 1867. His services as secretary to the Scottish Arboricultural Society for the last seventeen years are also well appreciated. On the ground of his services to botany and cognate pursuits, Mr. Sadler was in 1869 awarded the Neill prize of £50 by the Royal Caledonian Horticultural Society.

These circumstances afford sufficient testimony to Mr. Sadler's zeal and capacity as a botanist and administrator, while his personal qualities are very highly ranked by those who have had the good fortune to make his acquaintance, and by whom his appointment will be received with satisfaction. Mr. Sadler, however, has hitherto shown no indications of his merits as a practical gardener nor of those special acquirements which conferred so much honour on his predecessors. As a gardener Mr. Sadler has his spurs yet to win. But many things besides gardening knowledge are required of one who has to occupy so peculiar and so responsible a post as Curator of the Royal Botanic Garden. We trust Mr. Sadler's success in his new career will be such as to justify the selection made and compensate for the disappointment felt in horticultural circles that so important a post should not have been filled by a practical gardener.

RUBUS ROSÆFOLIUS (FIG. 9).

We give on the opposite page a figure of this very charming plant, for a specimen of which we are indebted to Sir George MacLeay. Mr. Green, Sir George's gardener, tells us that the plant is valuable for decorative or cutting purposes, as it forms compact little plants in small pots if attention be paid to stopping during the summer while growing out-of-doors. In the autumn the plant should be placed in a cool pit or greenhouse, and a liberal supply of water given. When the season is not too severe, the plant will survive in an open border in a sheltered spot. The plant is the *Rubus rosæfolius* var. *coronarius* of the *Botanical Magazine*, t. 1783; and of Hooker's *Flora of British India*, vol. ii., 341. It is a native of the Himalayas, Burma, &c., and has become naturalised in many subtropical countries, and though long introduced is very little known to modern gardeners, but, as the figure shows, it is one of the most elegant little plants for greenhouse culture. The flowers are pure white, very double, and the leaves, as shown in the figure, are more like those of a Rose than of an ordinary Bramble.

THE FIRST DAY ON THE MOOR.

ONE thinks of a hot August day, with the sun blazing overhead, a boundless expanse of purple Heather, with no shade, no wind, but intolerable midges—sportsmen, dogs and grouse in the distance. This 1st day of January, 1879, has a cloudless blue sky, a brilliant yellow sun straight in one's eyes when we face the south, and to the east a white half-moon high up in the clear sky.

Patches of snow still lying on the rounded green hills of this district of Dumfriesshire give them character, while they add alpine-like height to those hills of more marked outline: 2685 feet might by rights perhaps be called a mountain in this south country.

Sounds there are none, with the exception of a short bark from a diligent Collie conducting the sheep to some pasture or patch of Turnip land. They disappear over the sky-line in a long string one after another. It is plain they have had too much of the moor, and have been taking shelter among the scrubby Birks, stunted Saughs, and tallest Gale. Sheep do not usually browse on such astringents, but during this severe storm something has broken off all

the tops of the Bog Myrtle, and I began to fear one object of my walk on the moor could not be gained, viz., a bunch of Gale flower-buds.

Of colour there is poor substitute for the August Heather, still the Sphagnum is really beautiful; large patches are pink as *Sedum villosum* when in flower. I never happened to see the Sphagnum with the effect it has to-day. The frost is not hard enough to ice it, but a sort of pounded snow is all through it, glistening in the sun. Then there are quantities of Bent, dark red and shining, and of course the vermilion-tipped Lichen, *Cladonia coccifera*, is scattered here and there on the sides of the peat bogs. Trusting to the thermometer, I rashly stepped and found myself in icy water—not agreeable. Plants never mislead, and are the truest indicators of temperature, as well as of quality of ground, so I stuck to my usual plan of stepping by the plants, and had no more cold plunges.

Blanched flower-heads of the yellow *Asphodel* were

their tell-tale eye wide open, the brightness of which catches yours when their downy body would be passed by unobserved.

The busy sandpipers, too, are missed by the river side, where they run nimbly along the strips of shore, never still or silent, and very amusing to watch; and many other wild birds, not to speak of grasshoppers, an occasional frog and gliding lizard, both so cool to the touch in the hottest day; or a harmless slow-worm, at first glance, of course, set down as an adder. No skating water-gnats or merry whirligigs gyrating on the little pools; where, too, the beetles dive headforemost the instant your shadow falls upon them.

Owing to the unprecedentedly rapid thaw the moor drains are running well, and there the leaves of the Pond-weed (*Potamogeton natans*) are floating vividly green, no summer bronze upon them; and young shoots of *Myosotis* apparently growing, and long white roots of strong water-grasses, with shoots ready to

However, in my four hours' wander I was fortunate enough not to meet a human being, and had the exhilarating and strengthening walk undisturbed. Still one would not deserve to have the power of enjoying this brilliant day and quiet nature did one selfishly forget the misery all around this new year of 1879. A passage in a letter of Walpole to Horace Mann, July 7, 1760, occurred to me as a peculiarly appropriate rule for most people this new year. Writing about the furnishing of Strawberry Hill he says, "I move gently, and never begin till I have the money ready to pay, which don't come very fast, as it is always to be saved out of my income."

I was fortunate in seizing the first and only day possible for the moor if I wished to secure, as I did, a store of mosses, lichens and catkins. Snow fell again on the 2d, and a repetition of the keen frosts in December succeeded. Friends write me that their plants are unhurt, and gardens safe: of course they know best—here it seems folly to guess what has happened. On this coming summer and autumn will depend how our plants can stand next winter; and so I cheer my correspondents by suggesting that the summer of 1880 should be the proving time of this severe storm of 1878-79. *F. J. Hope, Wardie Lodge, January, 1879.*

Florists' Flowers.

THE NEW FLOWERS OF 1878.—The usual average of new flowers in relation to numbers was a product of 1878, and if less of a startling character than is sometimes a characteristic of a year was forthcoming, it is yet certain that many useful things that may be reckoned as decided gains have been added to our lists of flowering plants. The practical horticulturist will not be deterred from attempting the realisation of something better than he has yet produced; and though it is sometimes said a particular flower has had its day, the folly of hasty generalisation is quickly shown by the advent of something borne to us on the promising waters of life's flowing stream. If they sometimes cast up mire and dirt, they yet carry on their bosom many precious treasures full of promise for the future. The golden promise waits for all who strive to discover the new and more beautiful things stored up in Nature for those who seek them.

The Abutilon has made great headway during the year, as supplying a most useful group of late-flowering greenhouse plants, that can also be employed to great advantage in subtropical and other arrangements. *Louis Marignac* is a distinct striped variety, well adapted for pillar work in conservatories; and *Reine d'Or* supplies a tint of gold that in the hands of raisers is gradually assuming a more decided and deeper hue. In *Louis Van Houtte* we get a violet-coloured variety, rivalling in size the old *Duc de Malakoff*—one that promises to make a fine exhibition plant. All the numerous varieties are capable of use in many ways, and the new varieties raised by Mr. George show substantial advantages in the hues of orange and violet. The *Amaryllis*—one of the most gorgeous of spring-blooming stove plants—has had three representatives certificated during the past year. Size, substance, and heightened colour have been to the fore, thus laying down the true lines of progress. The *Auricula* is a flower that is improved but slowly, and though nothing striking has been added during the year yet enough was seen to demonstrate that in the hands of our leading growers are seedlings that promise to make their mark before many years are over. New *Azaleas* have been somewhat sparingly represented, the double white *Madame Eckhaute* and the double rose-coloured *Kaiser Wilhelm* were the only two honoured with an award, in addition to the new rosy purple variety of *amoena* named *William Carmichael*—a decided acquisition.

The tuberous-rooted *Begonias* have largely increased during the year, and as generally happens when a flower is in the full swing of development, only a few new forms stand out from all the rest for distinctness and general excellence of character, and of these *Chiswick Blush* and *Nellie May*, from the gardens of the Royal Horticultural Society, attest to Mr. Barron's enterprise, and Mrs. Dr. Todd to Mr. Laing's unwearied endeavours to improve a flower with which his name will be prominently identified for many years to come. President Burelle and Louis Thibaut are double varieties of considerable merit. While there is a kind of pause in the production of new



FIG. 9. —*RUBUS ROSIFOLIUS* VAR. *CORONATUS*. (SEE P. 76.) FLOWERS WHITE.

in plenty, but not a speck of inflorescence was left on the tall tufts of marsh grasses, thin attenuated clumps, very different from the arching leaves and wide-spreading flower-stalks which meet, and made it a soaking business to peep through in dewy autumn, or after rain in summer. Were I at home I might give the names of the various dead grasses, characteristic even now when withered; but botanical names are skipped over. One, however, I do remember and specify—*Molinia cœrulea*; no variegation appears on it in summer, but at this season I have often been attracted by the miniature porcupine-quill appearance of its yellow stalks ringed with black. It is a pretty grass at all seasons.

One misses the moorland birds. A moor is silent without the melancholy cry of the long-nebbled whaups (curlews), but I left them at the seaside; and the peewees also are away, for nesting time is a thing of the past or future. Then the excited male bird would swoop into your face, startling you with the whisk of his wings; and the noiseless hen would flutter down close in front of you until you were past the precious nest of young ones lying close and still, but with

start at every point—strong or weak growers, all prudently going with the stream, not one leaf having a will of its own, all smooth and orderly. Here by the banks I found sufficient odd plants of young Bog Myrtle to get a bunch of flower-buds; for weeks they will last, and be refreshing to pinch and smell at: true, some fine morning the writing-table will be dusty with their pollen, but that cannot be helped with glasses of catkins. This storm has destroyed the *Garrya elliptica* flowers, so we are thankful to have secured some the first day of the snow, which will come on in the rooms and be succeeded by *Hazel*, on which there is an extra quantity of male flowers. I observed *Alders* of sorts, *Birch*, *Yew*, *Poplars* of sorts, and ending with *Willows* and the *Gale*. When puzzled with calculations, or whatever requires acute memory, a pinch of the scaly *Gale*-buds helps one! As Parkinson says of *Rosemary* "it helpeth the weak memory by heating and dreging up the cold moistures of the braines and quickening the senses:" *vide* his first chapter on "Sweet-smelling Herbes."

Horace Walpole affirms there is no solitude in the country, in London only can you be sure of that.

large-flowered Chrysanthemums the Japanese section is being added to, M. Crousse being the only variety selected for a certificate; but there are some very pretty new Pompon varieties of Continental origin which will be sought after when their merits are better known. Clematis Earl of Beaconsfield is a fine rich coloured variety that is very attractive for its splendid hue of colour; it appears to belong to the lanuginosa section. The Cyclamen, one of the most welcome and useful of winter flowering plants, has had its select few named varieties reinforced by Mr. H. B. Smith's Mont Blanc, and Mr. James' White Beauty, both pure white varieties of fine quality, the former remarkable for the splendid massiveness of the blooms; C. roseum grandiflorum is of great size and fine proportions, and Rosy Morn is another large-flowered type of a most attractive colour. One thing is being made certain, that the giganteum types of the Cyclamen are as free of bloom relatively as the smaller flowered forms.

Certificated Dahlias are fewer in number than usual, and this is probably owing to the fact that there was no meeting of the Royal Horticultural Society early in September, when the flowers were at their best. Mr. Turner had certificates for Joseph Ashby, a striking orange-red self; Helen Macgregor, a pretty pinkish rose coloured flower tipped with dark; and Prince Bismarck, a maroon shaded self; the former being especially deserving of notice at the hands of cultivators. From Salisbury came Aurora, a golden buff self; and Gaiety, a most attractive fancy, clear yellow tipped with white and striped with rosy scarlet. From Messrs. Rawlings Bros. came Clara, a very promising deep pink self. The Floral Committee should meet towards the end of August and early in September, allowing an interval of about a fortnight, so as to catch the earlier and later Dahlias. The single varieties produced by Mr. Cannell deserve a place among the floral gains of the year.

The three fine varieties of Gladiolus from Messrs. Kelway & Son, that received certificates, were representative of a very striking batch of new varieties of this popular flower: and Mr. Wills' beautiful Gloxinia Beauty of Anerley was but one of a batch scarcely less inferior. Seedling strains of Gloxinias are now so good that additions are made to the named varieties but slowly. Hyacinth Grand Master, a soft pale blue single variety, and King of the Blacks, shining maroon-black, show that the work of improvement is still going on in the Hyacinth. Lathyrus Drummondii gives us a cerise-scarlet Everlasting Pea, making a distinct addition to this useful group.

In point of numbers the honours of the year are with the Pelargoniums. The Ivy-leaf varieties, both double and single, and especially the former, raised by M. Victor Lemoine, have amply vindicated their claim to be placed among the most valuable productions of the year; their merits have already been set forth in these columns, and the splendid collection grown at Chiswick was the means of teaching a valuable lesson as to their many uses as decorative and specimen plants. Of the Zonal class the pure white Jeanne d'Arc, and the rich purple-tinted Dr. Denny, both from M. Lemoine, are pre-eminent in their divisions for possessing high class qualities.

The past year was remarkable in that Mr. Turner was able to produce a most useful break in yellow ground Picotees of a vigorous growth and sturdy habit—decided advantages over the varieties of a more refined character and delicate constitution included as show varieties; and as not less than five varieties gained First-class Certificates, the value of the break can be readily determined. Royal Visit and Mrs. Payne are two new rose-edged flowers that are highly thought of by growers.

Potentilla Prince Arthur, double yellow, is a good addition to these most useful hardy perennials; and single Primroses Ealing Crimson, Octoroon, Prince Charming, Magenta, and Scott Wilson, are good additions to these pretty harbingers of spring. Scott Wilson marks a decided advance towards the attainment of a blue Primrose; and the double variety, sulphurea major, gives us a good robust growing late variety. Mr. B. S. Williams' new Chinese Primrose fimbriata coccinea, Messrs. Sutton & Sons' Ruby King, and Mr. W. Tomkins' Brilliant, show the marked advances made in deepening the colour of the varieties of P. sinensis; and Mr. Gilbert's double cerise-coloured Earl of Beaconsfield is a rare companion to the new varieties certificated last year.

Of the Roses certificated during 1878, Mr. W. Paul

has two fine hybrid perpetuals in Countess of Rosebery and Duchess of Bedford; while Mr. Turner is equally fortunate in Harrison Weir, Penelope Mayo, and Dr. Sewell. English raised Roses are now holding their own against Continental flowers; and they carry this additional advantage, that the flower can be seen by growers before the plants are purchased.

Bedding Verbenas Bessie, Gruss aus Erturt, and Madame Emile Hultner, are three very useful bedding varieties, that will do much to restore the waning popularity of the Verbena as a flower garden plant; and some fine new varieties, raised by Mr. J. F. Mould, Pewsey, Wilts, have been highly spoken of in the West of England. R. D.

Notices of Books.

THE last issued part of the *Journal of the Linnean Society* (Botany) contains three papers, one on the "Coffee Leaf Disease of Ceylon," by the Rev. R. Abbey; one on "Euphorbiaceae," by Mr. Bentham; and one on the existence of "Carpesium cernuum in Queensland." Mr. Abbey shows that whereas the approximate yield per acre from 1866—1868 was 4.23 per cent., it had fallen from 1875—1877 inclusive to 2.98 per cent., the average annual deficiency in the whole island having been estimated at £2,000,000. The tree is not killed outright, but deprived of its leaves and generally enfeebled. The fungus causing the disease was figured and described in these columns (1869, p. 1157), but Mr. Abbey was the first to grow the fungus and observe it in all its stages. The sporanges or spore cases are borne on a flask-shaped stalk, itself arising from the branching mycelium. The bud-like or "conidial" form is not unlike that of Oidium. The red clusters of sporanges Mr. Abbey believes to be the dry-weather form of the fruit, the conidia being produced in the wet seasons. Burning all the diseased leaves, practised by all the growers conjointly, is the remedy proposed. Mr. Bentham's paper is one of those classic monographs of which we have had so many from his pen, and which are so peculiarly valuable from his special qualifications and unmatched experience. The morphology of the order is very lightly touched on, but we have a lucid sketch of the history of the order, a clear summary of the principles of nomenclature as laid down in M. De Candolle's *Laws of Nomenclature*, to which Mr. Bentham gives a general assent. As to the systematic arrangement Mr. Bentham comments on the two most recent arrangements of Mueller and of Baillon respectively, pointing out in what respects they are deficient, but following Mueller chiefly in his general arrangement of the order. Six tribes with various minor subdivisions are established, and their peculiarities are discussed. Lastly there is a discussion on the origin and geographical distribution of the order, the fourth largest in the vegetable kingdom, having about 3000 species in 200 genera. From the geographical distribution of the species and their structure Mr. Bentham is led to infer that the most ancient home of the order was in the Old World, but that several of the principal forms were differentiated and widely spread before that remote period when the present impassable barriers opposed by the Atlantic and Pacific did not exist or were crossed in some manner of which no plausible explanation has yet been suggested.

—The December part of the *Journal of the Royal Horticultural Society* contains abstract reports of the proceedings of the several committees from May till July, together with brief records of the principal exhibitions. The original papers comprise memoirs on the "Fungoid Diseases of the Vine," by Dr. M. C. Cooke; a note on the "Native Country of the Potato," by Mr. Hemsley. Mr. Hemsley thinks it probable that more than one wild form or species has been concerned in the production of our existing Potato—a conclusion which every one who knows the great range of variation in cultivated Potatoes will not find it difficult to accept. The Potato is now wild from Mexico to Chili, and from Uruguay to Buenos Ayres. The next paper is on the "Nomenclature of Garden Plants," on which we may have occasion to speak at greater length on another occasion. Lastly, there is a notice of a "Common Form of Canker in the Ash," by Mr. W. W. Saunders, illustrated by woodcuts.

—The *Midland Naturalist* has now completed its first volume. In an unpretentious way it has been

the means of publishing a large amount of interesting and valuable information on natural history subjects. In the present number a paper on the best mode of examining clay, or rather the organisms in it, by Rev. H. W. Crosskey, will be novel to many readers.

Garden Operations.

KITCHEN GARDEN.

The stress of weather during the past month has been so exceptionally adverse to the progress of many operations here, that is has been the means of bringing in close quarters many arrears of neglected work which in all probability would, under different circumstances, have still remained unheeded. Experienced hands will be able in some degree to compute the extent of the consequences which will ultimately result from so prolonged a visitation of intense frost as that which happily is now departing. Indications of serious damage to the Brassica tribe of plants are already apparent, and especially so when they are in low damp localities; in such positions a very heavy percentage of the whole will, ere long, have to be consigned to the refuse heap. Intermediate plantations of Endive and Lettuce will likewise materially suffer in this way. In the prospect of such an emergency it will be incumbent on the part of managers in this department to take immediate steps to provide for ultimate contingencies, and it will, therefore, be wise to provide a frame at once, and make a sowing of Lettuce, Cabbage, and Cauliflower. Some time must necessarily elapse before the ground out-of-doors will be in a workable state; as soon as it is so the first opportunity should be taken to make sowings of Peas and Long-pod Beans, in quantity for ordinary requirements, and to meet any deficiencies in former sowings. Out of the numerous sorts of early kinds of Peas we still adhere to William I. as a tall kind, and Laxton's Unique for a dwarf one. Under suitable conditions let all decaying matter be removed to the refuse heap, and give it a good dusting over with slaked lime. G. T. Miles, Wycombe Abbey.

FORCING DEPARTMENT.—The unexpected severity and prolonged duration of the frost which we have so lately experienced will upset many well defined calculations of a preliminary nature. This will without doubt prove to be the case in many instances with reference to the provision which it is requisite should be made beforehand for forcing purposes, as in this department an almost unbroken successional supply is expected of such excellent edibles as Seakale, Asparagus, and Rhubarb; it will, however, in many cases without doubt be interrupted by reason of inadequate supplies of Seakale roots being lifted, or from an insufficient quantity of roots of Asparagus and Rhubarb not being amply protected for lifting purposes. Uncommon events, as five weeks of continued frost, make these circumstances unavoidable, but to diminish as far as possible any inconvenience arising therefrom steps should be taken at the earliest moment practicable, to replenish exhausted stores, and to re-establish spent beds. The effects of this unusual frost on vegetation will ultimately prove to be most disastrous, and consequently will cause an increased demand for these excellent kinds of spring vegetables; see, therefore, to the keeping up of the store of leaves and manure for such purposes. For Seakale we place a two or three-light box, according to the requirements, on the top of a good heap of the materials referred to above; the bed within the frame is then taken out down to where a gentle heat is found; here about 2 inches of light rich soil is spread over the surface required, and on this the crowns are planted, 3 or 4 inches asunder, the interstices between them being filled up with prepared compost in a warm state; in order to settle the soil firmly about them, a watering once over is necessary. The after-treatment consists in keeping the heat in the frame at from 50° to 60°, according to circumstances; this is to be done by means of fermenting materials, in a condition equal to the exigencies of the case, and the covering which is kept on constantly should be augmented or diminished as circumstances require. In such a place, and under such conditions, a successional supply of Seakale of the finest quality can be obtained at less cost in labour, &c., than by any other means. At most places trees abound, and consequently leaves are to be had in abundance; when such is the case, and they can from time to time, as they are collected, be conveyed to a suitable place together, they form, under such circumstances, the best medium possible, when frames are placed upon them, for the secondary crops of such things as Potatoes, Asparagus, Carrots, Radishes. As the time is fast approaching—namely, the beginning of February—for attention being given to such subjects, it will be advisable to be ready, and therefore all such masses of materials should be prepared ere long for the frames, and afterwards the composts to be employed should be got into them, to become warm by the time required.

At about the present time it will therefore be necessary to insert in boxes or otherwise enough sets of Potatoes to meet these requirements. No variety surpasses those of the Ashleaf Kidney section, as Veitch's or Rivers', for early work for ordinary purposes. A temperate-house should be chosen for starting these sets, and they will then be fit for transplanting at about the time indicated. For the sake of economising the room at command Radishes should be sown between the Potatoes, and Carrots likewise, if it be needful. Wood's Early Frame Radish is pre-eminently a useful and early kind, and much more effective on a dish than the shorter kinds, and in Carrots the Nantes Horn, if it be true, is still unsurpassed. Former remarks concerning the necessary attention which should be given to French Beans will continue in force, and so also will those referring to the demands in the Mushroom-house. Where the supply of Lettuce runs short let these subjects be compensated for by means of enlarged supplies of Mustard and Cress. If early Tomatoes are in request make a sowing at once; these should be placed near to the glass as soon as the seeds vegetate, and be in one of the houses where a temperature of at least 60° is maintained constantly. External conditions lately have necessitated that coverings should be almost constantly applied over such subjects as Cauliflower plants and other subjects of a like nature, but lose no opportunity to give such things light and air whenever convenient. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD HOUSE.—The house started with a little heat will now be progressing well, and to make sure of a good set of fruit careful management is necessary. I do not care to have the trees in flower until the end of the month, or, if the weather is unfavourable, the first week in February; nevertheless, as soon as the blossom-buds develop their pinky colour it is time to become anxious about the safety of the crop. Presuming that the trees are in pots, and the roots are not allowed to travel outside their limits, the cultivator has full command of the roots. Rain-water, of a temperature a few degrees higher than that of the house, should be applied to the roots when it is actually required. If the soil in the pots is allowed to become too dry, the trees will suffer, as they also will by applying water frequently when it is not needed. An atmosphere rather dry than moist, combined with strict attention as to ventilating, and a night temperature ranging at about 55°, will ensure success if the weather should be at all favourable. Continued cold cloudy weather is the worst, and clear weather, with a brisk wind blowing, even if cold, is the best to ensure success. Our own trees that do not receive any forcing have now been removed into the house. We shall have an opportunity this year to ascertain if severe frosts are injurious, as the trees were out-of-doors, and covered with snow, until the thaw came. The roots have generally been seen to be in an active state when the trees have been taken indoors; this year there was no appearance of active roots near the surface. The buds are very prominent, and so far they are safe. As the trees were placed in the house they were looked over, and some of the strong young shoots that did not seem well furnished with fruit-buds were cut back to a treble bud. Growers of pot-trees will be well aware that the tendency of nearly all the varieties of Peach and Nectarine trees grown in pots is to grow too tall; hence the necessity of close summer pinching, and also cutting back in winter. Young, or maiden trees, potted in the autumn, may now be cut down; it is a practice with some to cut the stem to one-half, or perhaps only one-third of its length. This plan I have often pursued, but have found that the best foundation for a well-formed tree is laid when the growth is cut back to about a foot or 18 inches from the point of union between the stock and scion. Such trees, after one season's growth, form handsome bushes, well set with blossom-buds, and, on an average, they will produce a dozen good fruits the following season. *J. Douglas.*

ORANGE TREES IN POTS.—If anything has caused a disarrangement in the drainage, so that the water does not pass through freely, this must either be remedied, or the trees should be repotted altogether. I have previously stated that Orange trees remain for several years in a healthy state without repotting, but this is only so when the drainage is clear from soil being worked into it, and the potting material has been suitable. Worms are a continued source of annoyance when the trees have been placed out-of-doors; they can be destroyed by using clear lime-water. If the leaves have become of a sickly hue, this can be remedied by repotting; it may be that the soil is sour, and if so it ought to be removed, and the trees returned into the same sized pots. After repotting remove the trees into a vinery or Peach-house that is just started, the mild heat and moist atmosphere just suits the trees, as will be seen by the leaves gradually assuming the hue of health, and numerous young growths also breaking out all over the trees. This is a very good time to repot all trees requiring it; light soil, partly composed of peat, answers very well to

grow the trees, but as our aim is to produce well-flavoured fruit, a different compost must be used. Good turfy, clayey loam, with some crushed bones added, and a few broken bits of charcoal, is good compost for them. Syringe the trees twice a day after they have been put into a house with a gentle warmth. It is not usual for cultivators to raise their own trees, for the very good reason that it is cheaper to purchase them, but Orange trees can be very readily grafted. Lemon trees one year old are the best stocks. They may be growing in 5-inch pots. The method is to cut the stock down, and whip-graft a strong young shoot of the variety required. The pots should then be plunged in a gentle bottom-heat in a hotbed. Keep the lights close until the scions have started into growth. *J. Douglas, Loxford Hall.*

THE CHERRY HOUSE.—Continue to maintain the night temperature at from 40° to 50°, according to circumstances, and at 50° throughout the daytime. Syringe twice daily, at morning and afternoon, if the surface of the trees becomes dry, and keep other surfaces in the house moistened also. A considerable amount of sprinkling has been essentially necessary lately, to counterbalance the preponderance of artificial dry heat which has been required. If plants are introduced into this compartment, be careful in the selection, so as to avoid the introduction of fly or spider; a good syringing of strong quassia water would do much to destroy such pests at the present season, when they are neither stronger nor in a very active state. *Geo. Thos. Miles, Wycombe Abbey.*

STRAWBERRIES IN POTS.—With very gentle forcing our early Strawberries are now fairly on the move, the crowns are extending, and the flower-scapes are pushing up simultaneously with the first appearance of young leaves. This is exactly as it should be, and indicates that the crowns have been well ripened, and that there is a prospect of a good crop, inasmuch as there will be no monopoly or loss of vigour in the formation of leaves preceding the development of the flower-spike. Up to the present period the weather has been too inclement to give air, but the necessity has not been pressing, even had the weather been less severe, though with actual growth progressing air-giving becomes a matter of the greatest importance. The temperature of the Strawberry-house (or other houses where they are being forced) should be carefully handled while the weather is of such a doubtful character and plants are coming into flower. The walls and paths of such houses should be syringed or otherwise damped a couple of times during the forenoon, with a little air being put on at the same time, but the atmosphere should be somewhat dry before closing time. On the other hand, if a continuation of bright clear days should occur all the internal parts of the house, as well as the plants, should be syringed, as in that case absorption would take place much more rapidly, and the atmosphere would become dry enough before darkness set in. Plants in pits should still remain covered up till there is some appearance of a real thaw, but those that are covered with litter out-of-doors had better be seen to, and in case the covering is getting too damp let it be replaced with dry bracken or straw. *W. Hinds, Otterspool.*

PEACHES AND NECTARINES.—The trees in the early house will now be in flower, and artificial impregnation must have daily attention. Pass the camel-hair pencil over them about noon each day, and secure a steady circulation of air by opening the ventilators in front of the pipes, which should be sufficiently warmed to run the house up to 65°, with a rise of 10° more from sun-heat. Discontinue the direct syringing of the trees until the blooming season has passed, but counteract the too rapid escape of atmospheric moisture by turning the fermenting material every morning and damping paths, walls, and stems with tepid water a few degrees warmer than the house. Allow the night temperature to range about 50° to 55° when the weather is mild, but on no account run the risk of failure by adhering to any fixed rules should we have a return to severe weather. Owing to the long continuance of the sharpest frost we have experienced since 1860, forcing has been carried on under great difficulties, and Peaches will most likely be later than usual, but a great deal of lost time may be redeemed by judicious management after the completion of the stoning process. Look well to the outside borders, and guard against sudden chills by keeping the roots well covered with some dry non-conducting material; a foot of sound Oak leaves, with shutters over all, answers well, as they form a genial medium for the active surface roots through the early stages of growth, and their gradual removal as the sun gains power in May may be carried on without injury to the crop. All pruning and cleansing in the latest houses should be finished at once, as, notwithstanding the fact that Peaches may be pruned at any time from the fall of the leaf up to the blossoming period, many advantages attend the performance of this work some weeks before the buds begin to swell; not the least of these is the fact that the young wood may be washed twice or thrice with a much stronger solution of

Gishurst without fear of injury than when the sap is moving. A very important operation in the management of forced Peaches is fumigation for green-fly at all seasons of their growth, but more particularly through the early stages; it should, therefore, be a standing rule to fumigate every house thoroughly just before the blossoms open, and to avoid the introduction of all plants that are not perfectly free from aphid until after the fruit is set. *W. Coleman, Eastnor Castle.*

PLANT HOUSES.

ORCHIDS.—The long and severe spell of cold weather we have experienced will have called forth all the ability and attention of the grower to keep his plants free from the evil effects of cold, and to maintain an atmosphere in the houses that will best assist them to resist the debilitating influence of the great amount of fire-heat called into play. The temperatures given for the various houses a fortnight back are still the most suitable; the regulation of the houses by night will thoroughly exercise the hands and head of the stoker. In this matter the nurseryman's grower has an immense advantage over the amateur's. A nurseryman has generally such a sea of glass that he finds it greatly to his benefit to employ one or two night stokers; these men not only maintain the exact temperature ordered by the grower, but by regulating the fires according to the fluctuations of the external atmosphere they, in the course of a winter, save a great amount of fuel. There are but few private places where the glass is of such an extent as to call for a professional night stoker. This duty falls to the young gardeners, and rightly too, for no man will ever be competent to take charge of a collection of plants unless he thoroughly understands the manifold duties of a stoker. Respecting the night temperatures of Orchid-houses the stoker almost invariably errs on the high side, that is, if you order a house to be kept at 50° you will too often find it at 55°. When the weather is very uncertain he is perfectly right in holding these 5° in hand, but as a rule the 50° should be maintained till banking-up time, then, the fire having burnt low, it can easily be cleared of ashes and clinkers, and be well made up for the night. The most important part of all consists in the regulation of the damper, which is used to check the draught of the fire. It, of course, must be used according to the weather expected; if it looks likely to snow regulate the same as for 10° of frost, for to the same extent will snow affect the temperatures of hothouses. At this time of the year always allow for the external atmosphere to descend. If it does not do so the house in the morning will be more or less too high, but it must be remembered that for at least half the night it stood at its proper temperature. On bright frosty mornings small and sharp fires should be the rule, so that by the time the sun makes itself felt in the houses the fires may be in such a low state as to throw but little heat. Since writing the above the weather has suddenly changed from dry and cold, to moist and warm—so moist, indeed, that but very little damping down need be done. At 10 A.M., should the outside air be above 40°, the bottom ventilators should be slightly opened in all the houses, with the exception of that house or portion of house which contains such heat-loving plants as *Phalenopsis amabilis*, *P. grandiflora*, *Saccolabium giganteum*, *Angraecum sesquipedale*, *Aerides Schrederi*, &c. If the fire-heat in this division is kept below 65° there is no fear at present of the sun raising the temperature too high. With the outside air at 45° the ventilators at the bottom of the Masdevallia and *Odontoglossum* house may be kept wide open from morning till night, and no fire-heat used. In admitting outside air to Orchids that have been kept close several days it is of the utmost importance to do so by degrees. *Odontoglossum citrosimum* will now be breaking; from this time until the spikes show up through the top of the young breaks it must be kept much drier than at any other time of the year. After each watering lay a Potato trap or two to catch the woodlice, otherwise many spikes will get eaten off. *Epidendrum nemorale*, now making up its growth, must be well supplied with water; it does best potted in equal parts of peat and sphagnum, and prefers a light position in the Cattleya-house; this *Epidendrum* is a very rare and lovely Orchid. Plants of *Phalenopsis Schilleriana* that have their spikes well advanced, and whose leaves are perfectly free from that baffling disease called the "running-spot," will open their flowers more kindly, and take no injury if placed at the hottest end of the East Indian-house. Those suffering from the aforesaid disease will be safest at the coolest end; what spikes they throw should be denuded of all but a few flowers. Small plants of *Phalenopsis amabilis* and *grandiflora* are sure to throw spikes; one or two flowers on each should be allowed to come to perfection. No doubt the grower would like to rest these weak plants altogether from flowering; but if one spike is cut off another speedily shows. If this second one is destroyed the chance is that the plant will throw a third up through its centre, the least bad result of which will be the disfigurement of the young leaves. *J. C. Spyers, Burford Lodge, Poking.*

THE Gardeners' Chronicle.

SATURDAY, JANUARY 18, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, Jan 22 { Sale of Roses, Camellias, Herbaceous,
THURSDAY, Jan 23 { Plants, Bulbs, &c., at Stevens' Rooms
FRIDAY, Jan 24 { Sale of Lilies, &c., at Stevens' Rooms
FRIDAY, Jan 24 { Sale of a Collection of Lepidoptera, &c., at Stevens' Rooms

AFTER several winters in succession wherein there has been such an absence of low temperature as to delude the unwary, a good many cases have come under our notice exemplifying the grave error committed by those who have to do with the erection of glass structures for the various purposes connected with gardening, who do not in the first instance make sure of a sufficiency of HEATING POWER, so as to keep up the requisite temperature for the particular purpose the houses are intended to fulfil. It is also necessary to pay due regard to the arrangement of the apparatus, so that it may be under the requisite control. When a severe frost like that which we have recently experienced happens, it shows where the weak places exist. Several instances have come under our observation where death or serious injury has resulted to numbers of valuable plants through a total inability to keep up anything like the requisite amount of heat on account of the deficiency of piping, or an absence of the full complement of valves to regulate the heat, in accordance with the requirements of the inmates of the different houses. This, as a matter of course, has happened where there have been altogether new structures that have not before been put to the test of a hard winter, or where additions have been made to the number of houses without a corresponding increase of the heating power.

Defects in these matters are nothing unusual, nor are they likely to be until young gardeners—not only those who are aspiring to make themselves competent for the management of large establishments, but also those who are content with smaller ones—see the necessity for acquiring a sufficient knowledge of all connected with the present system of heating by hot water, so that they may be able to speak with confidence as to what will answer and what will not when work of this description has to be done in the places they may for the time happen to fill. It is through an absence of this very knowledge that many vexatious annoyances in the heating of garden erections occur. It should never be necessary to leave matters like this to the individuals who undertake such work, their interest in the matter is necessarily of a passing nature, whereas with the gardener in charge, it is often a source of continuous trouble. There is not in the whole range of operations connected with gardening any more short-sighted economy than a deficiency of heating power. Where the fire has to be continually driven during hard weather the fuel account runs up rapidly. This subject has another aspect which young gardeners will find it to their interest to note. The man whose head is well stored with knowledge bearing upon this and kindred matters connected with his calling, will find it makes a considerable difference in the, to him, very important matter of wages. The individual who is master of all the details of the appliances he has to deal with, is not only worth considerably more from a pecuniary point of view, but will always find that he can command much more respect.

A word in season may also be said with reference to putting all one's eggs into one basket, in other words, to the dependence upon one boiler. Whatever may be urged in favour

of the one-boiler system for heating houses devoted to plant and fruit growing, on the score of economy in the labour of stoking, there are drawbacks that very much outweigh the gain. The most serious objection is the risk incurred of a breakdown during severe weather. This was foreseen and pointed out by many when the arrangement was first brought prominently forward. Horticultural pursuits, from their very nature, usually engender habits of caution in those engaged in them. Yet, with this, as almost every other novelty connected with gardening that is brought forward, there were some quite ready to incur the certain risk for that which, looked at from several points of view, was a very doubtful gain. Like everything else that will bear comparison with the arrangement in question, the chances are ten to one that whenever a breakdown does occur it will be when there is the greatest strain upon the apparatus, and the effects most disastrous in their consequences. Several winters have now elapsed since we have had anything calculated to try the strength and efficiency of boilers and all connected with them so thoroughly as the present. Several cases within the last few weeks have come to our knowledge, where the single boiler upon which dependence was solely placed has given way, causing wholesale destruction of large quantities of valuable plants, despite all that it was possible to do by coverings and improvised contrivances of various kinds. We are always sorry to hear of mishaps, but if people will run such risks they have only themselves to blame for the consequences. It is in human nature to profit little by experience which costs nothing, but we imagine that those who get their eyes so ruthlessly opened to this fatal mistake of depending wholly on a single boiler, unless where there are only very few houses in all, will not again be caught in the same trap. A separate fire to every house, or nearly so, as was required under the old method of flue-heating, constituted one extreme, the single fire to heat the whole, and these often a considerable number, is the other; and, like extremes generally, both are bad. But if the liability to break down in winter is the most objectionable feature attached to the one-boiler arrangement of heating garden structures, it is not the only one. Another that we may mention is, that where, as is usual in private establishments, there are one or two houses that require keeping up to a stove temperature, this necessitates in mild weather a much greater consumption of fuel to maintain the requisite heat in the water for the few houses that have to be so kept than would be needed if a small separate boiler were in use for them.

— THE WINTER.—The frost has already been severe enough to place the winter of 1878-79 on the record of notable cold seasons, and its impress has been left upon vegetation in a most forcible manner. The sudden and general thaw that followed upon Christmas naturally led some weatherwise to believe that the cold forces of the winter had been expended; but a few days, however, soon exploded this belief, and we have now again to record another spell of intense frost and yet another equally sudden thaw, produced by one of those remarkable changes of temperature incidental to a strong westerly current of warm air. The effects of the first spell of frost were seen on trees and shrubs, and great mischief was produced thereby. The second spell of frost has left its impress more forcibly upon vegetables and garden plants, the intensely bitter cold easterly wind by which it was accompanied having seared and scorched up foliage as with fire. When the record of the effects of this later visitation of frost is told it will probably be found that myriads of plants suffered that have during past winters been quite unmolested. Added to the intense keenness of both wind and frost was the excessive wetness of the ground, in many places flooded with water, whilst the subterranean water-line was several feet nearer to the surface than was the case with the pre-Christmas frost. During all the wet

seasons of past years, when ditches have been full, lowlands flooded, stokeholes half filled, and the land entirely saturated, we have had no sharp frost—the western breezes have been in the ascendant; now immense expanses of water, covering fields, parks, and gardens, have been converted into sheets of ice, the wet soil has been frozen to an unusual depth, the plants in it subjected to the most destructive and unusual pressure, whilst in the face of wet boiler-pits fires have had to be forced to the utmost. We may well look forward to reports of damage done with special interest and grave anxiety.

— THE FROST AND POTATO DISEASE.—With the soil frozen through at two separate periods for a depth of from 9 to 10 inches, and this also for a couple of weeks at a time, all Potatoes left in the ground after digging can hardly fail to have received their *coup de grâce*. There will be no self-planted tubers next summer, and so far fields and gardens will be well rid of numerous undesirable denizens. This will, however, be but a minor benefit to that which will follow if, by the destruction of these Potatoes in the soil, a decided check should be given to the operations of the disease. If these are not absolutely reservoirs of fungus growth, at least their earlier matured growth and leafage would appear to promote the earlier spread of the disease amongst the spring planted crops near them, and thus assist to check growth earlier than perchance would otherwise be the case. What, however, will be watched with chief interest will be the effects of the frost upon the fungus itself in its resting-place in the soil, and if after-experience should show that exceeding cold allied to intense frost has tended to its destruction, the advantage to Potato growers will have been immense. The fungus displayed itself particularly early last summer all through the southern districts, and there is good reason to believe that this early development was accelerated by the preceding mild soft winter, a description of weather that it is possible not only tended to its early development, but further to its increase. If severe frost should prove detrimental to the life of the resting-spore we shall have good reason to bless the severity of the season through which we are passing. If the *Peronospora* is a native of warmer climes it will hardly flourish in an arctic temperature. A few months will show how far these surmises may be correct, not only as relates to the Potato, but also as regards Wheat and other plants productive of food for the people.

— ORCHIDS IN FLOWER AT THE VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY.—The following Orchids are in flower at the present time in Mr. B. S. WILLIAMS' nursery. The *Angraecum sesquipedale* is very fine, and well worthy of a visit:—

| | |
|--|--------------------------|
| Ada aurantiaca | Lycaste gigantea |
| Angraecum sesquipedale | „ Skinneri |
| Calanthe Veitchii | „ Masdevallia polysticta |
| „ vestita lutea oculata | „ tovarense |
| „ „ rubra oculata | „ Veitchii |
| „ „ nivalis | Maxillaria picta |
| „ „ Turnerii | „ venusta |
| Cœlogyne cristata | Neottia maculata |
| Calanthe Masuca | Odontoglossum Alexandræ |
| Cymbidium affine (new, first time of flowering), very beautiful and distinct | „ Ehrenbergii |
| Cypripedium insigne | „ nevadense |
| „ „ Maulei | „ Pescatorei |
| „ „ niveum | „ Rosii |
| „ „ Sedeni | „ „ grandiflora |
| „ „ biflorum | Oncidium flexuosum |
| „ „ Harrisonianum | „ cucullatum |
| „ „ villosum | „ „ Rogersii |
| „ „ Warneri | Phalænopsis amabilis |
| Dendrobium moniliforme | Restrepia antennifera |
| „ „ superbiens | Sophranitis coccinea |
| „ „ teretifolium | „ „ grandiflora |
| Limnæodes rosea | Vanda tricolor |
| | „ „ insignis |

— THE CORNFLOWER (CENTAUREA CYANUS).—Our German contemporary, *Der Deutsche Garten* for January 4, contains the history of the incident with which the partiality of the Prussian royal family for this beautiful flower is connected. It is well known, in Germany, at least, that the blue Cornflower is the Emperor WILLIAM'S favourite flower and colour, and it is the practice to decorate his room with it on his birthday, the 22d of March. If its cultivation has failed, Italy, or France, or some other country, must furnish the favourite Cornflower, which in a sense has become the rival of the Napoleonic Violet; and these two flowers are unfortunately not exactly friendly rivals, like the light blue of Cambridge and the dark blue of Oxford. The blue Cornflower had always

been a favourite with the late Queen LOUISA of Prussia, the mother of the present Emperor of Germany, and it was during the sad period that immediately followed the disastrous defeat by the French in 1806 that the incident occurred to which we have referred. Living in comparative retirement at Königs-berg, the Queen was one day in the garden with her children, the present Emperor and the Princess CHARLOTTE, afterwards Empress of Russia, when she was accosted by a poor child who begged her to purchase a large wreath of fresh Cornflowers. Animated by sympathy for the poor child, whose sick

favourite flower; in short, it was employed in every conceivable way to testify the loyalty of a people.

— PRESENTATION TO A FORESTER. — MR. JOHN B. SMYTH, lately forester on the Duff House district of the Fife estates, was presented at Banff, on the 4th inst., on the occasion of his leaving the locality, with a valuable testimonial, consisting of a massive gold lever watch, with suitable inscription, and a well filled purse of sovereigns. Mr. SMYTH had only been in the North for about four years, but had made many friends. He is the holder of several medals

VIATI, and containing (among other things, we presume) tubers of the gigantic Aroid discovered by that traveller. It will be remembered that the importation of living plants into Italy has been forbidden by Act of Parliament, with the object of preventing the introduction of the Phylloxera; so, on the arrival of BECCARI'S boxes on board of a French steamer, the officials, acting according to the letter of the law, refused permission to land them. Eventually, we believe, the objection was withdrawn; but, as *Fanfulla* remarks, if they had been bundles of Grape Vine canes declared as fagots, the sapient officials



JOHN SADLER, CURATOR, ROYAL BOTANIC GARDEN, EDINBURGH.

mother was unable to earn anything to provide them with food, and by love for the flowers, the Queen took the flowers in exchange for a handsome sum of money. She then called her children towards her, and, presenting the wreath to the Princess, addressed them in words of advice and hope. This, in a few words, is the history of the favourite flower of the Prussian royal family. After the late dastardly attack on the Emperor's life, the Cornflower became the emblem of loyalty and devotion of the Prussian people. Ladies wore Cornflowers in their hats, gentlemen in their button-holes; medals bearing the Emperor's effigy on one side and a wreath of Cornflowers on the other, were worn in bracelets and necklets; note-paper was decorated with the

from the Arboricultural Society of Scotland for essays connected with the science of forestry; and the gold medal of the Highland Society for a "Report on Investment of Capital in Planting, Grazing, or Cropping Land on Hill or Moorland." It was in appreciation of all these, and of his geniality of disposition, that Mr. SMYTH'S friends, to the number of about fifty, resolved to give some tangible proof of their respect for him.

— IMPORTATION OF LIVING PLANTS INTO ITALY. — According to *Fanfulla*, it is reported in *Der Deutsche Garten* that the customs authorities at Genoa refused to permit the landing of six boxes sent by Dr. BECCARI to the Marchese CORSI-SAL-

would have passed them (as has already happened), thinking they were intended for the manufacture of walking-sticks, &c.

— FREE TRADE IN GERMANY. — In reply to a question from the Minister for Agriculture, the members of the Council of the Horticultural Union of Berlin have drawn up an exhaustive series of reasons against any enactment which is likely to endanger free trade in nursery and garden produce. It appears that large quantities of cut flowers, particularly Tea Roses, are sent from Nice and the neighbourhood to Berlin and other German cities, and are sold at such a cheap rate as to defy competition on the part of the German florists; accordingly, as we have already

mentioned, some of this body have been agitating for the imposition of an import duty on plants and cut flowers; and, in order to carry their point, they set forth the dangers of the Phylloxera being introduced, as it now has spread to the neighbourhood and almost into Nice itself. The reasons adduced by the Council why no such protection should be given—for such it would really amount to—should convince even the petitioners themselves that such a measure would probably lead to restrictions on the part of other States which would seriously affect German horticultural interests. Amongst other things, it is mentioned that the *Puccinia malvacearum* is very much on the increase in Germany; and if for that reason the States lying north and east of Germany should prohibit the importation of German horticultural produce, the injury to the industry would be far heavier than that caused by the free importation from other countries. The Italians would gladly be freed from the decree of May 30, 1875.

— THE CHAMPION POTATO: PRESENTATION TO THE RAISER.—A large meeting of agriculturists was held at Arbroath on the 11th inst., for the purpose of presenting Mr. JOHN NICOLL, Cemetery Lodge, Arbroath, with a testimonial in recognition of his service to agriculture as the raiser of the Champion Potato. It is stated that the seed of these Potatoes was sown by Mr. NICOLL in the spring of 1863. It was gathered from three sorts planted in his garden at Letham, Forfarshire, the previous year, with a special view of hybridising, for the purpose of procuring new sorts. The produce of the seedlings, even the first year, was remarkably fine, and, starting with a collection of upwards of 100 sorts, Mr. NICOLL continued to grow and test them for the three succeeding years, throwing aside the inferior sorts and retaining the most promising. At Martinmas, 1866, he removed to his present situation as superintendent of the Arbroath Cemetery, when he gave to Mr. JAMES ROBERTSON, Newmill, Forfar, a selection of his best sorts, and he continued to grow and test them, the outcome being the Champion. The presentation, which was subscribed for by the farmers of the district principally, consisted of a gold watch, suitably inscribed, and a purse of sovereigns.

— THE PARIS EXHIBITION.—The French Government has conferred the Legion of Honour on Mr. MARTIN J. SUTTON, managing partner of the firm of SUTTON & SONS, Reading, as a special recognition of the merits of the exhibits of that firm at the Paris Exhibition.

— THE ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—Mr. J. J. MECHI informs us that his old acquaintance, the late Mr. EDWARD BOARDS, of Edmonton, an extensive farmer and market gardener, has bequeathed to the Royal Agricultural Benevolent Institution the munificent sum of £12,000, payable after the demise of his widow.

— NEW MINIATURE CONIFERS.—Two new miniature Conifers were recently exhibited at a meeting of the Berlin Horticultural Society. One was raised, it was stated, from seed of *Abies* (*Picea*) *laxa*, Ehrhart (*A. alba*, Michaux). It was between four and five years old, about 20 inches high, and of a beautiful compact form, something like the *Clanbrassillie* variety of the common Spruce Fir. Dr. BOLLE proposed the name of *Picea alba*, var. *Wörlitziana*. The other was a diminutive form of *Abies Mariana*, Miller (*A. nigra*, Desfontaine), ten years old, and only about a foot high. It was called *Picea Mariana*, var. *Jühlkeana*.

— THE NEW BOILERS AT KEW.—We understand that the new boilers fitted up at Kew, in the large Palm-stove, and of which we gave illustrations at p. 625, vol. viii., 1877, have proved quite efficient in the recent severe weather, but it is found that they require special care in the matter of stoking.

— NAMES.—When civilisation was less advanced than it now is one language served as a medium of communication between the educated of all nations, and French, German, Swedish, and other names were Latinised in a fashion that might not find favour with a grammar-school master, but which nevertheless had the great merit of intelligibility. Now-a-days, when the schoolmaster is supposed to be abroad, we find our French friends making as sad a hash of English names

as ever, and we fear we English do not treat our French *confères* much better, still we do not think that a well known French firm would be so mangled here as Messrs. MITCHELL, of Piltown, are in the *Journal des Roses*, where they appear as MM. MITCHELL et PILDORON. That the name M. WYLD-SAVAGE should be taken *au grand sérieux* is less to be wondered at.

— INSTITUTION OF SURVEYORS.—The next meeting will be held on Monday evening, January 20, when the discussion on Mr. HEDLEY's two papers will be resumed. The chair to be taken at 8 o'clock.

— PINE-APPLE LADY BEATRICE LAMBTON.—The *Florist and Pomologist* for the present month opens with a fine life-sized representation of this Pine. "It is one of the noblest and handsomest varieties of the king of fruits," and the representation does it justice. It is said to be a seedling from the Montserrat raised at Lambton by Mr. STEVENS when at Lambton, and adopted by Mr. HUNTER. The quality is also of a high order. It is in the hands of Messrs. IRELAND & THOMSON, of Edinburgh.

— THE CURATORSHIP OF THE ROYAL GARDENS, EDINBURGH.—We learn that the Lords Commissioners of Her Majesty's Treasury have, "after carefully considering the claims of the different candidates" for the post in question, selected Mr. SADLER as the successor to Mr. MACNAB. In another column we give a portrait of Mr. SADLER, together with a brief account of his career.

— MARKET GARDENING DURING FROST.—The market fruit growers have been making good use of the frosty weather, by getting their pruning done during the time the ground was hard and impenetrable. All standard and fruit trees, and Gooseberries and Currants have been gone over, perhaps, despite the cold, with greater comfort to the men than when the temperature was higher, but the ground damp and cold. It has been a good time for getting out manure and spreading it about where it has to be dug in, also for charring rubbish of all kinds, turning over manure heaps, &c. It is curious to notice how the spell of severe frost enhanced the value of the green crops, as during its continuance the hands employed in the gardens could be seen hunting for every bit of green that could be sent to market, and good prices were realised for goods that, had the weather remained mild and open, would in all probability have gone to the rubbish heap.

— APPROPRIATION OF LITERARY PROPERTY.—We have not the slightest objection to see our leading articles, notes on the new plants of the year, paragraphs relating to scientific matters, and the like appearing in the columns of some of our horticultural contemporaries, more or less modified in the transfer, but we do object to the omission of any statement as to the source whence the information given has been derived.

— SCOTTISH SEED AND NURSERY TRADE ASSOCIATION.—The annual meeting of this Association was held on the 14th inst. in the Waterloo Hotel. Mr. MUIR CRAWFORD, Leith, occupied the chair. The Secretary, Mr. DAVID HUNTER, submitted the report of the committee for the past year, which stated that the membership of the Association consisted of forty-three firms, and that the balance due to it, as shown by the accounts, was £56 14s. 3d. During the year only one case of a disputed sale of seed had been reported to the committee, and it was settled before it was necessary for them to advise in regard to it. No case of alleged adulteration of seed had been reported to the committee, nor had any case of alleged liability on the part of seedsmen as to the growth of seeds been brought under the notice of the committee, excepting one which would be referred to at the meeting. Agreeably to the instructions of last general meeting, £20 had been subscribed to the Association in London for the prosecution of offences under the Seeds Adulteration Act. The Chairman moved the adoption of the report, which was seconded by Mr. PALMER, of Annan, and agreed to. As recommended by the committee, the following were elected office-bearers of the Association for the ensuing year:—Chairman, Mr. DAVID SYME; Vice-Chairman, Mr. JOHN DOWNIE; committee, Messrs. CRAWFORD, INCH, MACKINTOSH, DODDS (Haddington), PALMER (Annan), SADLER (Glasgow), ANDERSON (Perth), WELSH,

CROSS (Leith), LAIRD, and JOHNSTON. Mr. SYME, in thanking the Association for the honour which had been conferred on him, submitted that the Association deserved well of the farming interest in Scotland. The formation of the Association was primarily due to the prevalence to a considerable extent of the adulteration of seeds of all kinds. He was one of those, however, who thought that the evil was considerably exaggerated at the time the Association was started. He did not think the seed trade was worse, or indeed nearly so bad as some other trades. The primary object of the Association had been, so far as Scotland was concerned, to a very large extent gained, as the report of the committee testified. During the last three years there had hardly been any case of adulteration brought before the Association, which had proved a sort of moral police force, that guarded the country against being inundated with seeds of a questionable description. Mr. RENWICK explained that the case of alleged liability on the part of seedsmen mentioned in the report arose in connection with a purchase of foreign Larch seed which he had made, and 5 per cent. of which had not grown. He resisted payment till advised to do so no longer, and thought the Association ought to consider the action which might be followed in cases of this kind. Mr. RENWICK added that usually his Larch was too thick in the bed.—Mr. PALMER remarked that it rarely happened foreign Larch seed was disappointing.—In answer to a question, Mr. RENWICK stated that at the time of sowing he had noticed the seed was a little brownish—an explanation which led several gentlemen to remark that the discoloration ought to have been sufficient to make him dubious as to the seed. The proceedings closed with a vote of thanks to the Chairman. In the evening the members of the Association dined together in the hotel—Mr. SYME officiating as chairman, and Mr. DOWNIE acting as croupier.

— LADY HUME'S BLUSH CAMELLIA.—At Mr. FRASER'S nursery at Lea Bridge there is now in bloom on a wall in an old greenhouse a fine plant of this. About 1000 flowers have been open at a time lately. It is a pity this fine old sort, with its curious star-like blooms, is not more often met with.

— CALIFORNIA RAISINS.—The *American Agriculturist* states that the crop of 1878 is the largest ever produced in the State, the estimates of the California papers ranging from 70,000 to 100,000 boxes.

— NATIONAL ROSE SOCIETY.—A meeting of the general committee of this Society will be held at the Horticultural Club-room, 37, Arundel Street, Strand, on Wednesday, Jan. 22, at 3 o'clock, for the purpose of electing an executive committee, the revision of schedules for 1879, and the consideration of the best means of increasing the number of members.

— ROYAL HORTICULTURAL SOCIETY.—The annual general meeting of the Society will be held on Tuesday, February 11. The retiring members of the Council are Mr. W. Haughton, Mr. C. J. Freake, and Mr. Philip W. S. Miles; and the Fellows recommended by the Council to fill their places are Mr. A. Grote, F.L.S., Lieut.-Col. W. T. Makins, M.P., and Mr. R. A. Aspinall. The gentlemen recommended by the Council to be appointed to the offices of President, Treasurer, Secretary, committee-men of the expenses committee, and auditors of the Society are—President, Rt. Hon. Lord Aberdare; treasurer, Mr. Henry Webb; secretary, Dr. Robert Hogg; expenses committee-men, Lord Alf. S. Churchill, Mr. Henry Webb, and Mr. William Haughton; auditors, Mr. R. A. Aspinall, Mr. John Lee, and Mr. James F. West. Two of the gentlemen proposed as new members of Council are, we believe, unknown as horticulturists, so that we may hope that some satisfactory reasons may be given for the selection. The report of the Society is anxiously looked for, as it is well known that the lease of the South Kensington Garden has lapsed. In view of the critical position of the Society the Council would do well to be a little less reticent as to the course they intend to pursue. Doubtless at the annual meeting they will be prepared with a statement, but as at the annual meeting it is generally too late to make any useful suggestion, we hope that the Council will see the propriety of announcing beforehand the general outlines, at least, of their policy. It behoves the horticulturists to be

on the watch; and while prepared to render all support where needed, to be careful that no encroachment on their rights, or neglect of their interests be permitted.

— THE INDIAN FIG.—*Opania vulgaris*, although really a native of the New World, has long been thoroughly acclimatised in the Old, where it often covers large tracts of barren or half-barren land. From South Africa we learn that it is very extensively used on the ostrich farms, and an eminent engineering firm in this country has been desired to construct a machine which will expeditiously cut up its fleshy spinous branches into pieces small enough for ostriches to swallow. This species, the fruit of which is eaten under the name of Indian Fig, was cultivated by GERARD prior to 1596. In the list of GERARD's plants, probably the first confessedly complete catalogue of any one garden, either public or private, ever published (reprinted by Mr. B. D. JACKSON in 1876), it is said:—"I have bestowed great pains and cost in keeping it from the injurious cold climate. It groweth . . . at Zante . . ., from whence he (*i.e.*, WILLIAM MARSHALL, GERARD's servant) brought me divers plants thereof in tubs of earth, very fresh and green, for my garden, where they flourish as the impression hereof."

— INDIAN FOREST APPOINTMENTS. — The following is a list of the candidates recently selected by the Secretary of State for India to undergo a special course of training for appointments in the Indian Forest Department:—Mr. J. H. LACE, Mr. F. BARKER, Mr. M. H. CLIFFORD, Mr. J. RAWBONE, Mr. C. E. BRASIER, and Mr. E. S. CARR.

— THE WEATHER.—According to the report issued by the Meteorological Office for the week ending January 13 the weather was changeable, but finer in the north and east than in the west and south. Temperature several degrees below the mean, especially over England, and again exhibiting very great extremes. Thermometer falling gradually during the early part of the week, and reaching its minimum value in most places on the 11th or 12th, when 9° was registered at Shrewsbury, and about 10° to 19° in other districts of England. Maximum (day) temperatures recorded at this time exceedingly low in some parts of England, reaching only 23° at Shrewsbury, and 25° to 27° at many other stations. At the end of the week the thermometer rose rapidly, and on the 13th readings ranging from 48° to 54° were experienced over Ireland and the greater part of England. Rainfall more than the mean in "Ireland, S.," and about the mean in "England, N.E.," but a few tenths less in all other districts. At the northern and north-eastern stations the fall was composed largely of snow, sleet, or soft hail. The excessive amount in the district "Scotland, W.," is due mainly to a very heavy fall, which occurred on the 12th at only one of the stations (Douglas, Isle of Man). Wind E. to S.E. until the 12th, when S. breezes set in, veering to S.W. or W. on the 13th. S.E. gales very general during part of the week, especially heavy in the E. of Ireland and S.W. of England. Wind lulled on the 11th, but rose to fresh or strong gales from the S. in some places on 12th or morning of 13th.

— Mr. SWAN, writing from Fallowfield, near Manchester, on the 14th inst., says:—"We have just passed through a very trying time as regards weather. It seems to me, from the accounts I have read, that in this part the cold has been as severe, or even more so, than in most places in England: 2° below zero was registered at several places on the night of the 23d and 24th of last month. Fortunately, we are now able to look back upon it; for on Sunday night a sudden change took place, bringing rain, and since then it has been much milder."

— GARDENING APPOINTMENTS.—Mr. J. W. CLIFFE, late foreman to Mr. TAYLOR, of Longleat, and for some years foreman to Mr. PHIPPS, at Ingestre, has been appointed gardener to the Earl of BELMORE, Castle Coole, Co. Fermanagh, Ireland.—Mr. GEORGE HALL, late foreman in the gardens at Raby Castle, Darlington, has received the appointment of head gardener to Lord DE TABLEY, of Tabley House, Knutsford, Cheshire.

— FLOWER SHOW FIXTURES.—The second spring show of the Ealing, Acton, and Hanwell Horticultural Society is fixed to be held on Wednesday, March 26, in the Drill Hall, Ealing Dean; and the summer exhibition in the grounds of E. M. NELSON, Esq., on July 9.

Home Correspondence.

Frost and the Roads.—The remarks in last week's *Gardeners' Chronicle* respecting the sanding of these to render them safer, and assist the poor distressed horses with their loads, are well timed, but what is of equal or more importance and requiring attention is the condition of the highways in country districts, where the stones or metal used in repairs is put on in such a way and at such a time that one would think those who had the ordering of the work either do not understand it at all or did it to cause the largest possible amount of suffering to man and beast. If instead of putting the stones on in the spring of the year when the roads are dry and daily hardening, they were carted in frosty weather or during the summer and laid near where they are likely to be wanted, and then put on after a thaw when the surface is rotten and broken up, how much better it would be for all concerned; instead of which loose boulders are rolling and kicking about till a waggon-wheel or other heavy vehicle passes over them and grinds them to dust. Now, if these could only be pressed in, as would be the case when the roads are in a soft wet condition, they would become firmly embedded, and then no weight, however great, would crush them. Among the heaps of stones stored fine chalk should be scattered, which when put on with them is a great help in keeping them in their places and binding them there ever after. With a gravelly bed they are always liable to shift or be kicked out, but with chalk the more traffic there is, and the more pounding it gets, the harder it becomes. As to stones, there is much difference in their hardness and durability under wear, as those raised from pits in some localities where the soil is sandy and loose soon go to powder, whereas those picked from the surface of the ground in fields will generally stand any amount of wear. Where they can be obtained there is nothing like the sharp angular pieces that are broken off in quarries when dressing blocks for building purposes, as they get a firm grip and are not easily displaced. *J. S.*

Weather Marks on Vegetation.—In the few remarks forwarded last week it is possible that rather too favourable a view was taken of the little injury inflicted by the frost. They seemed quite true at the time; but it almost seems as if the second edition since the half-hearted thaw had done the most mischief. Some of the Tea Roses, for example, such as *Saffrano* and *Homer*, that had suffered little up to then, look almost dead now. And, to go with one bound to the opposite extreme, old Cabbage-stumps that seemed green as Leeks ten days ago are now yellow and mostly dead, giving out the most offensive odour—a serious loss, for nothing is so productive of greens in the early springtide. Broccoli, too, seem much harder hit during the latter week of the frost than before. The shrubs and trees, on the whole, have stood firm against it all here; even the *Laurustinus*, a real test plant, is not yet killed. I notice a curious effect of the more recent frost on *Pinus Sabina* and *P. excelsa*: the leaves have a burnt, distressed, semi-parched look, as if fire had passed over them; while *Pinus macrocarpa* and *P. insignis*—both decidedly more tender than either of the others—show no such signs of injury, though standing within a few yards. These caprices of the frost, if they may be termed such, are very striking. None of our Hollies or evergreen Oaks are touched, while all the Laurels are as green as ever up to the very tops; a very different state indeed to that presented by them in 1860. The fruit trees also seem uninjured, though everything seems to have suffered more within the last ten days. The thaw has once more been a dull one; to-day and yesterday it has been rapid, with a dense fog, and the snow is disappearing, and green grass again showing through, to the great delight of the birds and all animals, large and small. It is to be hoped we have seen the last of the frost for a time. It has added much to the work and anxieties of cultivators, has crippled and destroyed many choice plants in many places, and greatly aggravated the almost universal distress among the working and other classes. Coals are also rapidly rising in price, just as the ability to purchase them has been so seriously curtailed among those that need them most in cold weather. A spell of warm weather will therefore prove specially welcome now, not only to horticulturists, but to the nation at large. *D. T. Fish.*

The Weather and its Effects.—As bearing out what I wrote you a fortnight back, that although the frost had then been severe and continuous, vegetation had escaped serious injury through the stillness of the air at the time, and the thaw which followed being attended with rain and an absence of sun, I regret now to have to record, that since winter has again set in the cold east winds have done more harm than all the severe weather we had before, and I much fear this will be the general outcome of it. Plants, like ourselves, shiver before these searching blasts and give way before them, as they search every pore and empty

the sap vessels of their life-giving fluid, even though they may, as you assert, have a supply stored up for the winter. That the vessels are full, I readily admit, but my theory is that there is a daily loss, more or less, that has to be made good by the roots, but ice-bound as these now are they cannot meet the call made on them; hence the destruction cold causes. It is the same in feeble old age; when the circulation and vitality is at a low ebb, cold kills its thousands, as the records given, and what we see around us show but too conclusively. If the roots pump up only water [and a little mineral matter], how comes it that Vines suffer so much from bleeding, as there is plenty of moisture always left in the borders that they can take up to replenish the loss? [The crude sap contains sugar and other substances dissolved out in its course through the stem, which are lost by bleeding, and the plant is correspondingly impoverished.] That leaves help to elaborate water into sap I am well aware, but does not this process go on to a certain degree without them? After your editorial note it requires some amount of boldness to approach this subject again, but I am anxious to learn more. The little I know, or think I know, has been acquired by observation, but it is very likely I am wrong in my deductions, and if so I shall be glad to be set right. The subject of the flow of the sap and the life of plants is a very interesting and instructive one to gardeners, as bearing directly on their calling, and anything you may have to say will therefore have special value, and carry with it the great weight of your authority. *J. Sheppard.*

The Frost at Belvoir Castle.—A frost of unusual severity and duration has just terminated. Commencing with December it lasted twenty-seven days in that month and twelve days in January, making a period altogether of thirty-nine days of frost. The only interruption to its continuity occurred between Dec. 29 and Jan. 1, when a warm and rather strong westerly gale caused a rapid thaw; on its subsidence the frost recommenced with great severity, lasting until the 13th. I may mention that the thermometer stand from which the following readings of the minimum thermometer were taken has a full exposure, and the instruments are about 3 feet 6 inches from the ground. The greatest cold was on the morning of December 25, when 8°, or 24° of frost was registered. The minimum on grass registered 5°, or 27°, the same morning. The next lowest readings were 13° on the 20th, 16° on the 17th, and in January 15° was recorded on the 16th, 16° on the 11th. The aggregate of readings below 32° of Fahrenheit during the whole period amounted to 373°. Snow fell on Dec. 11 and 19, and in January on the 3d and 10th, but only to the extent of 2½ inches. As far as I have been able to carry on examinations amongst shrubs since the frost I am inclined to think that the injury sustained by many of doubtful hardihood has not been so great as might have been expected. Camellias fully exposed and quite unprotected are uninjured, and a small-leaved Myrtle has only partially suffered. *Azara microphylla* has not sustained the least injury; the Japanese *Euonymus* has not suffered; *Skimmia fragrans* and *laureola*, *Chamærops Fortunei*, *Bambusa Metake*, *Raphiolepis ovata*, and the climbing plants *Stauntonia latifolia* and *Akebia quinata* are all apparently uninjured. *Eucalyptus globulus* is killed to the ground; *Phormium tenax* is injured, and I fear the *Eryngiums* are killed. *Wm. Ingram.*

Best Season for Planting and the Effects of the late Frost.—We have had convincing proof during the late severe frost of the soundness of the advice given by "J. S." (p. 21) to defer the planting of evergreen shrubs until late spring. Several dozen specimen Conifers, ranging from 12 to 24 feet high, were planted here in the latter end of October, under conditions that gave hope of success, but they now show unmistakable signs of distress from exposure to the late merciless weather, and we fear a few of them will hardly survive the withering effects of the east and north-east winds to which they have been exposed. Many of our established Conifers are shedding large quantities of foliage from the same cause—even the large Cedars of Lebanon here are much affected in this way by the frost; but the worst cases of foliage dropping are from trees that have only been three or four years planted. On a piece of new low-lying pleasure-ground the following shrubs and Conifers have suffered severely:—*Laurustinus* (in many cases killed), *Escallonia* (killed), *Aucubas*, variegated *Periwinkles*, variegated *Hollies* (especially *Golden Queen* and *marginata*), *Veronica Andersoni* (fine bushes of this shrub that had stood out here without any protection during the past three winters are now dead), *Cotoneaster microphylla*, *St. John's Wort*, *Pampas-grass*, *Tea Roses*, *Picea Pinsapo*, and *Cupressus macrocarpa*. Spring bedding plants also have not escaped destruction by the frost. *Myosotis*, *Silenes*, *Saponarias*, *Nemophilas*, and *Daisies* are in many cases a mass of rotteness. Spring bedding will be gappy, unless a reserve of protected plants is at hand to make good defects. Amidst the general

have it is encouraging to note that *Lapageria alba* has stood without any protection, and is but slightly damaged. *J. Roberts, Gunnersbury Park Gardens, Acton.*

Chimonanthus fragrans.—It is a singular fact that although nearly every flower and shrub in the garden has suffered more or less from the late frost, the *Chimonanthus*, a very fine tree of which grows against the front wall of the house, has escaped. It is full of buds, and a great many of the flowers that came out before the severe weather began are still on, uninjured. As I have always heard that this Japan shrub was a delicate plant, I think the above note may interest your readers. *Mrs. Alfred Watney, Fins, Hants.*

Destructive Birds and Fruit Buds.—If your correspondent (see p. 55) will mix some good stiff clay to the consistency of paint, and run it through a half-inch sieve, then mix it with his other ingredients, and so apply it, he will find the dressing adhere to the tree for months. I similarly dress our standard Roses in the autumn, and it prevents attacks of the rabbits and hares the whole winter. Dressing fruit trees is right enough for several reasons. It may partly protect the buds from the birds, but the question arises where are they? During previous mild winters the tom-tits came here in droves, and commenced their depredations by first attacking the Cherries. Gooseberries, Pears, and Plums followed in succession. In some instances they destroyed whole quarters, and the ground beneath the Cherry trees was literally strewn with the refuse of the buds. These little mischievous imps are assisted in this work of destruction by our implacable foe—the gay-looking bullfinch. Now during the recent severe weather I have frequently examined the snow-covered ground for traces of fallen buds, but without success, and as to the Gooseberries, I am happy to say they are undisturbed. The tits, moreover, are nowhere to be seen. Has the continual terribly severe frost benumbed and destroyed them, or have they retired to dense woods, or migrated to more congenial quarters for “the season”? Perhaps some friend of the feathered tribe will tell us. *J. J. B.* [We have some in our garden, and do not grudge them a few buds. *Ed.*]

Which is the Best Celery?—As this is a vegetable of great importance in most gardens, I think it would not be out of place at the present time to have the opinions of some of your correspondents as to the best varieties to grow. The amount of expense in labour, manure, and rent of ground, which its cultivation entails, makes it imperative that only the very best sorts should be grown. My own experience leads me to select three varieties as superior to any others. For early work I find Williams' Matchless White to be very quick in growth, of a good size, and of excellent flavour, and not so liable as most large growing white Celeries to grow pithy or hollow. Where white Celery must be had in winter, I find Veitch's Incomparable to stand better than any other that I have grown. It is small but very compact, crisp and of very fine flavour. I now come to the last, and for main crop the best—Williams' Matchless Red; this is at once the hardiest, most compact, and best flavoured Celery I am acquainted with. It takes a long time to blanch, but will eat as crisp and juicy in April as at Christmas. *John Wilkes, Park House Gardens, Cheadle.*

Croton glandulosus.—Towards the end of September last I made an expedition across the spurs of the Organ Mountains, some 20 or 25 miles north of the extremity of the magnificent harbour of Rio. We left Petropolis by the coach for Juiz da Fora at 5 A.M., and, descending at the end of the first stage, had to wait an hour for our horses and mules. Whilst loitering about I gathered a sprig of a plant unknown to me, but which you are good enough to tell me is *Croton glandulosus*. A few feet above me, on a bank on the roadside, was another flower which I wanted to get, and, needing both hands, I put the broken end of the sprig into my mouth, hauled myself up to where the other flower was growing, got it, and jumped down again. I was conscious of a very nasty taste from the sprig in my mouth, but the sprig was not there half a minute, and I spat out the saliva and thought no more about it, and soon afterwards mounted my mule and set out on the ten or eleven hours' ride to Theresopolis. I had not ridden far, however, before I began to feel sick, and my head began to ache. I held on, however, getting continually worse, until after the lapse of about an hour and a-half from the time of my putting the sprig into my mouth, I had a most violent attack of sickness. There could be no mistake as to its cause, for the nasty taste I had observed before was very obvious. There were small streams on our way, and I drank freely of water, hoping to dilute the poison. It was to little purpose; even the water would not remain upon the stomach, and came up flavoured with the same taste. Shortly afterwards I was seized with a

violent and prolonged attack of purging. This was followed by several more vomiting fits, and I was brought so low by exhaustion that it was with the greatest difficulty that I kept my seat on the mule. The day was very hot, but we reached, after five or six hours' riding, a spot where there was both shade and water, and here I lay down only half conscious for a couple of hours. I had by this time apparently got rid of the poison, for I began to get better, and was able to ride on. Except that I was much exhausted by the time we reached Theresopolis, having been unable to touch food all the day, I was none the worse for what I had undergone, but it surely must have been a poison of extraordinary virulence that could produce such severe effects by the administration of a quantity so infinitesimal as that which I had swallowed. I shall never put an unknown plant into my mouth again, in foreign countries at all events. *A. W.* [The plant is allied to that which yields croton oil, and many of its relatives have a bad reputation. *Eds.*]

Cattleya Trianae.—There is at present in bloom at the gardens, Burton Hall, Bedale, Yorkshire, a plant of *Cattleya Trianae* which would well repay Orchid lovers the trouble of going a long distance to see. It is the most superbly bloomed plant it has ever been my good fortune to see. It is growing on a platform about 2 feet square, formed of Elder branches with the bark left on, in a compost of sphagnum, peat, and crocks. The plant is fully 5 feet through every way, and the blooms average individually 6 inches across. There are fifty-two blooms on the plant, which are disposed regularly over its surface, without a speck or mark upon them, as pure and fresh in colour as they were the first day they expanded, a fortnight ago. The effect of this noble plant when seen at a distance is magnificent, completely eclipsing all other subjects in the house it is in. It reflects great credit on the gardener, Mr. Clark, who takes great pride in his Orchids, which may be readily seen from the vigorous health they are all in. Mr. Clark says he has dozens of plants of *Cattleya Trianae*, but that there is no comparison between them and the plant under notice, which is of a much superior strain. *R. May, The Nurseries, Leyburn, Bedale, Yorkshire.*

“Improved” Potatos.—When this appellation is applied to any kinds of Potatos, I am disposed to regard it as an indication that they will soon be improved off the face of the earth. Depend upon it, as soon as growers find that it is necessary to bolster up the reputation of kinds by the use of superlatives, they will regard them as valueless. It is indeed a matter for grave regret that our seed firms should descend to tricks and travesties that appear to have been borrowed from the draper's shop-window. They are not actually falsehoods, but are akin, as they are misleading. The poor Potato has specially been made the subject of trade tricks of this sort, and more to this than to any other cause do we owe the lack of confidence in good new kinds that now exists. There is no greater fallacy in garden ethics than the talk about selection in Potatos. No sort worthy the place in a list has ever been obtained by selection. To say that sorts are improved or new because selected is an outrage upon common sense. A stock may be kept pure, but so-called selections are either rogues that deceive the selector, or are nothing but the old sort, and that alone. New, distinct, and improved kinds of Potatos can be got from seed only, and then only after much careful or accidental hybridisation. *A. D.*

—“W. D.” hit the right nail on the head in his letter concerning the so-called “Improved Schoolmaster Potato,” and I for one shall look forward with interest to Messrs. E. Webb & Son's account of the improvement. It has become too much the fashion of late years to advertise improved varieties of new flowers and vegetables in a short time after they are sent out. From experience, I know that improvements are not made and confirmed with such marvellous celerity; and I was as much puzzled as “W. D.” till by mistake I put on my grandfather's horn spectacles, and then the words “improved variety” were suddenly transformed into “selected sample.” *Edwin Bennett, Raiser of Schoolmaster Potato, The School-house, Enville, Stourbridge.*

Turner's Union Potato.—If I were asked what variety I could recommend as an early round Potato I should give the preference to Turner's Union; it is almost as early as the Ashleaf, a splendid cropper, handsome in shape and of good quality, and being of extraordinarily dwarf growth is invaluable for frame culture. I have also grown a variety called Ronald's Frame, but have always failed to distinguish any difference in the two. Can any of your readers tell me if they are synonymous? Perhaps Mr. Turner will give us the origin of Turner's Union, and if he still supplies it, as it is seldom seen in any trade lists. Ronald's Frame I have not seen in any trade list for some time past. I think it a pity such a Potato should be compelled to

give way to newer varieties of less merit. *E. Morgan, Harrow-on-the-Hill.*

Paper Protectors.—We are having here severe weather, strong N.E. winds, snow and frost—a bitter combination. I find newspapers laid on the early Potatos in the houses and pits an admirable defence, and so far all is well. These papers are always at hand; cheap and easily applied. Near the front ventilators we prefer double layers, and they should not be removed too readily under the influence of a few hours' sunshine, as many are apt to be. No injury from their weight is sustained by delicate objects, and it is also evident that they can efficiently protect plants of many descriptions, as well as seed Potatos and fruit in store-rooms. During the two last very mild winters we had no need to use them, but the present is an exceptional season, and we were glad to have recourse to what had been formerly so successful. *T. C. Bréhaute, Richmond House, Guernsey.*

Morello Cherries and Wired Walls.—Will any one say what they can concerning Morello Cherries trained on wire on walls facing north and east? I am contemplating wiring these, in order to save labour in nailing. Perhaps Mr. Sheppard may have a little to say in the matter. *Chevalier.*

Mealy Bug on Vines.—In reply to the inquiry of “Vitis” at p. 54, allow me to say, that having tried several remedies, and failed to eradicate the pest from badly infested vineries, I then tried the following plan, which proved effectual. First, I pruned the Vines, and took off all the loose bark, then thoroughly washed the woodwork and glass, and removed about 4 inches of the surface soil, which was replaced with fresh compost. I next gave the walls a good coating of quicklime, and the wood and iron work two coats of paint. This done, I prepared the following mixture:—To 1 gallon of boiling water I added 1 pint of gas-tar, and thoroughly mixed them, adding powdered clay to thicken it to a paste, and this I applied with a paint brush while warm all over the Vines. It is three years since I tried this plan, and I am happy to say that I have not seen the least trace of mealy-bug or red-spider since. I also at the same time applied the mixture to some Ixoras, Francisceas, Gardenias, Wistarias, &c., after having pruned them, and with the same good result, not having found a single mealy-bug on them since. *F. B., Ferndene.*

Winter Dressing of Peaches and Vines.—Is the winter dressing of Peaches and Vines with a mixture made to the consistency of paint beneficial or otherwise? I am interested in the above question, put by your correspondent, Mr. Hughes, in your last issue. Experience leads me to answer in the negative, believing that painting or dressing with a mixture of any of the ingredients generally used is not only useless (so far as being of any benefit to the trees), but wrong in practice. I am certainly an advocate for washing the branches, believing it to be very beneficial in cleansing them of any insects or dirt which may have accumulated; and as cleanliness is the point aimed at, instead of painting, I would recommend a second washing, after which I believe as a rule the buds will swell more freely and regularly than is the case after painting, when for some time they will be seen struggling to free themselves of the mixture with which they have been dressed. *W. H.*

Unfruitful Damsons.—Some of your readers may be able to help me in this. I have several twenty-year old fine trees of Damson, what variety I know not, but I rather think it is the English, or common variety, from a very few fruit I once saw on one of the trees. As a rule they have never borne fruit, and I am always disappointed every year at their fruitless condition. The Plum, as a rule, fruits well here on walls; and the Victoria Plum as standards fruit freely, and in some years almost to a breakdown. And this is what I wish to ask,—Will some one, if there be one, that has a standard Victoria Plum fruiting freely planted alongside or within a hundred yards of any variety of Damson, be good enough to say what variety of Damson it is, and if it fruits freely, as does the Victoria Plum? I have made up my mind to head these Damson trees, and graft the stocks with either a free-fruited Damson or with the (here) free-fruited Victoria Plum, for this Plum is a most useful one; and though we could do without more of it, I am inclined to have more than to have no Damsons year after year. We have what is called the Dalrymple, but I do not consider it a Damson—at least it has not the Damson flavour, which is everything. *Chevalier.*

Paulownia imperialis.—I believe the *Paulownia imperialis* would be a very free-flowering tree, but it is so susceptible to the least frost in spring. I have known large trees in low-lying places near running water, and in high places 400 feet higher, within

1½ mile of each other, flower variously every spring and in various profusion, in France, west of Versailles. I know it also to have flowered well at the Bois de Boulogne and at the Boulevard des Italiens in Paris, where an avenue was planted of fine handsome trees. It has also flowered freely but variously at a garden at Versailles with which I am acquainted, and at many other places about the Cheureuse and Rambouillet districts, and it is a fact that in all these places it cannot be depended on to flower freely every spring, owing, as I have said, to its peculiar susceptibility to frost; and when we know that even in France Oaks and Walnuts are frequently blackened in spring, need it be wondered that such tender flowers as the Paulownia, Catalpa, and Ailantus get occasionally destroyed—the former particularly, as it opens its flowers much earlier than the two latter trees. *Chevalier.*

A New Vinery.—May I be allowed to say a few words with regard to a vinery which was erected for W. Farre Ecroyd, Esq., by Messrs. W. Richardson & Co., Darlington, and which seems well adapted for growing late Grapes? Enclosed is a plan of the house (fig. 11), the length being 30 feet and width 17 feet 8 inches. The house was completed and the border made by April 8, on which day the Vines were planted. The loam for the borders was not so good as I should have wished, it being previously dug from a meadow 6 or 8 inches thick (instead of being pared thin), and was of a close texture. However, as I had no alterna-

and the roof (which is wired horizontally 18 inches from the glass) is covered with a forest of shoots and well ripened canes. The stems of each Vine measure from 2½ to 3 inches in circumference. I intend to cut them all down, with a view of growing two good strong canes to each, to fruit the following summer. *C. Higgins, Bond Street, Nelson, Burnley.*

The Primulas at Headfort House.—When writing on the size of the blooms of *Primula sinensis* I certainly did not expect to have so many enquiries, and in answer to all who have written to me I beg to say that I have saved my own seed for the last fourteen years. I choose the largest, the brightest, the best fimbriated, and the finest blooming plants, and that I save seed only for my own use, and not for sale. I have had so many applicants for blooms and seed, that I find it impossible to answer all of them, and would say that plants can possibly be obtained from Messrs. Moses & Son, Greenwich, Kent, as I gave them a lot of seed last year. Some of my flowers are half-an-inch larger than a five-shilling piece. *John Clews, The Gardens, Headfort, Kells, Co. Meath.*

The Diseases in Verbenas.—Having grown Verbenas for many years without the least difficulty until the last two or three years, I am at loss to account for their not doing so well as in years gone by, although they get as good treatment, if indeed not better. I have sent you a specimen of Purple King—



FIG. 11.—SECTION OF A VINERY AND BORDER.

A, Drain-pipes; B, Concrete; C, 6-inch outlet drain; D, Drainage, broken stones, &c.; E, Air-pipes.

tive, I mixed the following along with it: fourteen cartloads of rough river sand, eight of lime rubbish, four of well rotted stable manure, two tons of charcoal (in pieces about an inch square), and one ton of half-inch bones. The natural ground here being very cold and wet, I judged it advisable to have the border well above the surface. The whole of the bottom was concreted 8 inches thick, having a fall of 1 foot from back to the front wall (the width of the border). A 6-inch drain runs along the front at the bottom of the border, and four 4-inch drains across the border, in connection with which are four air-pipes outside, four within along the front of the house, and four along the back wall. On the concrete and pipes is laid 1 foot of broken stones and a sprinkling of the rough charcoal, then a layer of green turf, grass side downwards, and the compost filled in. There are eight Vines, and the sorts are Madresfield Court, Lady Downe's, Muscat of Alexandria, Mrs. Pince's Black Muscat, and Gros Colmar. When we planted the canes we shook them well out, and very carefully spread the roots, filling in with a little fine rich soil, and watered them well with tepid water. The canes were bent down to break, and allowed to make 6 inches of growth before any fire-heat was applied, until I was fully satisfied they were making good roots. The house is heated with four rows of 4-inch hot-water pipes, and having fixed evaporating troughs we were able to give plenty of heat and moisture, and at the same time a free circulation of air. I allowed five of the strongest shoots to run over to the back wall before stopping them; when they had made good progress up the roof I allowed all the laterals to run,

Crimson King and other sorts are about the same. I have had many of them in the spring of the last two or three years in the condition of those I have sent. It is a long time before they make any growth at all, and towards autumn when I want to get some good, strong, healthy cuttings there is scarcely one to be got, and after they are rooted they generally get into the same diseased state. I was told several years ago that an insect was the cause, but must confess that I did not give any heed to it. I have attributed it to some kind of disease that has got into their constitution. I hope you will be able to enlighten me on the subject. *Wiltshire.*

Rose Noisette Drap d'Or, Chromatella, and Cloth of Gold are one and the same. A Herts Rose grower purchased a lot from Vibert, and described it under the name of Cloth of Gold, a fair translation of Drap d'Or. M. Vibert sold it afterwards as Chromatella. I think Mdlle. Amie Vibert (if living) must be able to give the genuine history of the Rose. My impression is that Solfatere, Cloth of Gold, and Nois Ophir were grown from the same hip. *R. B.*

Forestry.

COPPICE MANAGEMENT.—The term coppice or copse applies to a wood or woodland consisting of shrubs and shrubby trees periodically cut down, and prevented from rising to the proper height of timber trees. A copse and grove have the same origin, are composed of the same

plants, and possess the same character, with only this distinction, that the former does not mature its trees, while the latter does so. Though a copse usually originates in either natural or artificial sowing, yet there are copses true to character, the product of trees and shrubs originally planted by the ordinary method. The subject of copse management is too vast and comprehensive for an article of limited extent, I shall therefore confine my present remarks to a few aspects of the subject only. It is quite a common and general occurrence, that proprietors change their mode of forestry by converting copse wood into grove and timber wood. There are various modes adopted in doing so, some possessing one advantage and some another. Some attach great importance to the time of year the work is done, usually preferring the month of February to all others. This I need scarcely say is an erroneous impression, and unpracticable as it is false, for it matters little at what time of the year a healthy young shoot is cut over between November and April, both inclusive, so far at least as affects its reproductive power. The kind of implement used is also made too much of, for it matters little or nothing what instrument is used in cutting, provided only it is sufficiently sharp to make a good clean cut. Some advocate cutting the scion close to the surface of the ground, and others maintain that a stool of 3 inches should be left. Advantages of a special nature attend both systems, but where it is intended to grow timber trees from the stool, the nearer the ground the scion grows so much the better. The greatest and most important practical consideration connected with this branch of the subject is the time and manner of thinning out the young shoots the first time. After considerable experience in such work, I find the best time or stage of growth at which the first thinning should be done, is after the second year's growth is completed. Amongst the reasons to be assigned for this preference are, first, that the shoots grow both fast and closely together the first few years, and the inferior growths very soon seriously injure the stronger ones and such as should stand to constitute the tree; and second, but it is desirable to regulate as early as possible both the distances apart and their position upon the stool, always giving preference to the scion springing from nearest the surface of the ground. The rule by which I act in general plantation thinning admits of no exception here, namely, the maintenance of a due relative proportional growth between the girth and height of the stem, which is, that the tree girths as many inches round immediately above the swell of the root as it measures feet in height. The thinning, pruning, and other modes of treatment applicable to groves or plantations may be safely followed here, with one or two exceptions. Copse, as has already been shown, grows more rapidly during the first few years after cutting than plantations do, and therefore requires a proportionate amount of attention. The growth, however, though rapid at first, does not continue so beyond a limited period; and thinning, pruning, &c., must in all cases be regulated by it, being neither stopped too soon, nor unduly protracted.

The principal and main consideration in transforming copse into grove or plantation wood is that of one remarkable and peculiar feature of growth. It is not very generally known that a young tree grown from the stock of an old one assumes the general form and habit of the parent tree. Not that the young tree follows the exact line of growth of the one from which it sprung in all minutiae, such as crookedness, straightness, few or many branches, freaks or blemishes, but the general character of the one corresponds very closely with that of the other, as to height, disposition of limbs, form of top, maturing of heart-wood, health and constitution. I know of several Oaks, the characteristics of which have been accurately maintained for many centuries. In Oak growing districts where copse wood is cut periodically and *tellers* or standard trees left upon the ground to constitute timber, it is not the fine, tall, strong healthy shoots that are selected to stand (being stock-shoots), but the young slender sapling grown up, not from the stool of an old tree, but from the seed or acorn. Long experience has proved that though the tree (as a stock-shoot) is at twenty or thirty years a better one than a seedling of the same age, yet at forty to sixty years' growth the seedling is by far the superior tree, and the older they grow the difference in favour of the seedling increases more and more. Many planters have met with disappointment at the result of Oak timber grown from stools, which might have been averted had the producing cause been properly known.

It is not to be inferred that since like produces like, both of character and habit—which is the case with all trees grown from stools of old and mature trees—that therefore no good and useful wood or timber can be so grown. If the original character and habit of the trees are good the succeeding crop will partake of the same characteristics and qualities, while, on the other hand, if the parent trees are dwarfed, gnarled, stunted, and badly grown, the succeeding crop will strongly resemble them in all their defects and deformities.

What applies to Oak is equally applicable to Ash, Elm, Spanish Chestnut, and other species of trees. Ash trees, for example, attain maturity at an early age upon moss and bog soils of certain qualities, and when this occurs the plantation is usually cut down as mature and no longer profitable to be grown. The scions from such stools usually grow with much strength and vigour during the first few years after cutting, and might mislead those inexperienced with the ultimate results by the health and vigour of their early growth. Let no one, however, be deceived by such appearances, as the universal results are that the scions just stop short of growth at the point and period of the parent trees from which they spring.

All soils and situations produce trees peculiar to themselves, some tall, straight, and of great size, and others short of stem, crooked, and diminutive; and it appears to be an established law, that when trees attain their full maturity upon any soil or situation the succeeding crop or crops that spring from their stools are of the same character and quality in all succeeding crops. *C. Y. Michie, Cullen House, Cullen, Banffshire, Jan. 10.*

Reports of Societies.

Royal Horticultural: January 14.—As a result of the break up of the severe frost on Monday morning, the Council-room was well filled with flowering plants, principally Primulas; but the attendance was small, and nothing was done at the afternoon meeting beyond the usual routine business, which included the election of Fellows.

SCIENTIFIC COMMITTEE.—A. Grote, Esq., V.P., in the chair. The subjects brought before the committee on this occasion were not numerous.

Plants Exhibited.—From Mr. B. S. Williams came a specimen of a plant supposed to be the *Pandaphyllum humile* of Hasskarl, a *Pandanus*-like plant of tufted habit, with triangular stock and sheathing, strap-shaped leaves, tapering into a long point. The flowers are inconspicuous, and borne in close spikes raised on a terete peduncle. The plant is of much botanical interest, being allied to *Pandanaceæ* and *Cyperaceæ*. It has lately been referred to the genus *Hypolytrum*, and is a native of Java. It has been cultivated at Kew for several years. A Botanical Certificate was awarded on the ground of botanical interest. From Mr. G. F. Wilson came a plant of *Oncidium Widgreni* of Lindley (*Folia Orchidaceæ*, vol. i., p. 17, n. 50), a Brazilian species with small pseudobulb, solitary oblong lanceolate leaf, 3–4 inches long, and a raceme of about a dozen yellowish flowers, barred and spotted with brown, and the stalk of the lip marked with two rows of small tooth-like processes. A Botanical Certificate was awarded on the ground of rarity. A *Bulbophyllum*, shown by Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, was referred to the authorities at Kew for identification, a certificate being withheld until the name of the species is authoritatively determined. It was supposed to be *B. auricomum*.

Vegetable Remains from Gravel.—Mr. Worthington G. Smith exhibited under the microscope a series of preparations of vegetable and other remains he had found in sites associated with Palæolithic implements in the drift gravels of the Lea and Axe. The Lea remains were 12 and the Axe remains 30 feet beneath the surface. Under the microscope the minute structure of the plant-remains was clearly seen, the fragments of cellular tissue, epidermis, &c., in some specimens being very perfect. One slide with a piece of human hair, stained and corroded by the gravelly matrix from which it was taken, attracted considerable attention. Mr. Smith's collection of microscopic objects of Palæolithic age included fragments of leaves and roots of plants, a seed or two, hairs belonging to various mammalia, a portion of a feather, and several objects of unknown nature. The gravel from which the remains were derived was dug by Mr. Smith himself.

Insect Injurious to Iris, &c.—Mr. S. Webb showed a moth, *Noagria Sparganii*, the larva of which on the Continent is known to feed on *Typha* and *Sparganium* but which in this country is found to prey on the stems of Irises, especially *I. pumila*. The insect is of recent introduction to this country.

Beetle Injurious to Cocoa Palms.—Mr. W. T. T. Dyer showed a large beetle found to be injurious to the Cocoa-nut Palms in Zanzibar. The specimen was referred to Mr. MacLachlan for identification.

Narcissus Tazetta var. aureus.—Mr. W. W. Saunders sent flowers of an autumn flowering, pale yellow flowered, sweet scented *Narcissus* which has the valuable property of flowering in the late autumn, and of withstanding at least 11° of frost without injury. It had been identified by Mr. Baker as *N. Tazetta* var. *aureus*, and is well figured in the late Mr. Moggridge's *Flora of Mentone*.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. But few subjects came under the notice of this committee. The most important were forced examples of the Fulham White and Lily-white varieties of Seakale, contributed by Messrs. James Veitch & Sons. In the Fulham variety the tips of the forced leaves are coloured, while there is no trace of this in the Lily White, which it will be remembered was introduced a year or two ago by Messrs. Stuart, Mein & Allen, of Kelso. The Lily-white Seakale is a decided improvement on any other variety, and well deserves the attention of all gardeners who have to provide this vegetable for the table. A vote of thanks was accorded to the exhibitors. Mr. Pratt, gr. to Viscount Hill, Hawkstone, Salop, sent half-a-dozen examples of grilling Mushrooms which weighed 1½ lb., and were awarded a Cultural Commendation. A vote of thanks was also passed to Mr. Muir, gr., Margam Park, South Wales, for a very fine dish of King of the Pippin Apples, the samples being fine in size and highly coloured. Herr J. K. Borganovics, St. Tamasch, Hungary, Bácske, submitted a sample of a wine sausage—a new preparation of wine must, made of the juice of the Grape, “Weinmost-Wurst,” groats, and kernels of nuts. The specimen sent was made last November, and it was stated that it would keep good until July next; but it cannot be regarded as an article likely to meet with much favour in this country.

FLORAL COMMITTEE.—Dr. Denny in the chair. By inviting the exhibition of a specially selected class of plants at each of its meetings during the current year the Council has again included in its programme a feature that promises to add to the interest of such meetings from a horticultural point of view, and one that should besides result in drawing a larger attendance of visitors. The special subject invited to-day was Chinese Primulas, and a very good display was brought forward. Perhaps the group which created the greatest amount of interest was a batch of about thirty admirably grown plants of Messrs. Sutton and Sons' striking new variety, Ruby King, the merits of which we have already discussed. As shown, it well deserved the praise that has been bestowed upon it, and a First-class Certificate was awarded to it. The same firm also showed several plants of their strain of white Primulas, which were very good. Somewhat approaching Ruby King in colour was a variety shown by Mr. H. Cannell—very rich in colour, well frimbriated, and altogether very promising. From Mr. W. Brown, Brent Nursery, Hendon, came a capital group of plants of the usual market type; in which the white and crimson varieties were well represented; as also Tomkins' white variety, named Princess Louise; and Exquisita (Brown), a rich deep rosy crimson flower of considerable merit. A Silver Banksian Medal was awarded. From Mr. A. Brown, florist, Hendon, came examples of good types of crimson and white varieties; and one named *coerulea*, which is the nearest approach to a blue Chinese Primula that we remember to have seen. The same grower also had several plants of a distinct crimson flowered form with a light centre. Mr. Barron sent up from Chiswick a collection of varieties, many of which, it must be admitted, were more singular than beautiful, but two or three of them are specially worthy of attention. One, a well formed bright red flower, was, to our thinking, the best novelty shown, and the committee asked to see it again. Amongst the whites was one named *filicifolia alba*, which is delicately shaded with pink, and on all points is a very pleasing flower; while a third, and a very distinct flower, was a dark crimson flower, evenly spotted with small white dots. Messrs. James Veitch and Sons received a Silver-gilt Medal for a showy group of flowering and fine-foliaged plants, which included *Crassula lactea*, Roman Hyacinths, Tulips, and Primulas, *Daphne indica*, *Rhododendrons*, *Lilac Charles X.*, *Cyclamens*, and *Lily of the Valley*; and last, but by no means least, a forced plant of *Staphylea colchica*, which was described in our columns in 1871 as “a hardy, vigorous growing, deciduous shrub, furnished with opposite imparipinnate leaves, of about five (rarely three) oval shining dentate leaflets, and producing its white flowers in terminal panicles of an ornamental character, so profusely as to become a useful pot plant for market purposes. It belongs to the *Staphyleaceæ*, and is a native of the North of Europe.” This is the first time it has been exhibited as a forced shrub, but the plant shown by Messrs. Veitch

admirably demonstrated its value for this purpose, and the committee recognised its merits with a First-class Certificate. Messrs. Sutton & Sons exhibited a white variety of *Cyclamen persicum*, named Reading Gem, which has the broadest and roundest-pointed petals of any variety that we know, but is somewhat coarse in appearance, owing to an unduly prominent twist in the petals. It is, nevertheless, a fine flower, and was awarded a First-class Certificate. Mr. Ollerhead, gr. to Sir H. W. Peek, Bart., M.P., sent a well-marked variety of *Odontoglossum cirrhosum*, distinct from the one exhibited by him last year; and from Mr. H. Parr, Harrow Weald, came a couple of *Abutilons*, named *Vesuvius* and *Yellow Prince*. The latter appeared to be distinct, and very promising, but the former too closely resembles *A. Darwinii*. Mr. Spary, of the Queen's Graperies, Brighton, showed cut heads of bracts of some seedling *Poinsettias*, showing slight variations in colour; and, in addition to the *Primulas* above alluded to, Mr. W. Brown showed some remarkably well grown and well berried plants of the improved form of *Solanum Capsicastrum*. Mr. Cannell again contributed numerous bunches of *Zonal Pelargonium* flowers, of which he has a houseful at Swanley, well worth a journey to see. Mr. Thomson sent a fine lot of flowering plants of *Crassula lactea* from the Crystal Palace, and received a vote of thanks. Mr. B. S. Williams contributed a small group of flowering plants, including a well-formed, deep blood-red *Amaryllis*, named Dr. Masters, which gained a First-class Certificate; the beautiful *Cymbidium affine*, *Masdevallia polysticta*, with a dozen spikes; *Odontoglossum Rossii*, and a fine piece of *Sophranites grandiflora*. Messrs. Osborn & Sons, Fulham, contributed a large group of well-berried *Aucubas*, together with *Aralias*, *Laurustinus*, &c.

We should also state that Messrs. C. Lec & Sons' splendid group of hardy plants was again on view.

Edinburgh Botanical.—A meeting of this Society was held December 9, Dr. T. A. G. Balfour, President, in the chair. It was agreed to forward to the Home Secretary, for presentation to the Queen, patroness to the Society, an address of condolence to Her Majesty on the death of the Princess Alice. Mr. Sadler, Secretary, in reply to a question, mentioned that the greatest intensity of frost experienced at the Botanic Gardens this winter occurred on December 14, when the thermometer stood at 9° above zero; while on December 24, 1860, the reading was 6° below zero. In connection with this, it was incidentally mentioned by other gentlemen that, during the present season, the thermometer had been several degrees below zero in the neighbourhood of Kelso, and also in Dumfries and Braemar districts. Mr. Sadler read a paper by Mr. J. Stephen Wilson, of North Kilmundy, “On the Envelope of the Grass Embryo.” The paper being purely technical, it was resolved to remit it to Professors Balfour and Dickson for consideration. In the absence of Mr. W. B. Boyd, of Ormiston, Mr. Sadler next read a paper by that gentleman descriptive of a trip with the Scottish Alpine Botanical Club to Braemar in the autumn of last year. Mr. D'Arcy W. Thompson exhibited and described a number of specimens of *Ulodendron*, remarking upon the abundance of these in the shale-oil districts in the vicinity of Edinburgh. Mr. Sadler intimated that Mr. D'Arcy Thompson had presented his valuable collection of *Ulodendron* specimens to the museum at the Botanic Garden. Mr. Webb read an obituary notice on Professor Fries, an honorary member of the Society, who died in February, 1878, which had been prepared by his son, Dr. T. M. Fries, at the request of Professor Balfour. Mr. Sadler communicated a note from the Rev. Mr. Landsborough, Kilmarnock, stating that the Tree Ferns and Blue Gum trees in the open air at Brodick, Arran, had been uninjured by the frost, whilst birds were dying by the score. Mr. John Campbell, Ledaig, Argyshire, wrote stating that, notwithstanding the severe weather, a large number of plants in his garden were still in good foliage and flower, though many birds had succumbed to the frost and snow. Mr. Sadler mentioned that at the Botanic Garden, since December 1, only on two days—the 3d and the 31st—had the thermometer been above the freezing point. Altogether, during December, 265 degrees of frost had been experienced. Mr. Buchan observed that last month had been the coldest December for many years in this part of Scotland, and much more so in Dumfriesshire.

Scottish Horticultural Association: Jan. 7.—The ordinary monthly meeting was held on Tuesday, the 7th inst., at 5, St. Andrew Square, Edinburgh. Mr. John Sadler, F.R.P.S., gave an address on fungi. Fungi were amongst the gardeners' and foresters' greatest enemies; they luxuriated in shady woods and mossy dells, and were to be found on cellar walls, bread and cheese, linen, old boots, carpets, mats, clothing, and animal skin; even on the human head a flourishing colony was to be found. They were washed from our lips every morning; and from

cesspools, stagnant drains, and rotten offal, there arose unseen the germs of the fungi that caused the epidemic. Before their ravages the Potato, Turnip, roots of Coniferæ, Wheat crop, &c., gave way, and timber crumbled. Even in the very air we breathe, the water, food, and medicine we use, are to be found in teeming multitudes the germs of the fungi; in fact, no place was free from them except the centre of the glowing furnace. Their effects were sometimes very injurious, and at other times unspeakable benefits were conferred by their becoming the scavengers of Nature. The germs floated about in the atmosphere wherever decaying matter was left exposed; and even when cremation finished its work fungi arose. Potting soil should not be used until it had passed the fungus state, because if it was not allowed to ferment the plants potted would become sour at the root, attention to preparing potting soil being an important matter in growing healthy plants. He next adverted to the Vine disease, Potato disease, and Wheat rust, which were attributable to atmospheric influence, and to dry-rot being caused by certain conditions of the air. He exhibited a piece of wood with the mycelium running through it, and next alluded to the aquatic forms of fungi, illustrating his remarks on this point by referring to the gold fish that had died in the Botanic Gardens some time ago. The mycelium form of fungi in the lungs, and also in the stomach, were explained by Mr. Sadler. He then described the principal kinds of edible and poisonous fungi, of which 700 different species were to be found in Britain. He said no rule could be laid down to distinguish between the poisonous and edible varieties, but counselled his hearers to use great caution—one characteristic of dangerous kinds, however, being that the tongue became attacked as if it had been burned. The *Agaricus campestris* was the principal one used in this country, although excluded from Rome. The composition of the Mushroom was similar to that of beef. *Agaricus oreades*, *Agaricus prunulus* (or Plum Mushroom, which was used in Rome), *Agaricus procures* (one of the best), and *Agaricus annularis*, were explained and illustrated by diagrams, as also the *Boletus edulis*, *Phallus*, and *Morchella esculenta*. The lecture throughout was illustrated by specimens and diagrams, and at its conclusion Mr. Sadler was awarded a hearty vote of thanks.

There was exhibited by Mr. Alexander McMillan, gr. to Jas. McBrien, Esq., Broadmeadows, Berwick-on-Tweed, a wonderful lot of Zonal Pelargoniums, trusses and cut blooms of *Chrysanthemum* in an exceptionally fine condition. The latter numbered thirty-nine of the finest varieties grown by Mr. McMillan, planted out in a house into which he removes them about the beginning of October. The Pelargoniums were twenty-six in number, and were remarkable for any time of the year, and particularly so for the beginning of January. The trusses and petals were large, finely formed, and of great substance and bright in colour. Mr. L. Dow exhibited Turnip shaws, which he used as a substitute for Seakale. Some observations on the weather by Mr. Burns, Thingwall, were read, in which he stated that the most frost registered by him was 24°, on December 25.

A communication on the same subject was read from Mr. Hugh Dickson, Belfast, in which it was stated that the thermometer stood at zero on December 25. It was intimated that Mr. John Caie, Inverary, would send a paper on "Ornamental Planting;" and Mr. Burns, Thingwall, on "Acclimatising Plants"—both papers to be read at the next meeting.

The Villa Garden.

WINTER WORK.—"Nothing teaches patience like a garden," was once remarked, and it is very true. Sometimes Nature can be hastened in her work, but the invariable rule is to wait for the oncoming of her own good time. All the best results of a garden, like those of life, are slowly but regularly progressive. Winter is a time when great patience and trustfulness are needed, for so many things are slow, if not altogether inactive. But to the Villa gardener there is no need that winter should mean a time of inactivity in his garden.

We are thinking of the top-dressing required for Auriculas and Polyanthus in early spring, and of the potting-soil that will be in large demand when the Spring

"Writes its fair alphabet upon the sod
In many coloured flowers."

Some cow-dung and stable-dung also, collected with care for the former purpose, is now exposed for the birds to work among it—picking out any traces of insect-life that might be found there. Some decayed soils affected with wireworm are being similarly treated, and a heap of leaf-mould is being turned over occasionally, that it may be thoroughly sweetened

and mellowed. A well-managed garden needs the exercise of much forethought; the gardener should be constantly looking ahead, preparing, planning and executing.

WASHING POTS.—Among the many jobs that might challenge attention now, is the really important matter of washing pots. Some gardeners are by no means alive to the importance of cleanliness in the pots used for plants. An old gardener once left on record, for the advantage of those who should come after him, these valuable hints:—"Never use old flower-pots without washing them well; independently of the dirty and slovenly appearance, a dirty pot discourages the growth of a plant. Let them always be thoroughly washed before they are stowed away, so that when they are wanted they will be ready for use. The soil that hangs about a pot is always spent, if not actually sour and unwholesome; and when the fibres of a plant reach the side there will be a check with a dirty pot, while with a clean one the plant makes more rapid and healthy growth until the fibres get too thick together." We can also add, that if any one would find out the disadvantages of using dirty pots let them endeavour to turn out with a clean ball a plant potted into an uncleaned pot, and they will find that the soil clings about the inside of it, and the ball crumbles almost to pieces. But the use of dirty pots is by no means a fault with Villa gardeners alone—it runs through the gardening profession, as many find to their cost.

DIGGING AND TRENCHING VACANT PIECES OF GROUND.—This is a matter of some importance, and gardeners of all classes are prone to leave it until it is too late—that is to say, periods of fine open and frosty weather, when the work could be done in comfort, are allowed to pass by, and then comes a spell of wet weather, when the soil is sticky and close, and does not fall to pieces nicely, and manure has to be wheeled along paths that are soft and wet, and are soon cut up into ruts. There is this prime advantage in getting vacant pieces of land trenched and thrown up rough, that it enables the hardest frosts of mid-winter to act upon it, seasoning and mellowing it, breaking up the close particles, and greatly assisting the gardener in his work. This precautionary measure is all the more needful in the case of clayey soils that are of an adhesive nature.

Besides, the earlier the manure is put into the soil at trenching time the longer is the period allowed for it to become thoroughly incorporated with the soil and distributed through it, and by-and-bye, when crops are sown and planted, and the roots begin to ramble, they find something renovating in all parts of it. Dry and sandy loose soils dig well at all times, but there will be a positive advantage in getting it thrown up rough as early as possible in the summer.

SHRUBBERIES, &c.—These, together with hedges of Laurels, Privet, &c., can be cut back in the autumn to impart an aspect of order, and any thinning out can be done also. It is all the more important in cases where the belt of shrubbery forms a background to an inside border of plants, as by doing what is necessary to the shrubbery first, the gardener can then dress and tidy up his border, and make all neat and snug. All work worthy of being done at all is worthy of being done well and systematically. A well-kept garden should agree in all its parts summer and winter alike. Enjoyment is as essential to our nature in winter as in summer; and the best and wisest gardener is he who obtains the greatest amount of pleasure from his garden at all seasons of the year.

CUTTING BACK AND TRAINING CREEPERS TO WALLS OF HOUSES.—Let us take the Virginian Creeper, as illustrative of a climber grown largely against the walls of houses. As soon as it has lost its leaves it has a slovenly neglected appearance, and the long shoots that are thickly produced during summer by a plant in a vigorous state of health are laid hold of by the rough autumnal and winter winds, and, affording such a good hold, are often by the violence of the blast made to tear the main shoots from the walls. The Virginian Creeper can be cut back at any time without doing harm to the plant, but if it were deemed advisable not to cut them back, it is wise as a precautionary measure to fasten them securely to the walls till the proper time for pruning comes round.

The strong growing summer Clematises are another case in point; and as they make a profuse growth,

and the leaves hang on the bine for some time, the wind is very sportive with them. *Wistaria sinensis*, *Ivies*, *Roses*, *Honeysuckles*, *Jessamine*, *Corchorus*, *Ceanothus*, *Escallonia*, *Pyraantha*, and many others used against walls and fences are greatly improved in appearance by some preliminary thinning out and cutting back in winter, and a little nailing in to keep all snug and secure. There are many gardeners—far too many gardeners, who appear to think that neatness and a general tidiness of appearance is a part of the summer work of a garden only, and not necessary in autumn and winter. A tidy garden in winter is as much appreciable as a neat and well-kept garden in summer—and it should be so maintained.



STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, Jan. 15, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | Hygrometric Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|--------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | | | |
| Jan. 9 | 29.80 | +0.08 | 33.8 | 23.0 | 10.8 | 29.0 | 75 | E.N.E. | In. 0.00 |
| 10 | 29.45 | -0.27 | 28.5 | 22.1 | 6.4 | 25.3 | 63 | S.E. | 10.00 |
| 11 | 29.48 | -0.24 | 27.0 | 20.9 | 6.1 | 24.2 | 74 | E.N.E. | 0.02 |
| 12 | 29.97 | +0.25 | 34.5 | 20.0 | 14.5 | 26.4 | 88 | N.W. | 0.00 |
| 13 | 29.96 | +0.24 | 45.8 | 31.8 | 14.0 | 39.7 | 94 | S.W. | 0.04 |
| 14 | 29.68 | -0.04 | 46.3 | 34.5 | 11.8 | 41.5 | 97 | S.S.W. | 0.21 |
| 15 | 29.63 | -0.10 | 45.1 | 35.3 | 9.8 | 39.8 | 86 | W.S.W. | 0.06 |
| Mean | 29.71 | -0.01 | 37.3 | 26.8 | 10.5 | 32.3 | 83 | E.N.E. | sum 0.33 |

- Jan. 9.—Fine, but very cloudy. Sunshine at intervals. Slight snow at times. Cold.
- 10.—Very fine and bright till 2 P.M. Overcast after. Few flakes of snow in morning. Very cold.
- 11.—Overcast, and snow fell in morning. Fine in afternoon and evening. Overcast at night. Bitterly cold. Much floating ice in the Thames.
- 12.—Fine and clear till evening. Very cold. Temperature rose after 10 P.M. Sleet and slight thaw at midnight. A large quantity of floating ice in the Thames.
- 13.—A dull mild day. Thawing. Rain fell in early morning.
- 14.—A dull miserable day. Overcast, wet, and mild.
- 15.—Fine and bright till 10 A.M., then overcast and dull (with slight rain at times) till 6 P.M. Fine and cloudless at night.

LONDON: Barometer.—During the week ending Saturday, January 11, in the vicinity of London the reading of the barometer at the level of the sea increased from 29.99 inches at the beginning of the week to 30.26 inches by the morning of the 6th, decreased to 29.60 inches by noon on the 8th, increased to 30.05 inches by the morning of the 9th, decreased to 29.59 inches by the morning of the 11th, and increased to 29.75 inches by the end of the week. The mean reading for the week at sea level was 29.91 inches, being 0.24 inch above that of the preceding week, and 0.01 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 35.1° on the 5th, to 27° on the 11th, and 28.1° on the 10th; the mean value for the week was 31.4°. The lowest temperatures of the air observed by night varied from 21° on the 11th, 22° on the 10th, 22.3° on the 6th, and 23° on the 9th, to 28° on the 5th; the mean value for the week was 24°. The mean daily range of temperature in the week was 7.3°, the least range in the day being 6° both on the 7th and 11th, and the greatest being 10.3° on the 9th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—5th, 31.7, —4.8; 6th, 27.1, —9.3; 7th, 30.1, —6.2; 8th, 29.6, —6.6; 9th, 29.7, —7.2; 10th, 25.3, —11.1; 11th, 24.2, —12.1. The mean temperature of the air for the week was 28.1, being 8.2 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 73° on the 10th, 67.4° on the 8th, and 60° on the 9th; on

the 6th, 7th, and 11th the reading did not rise above 36°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 18½° on the 11th, 19° on the 10th, and 21½° on the 6th; the mean of the seven lowest readings was 22½°.

Wind.—The direction of the wind was chiefly E., and its strength moderately strong.

The weather during the week was generally dull, very cold, and the sky cloudy. There was a very large quantity of floating ice in the Thames on the 11th.

Snow fell on the 9th, 10th, and 11th.

ENGLAND: Temperature.—During the week ending Saturday, January 11, the highest temperatures of the air observed by day were 45° at Truro, 44° at Plymouth, and 39° at Leeds; the highest temperature of the air at Leicester was 34½°, and at Norwich was 35°; the mean value from all places was 37½°. The lowest temperatures of the air observed by night were 11½° at Liverpool, 12° at Nottingham, 14½° at Wolverhampton, 15½° at Cambridge, 17° at Leicester, 17½° at Bristol, and 19° at both Norwich and Bolton; the lowest temperature of the air at Plymouth and Truro was 25°, and at Leeds was 24°; the mean value from all places was 19½° only. The range of temperature in the week was the greatest at Liverpool, 26½°, and the least at Hull, 14°; the mean range from all places was 18½°.

The mean of the seven high day temperatures was the highest at Truro, 40°, Plymouth 39½°, and Leeds 35½°, and the lowest at Blackheath and Leicester, both 31½°, and Bristol 32°; the general mean from all stations was 34°. The mean of the seven low night temperatures was the lowest at Wolverhampton and Nottingham, both 19½°, Bristol 21½°, Leicester and Cambridge 22°, Liverpool 22½°, Bolton 23½°, and Blackheath 24°, and the highest at Truro, 32½°, and Plymouth 30°; the mean from all places was 24½°. The mean daily range of temperature in the week was the least at Norwich, 6½°, and the greatest at Wolverhampton and Nottingham, both 13½°; the mean daily range of temperature from all places was 9½°.

The mean temperature of the air for the week from all places was 29°, being 9° lower than the value for the corresponding week in 1878. The mean temperature of the air for the week was the highest at Truro, 36°, Plymouth 34½°, and Leeds 31°; and the lowest at Wolverhampton and Nottingham, both 26½°, and Bristol and Leicester, both 26½°.

Rain.—The amount of rain and melted snow measured at Truro and Plymouth was 1½ inch; at other stations the amounts were very small indeed, varying from 0.01 inch to 0.11 inch; the average amount over the country was 0.20 inch.

The weather during the week was generally dull and hazy, and very cold, with slight falls of snow.

SCOTLAND: Temperature.—During the week ending Saturday, January 11, the highest temperatures of the air varied from 41° at Perth, and 40° at Dundee, to 36½° at Edinburgh, and 37° at Greenock; the mean value from all stations was 38½°. The lowest temperatures of the air varied from 19° at Paisley and Perth, and 22° at Dundee, to 27½° at Aberdeen. The mean from all places was 22½°. The mean range of temperature in the week from all places was 15½°.

The mean temperature of the air for the week from all places was 31½°, being 4½° lower than the value for the corresponding week in 1878. The highest were 34° at Aberdeen and 33° at Dundee; and the lowest were 29° at Paisley, and 29½° at Glasgow and Greenock.

Rain.—The amounts of rain and melted snow measured during the week varied from 0.60 inch at Dundee, and 0.50 inch at Perth, to 0.03 inch at Glasgow, and 0.06 inch at Greenock; the average amount over the country was 0.27 inch.

DUBLIN.—The highest temperature was 39½°, the lowest 14½°, the range 25°, the mean 30½°, and the amount of rain and melted snow measured was 0.64 inch.

JAMES GLAISHER.

Obituary.

We have this week to record, with great regret, the sudden death, at 9 A.M. on the 13th inst., of Mr. THOMAS METHVEN, founder and senior partner of the firm of Thomas Methven & Sons, nurserymen and seedsmen, of Edinburgh. Death is attributed to heart disease.

For the following particulars respecting ex-Bailie Methven's career we are indebted to the *Edinburgh Courant*.—The deceased gentleman, who was a native of Kennoway, in Fifeshire, served an apprenticeship as a gardener at Leslie House, under the Dowager-Countess of Rothes. While still a young man he commenced business for himself as a nurseryman,

beginning first in Edinburgh with Stanwell Nurseries, Bonnington. With the energy and uprightness peculiar to his character, Mr. Methven soon rose to a high position in his profession, and with the growing success which attended his business he gradually extended his nurseries. To Stanwell Nursery, which occupied ground that is now built upon, he added the nurseries at Leith Walk, which have long formed an attraction to visitors to that neighbourhood of the city. To these he afterwards added the nurseries at Warriston, always remarkable for their rich profusion of flowers, and for some years back he has had another very fine nursery at Fettes.

The great experience he possessed in matters connected with arboriculture and horticulture led to his advice being sought by the large landed proprietors of the country in connection with the laying-out of their grounds, and we may safely say that there is no one in his profession better and more widely known in Scotland. He was one of the founders of the Scottish Arboricultural Society, established about twenty years, and he remained one of its most steadfast and prominent supporters. He was also an active member of the Royal Caledonian Horticultural Society, and one of the members and founders of the Scottish Horticultural Association, instituted about two years ago. In all meetings for the promotion of the interests of gardeners Mr. Methven was ever ready to give his services, and young gardeners always found in him a warm friend and adviser.

Being, as he was, a man of shrewd business habits, and possessing many estimable qualities of head and heart, his fellow-citizens called upon him to come forward and represent them in the Town Council. He was accordingly returned in 1866 for the Calton Ward, and he continued to represent it in the Corporation until 1877, when he retired, but not before he had been elevated to the magistracy, a position which he enjoyed for four years before he again returned into more private life. His services were, however, so much appreciated by those he had left in the Council that he was elected a Water Trustee, and only lately appointed to represent the Corporation of Edinburgh in the Leith Dock Commission.

Mr. Methven, who has died in the sixtieth year of his age, has left two sons and three daughters to mourn his loss. The sons have been in business with their father for several years.

— We have also to record the death of Mr. THOMAS SAGE (father of Mr. George Sage, gardener to Lord Brownlow, at Ashridge), who died at Camberwell on the 12th inst., in his 90th year. He was born at Calne, in Wiltshire, and began work in the garden at Bowood, where his father had charge of a nursery of forest trees. When still a young man he left Bowood for the nurseries of Mr. Ronalds, at Brentford, and subsequently took a situation as gardener to Mr. Moss, at Drayton Green, near Ealing, where he remained for some years, and then entered the service of Lady Hazlerigg, at Hillingdon Heath. Here he stayed no less than twenty-nine years, and retired on a pension, in consequence of her ladyship giving up her country residence. For some years afterwards he was employed at the Crystal Palace, under Mr. Eyles and Mr. Williams. On the 10th he was well enough to write a letter, which he took some little distance to post, but on Friday evening he had an attack of paralysis, from which he never recovered, and died about half-past twelve on Tuesday.

Variorum.

A CHEMICAL STUDY OF VEGETABLE ALBINISM.—Professor CHURCH, at a recent meeting of the Chemical Society, as reported in the *Pharmaceutical Journal*, gave the results of his experiments as follows:—

"Two sets of analyses were made, one on leaves gathered in the autumn of 1877, the second on leaves gathered in 1878. Great care was taken in gathering the leaves that they should be of the same age, &c.; no steel implements were used to separate them. The plants chosen for the first set of experiments were the Maple, the Holly, and the Ivy. In the second set the plants, for which the author was indebted to Sir JOSEPH HOOKER, experimented with were *Eleagnus pungens*, *Ectoglyne variegata*, *Cyperus alternifolius*, and *Alocasia macrorrhiza*. Both sets of analyses yielded the following results:—The ash of the white leaves contains much more potash and phosphoric acid, and much less lime, than that of the green leaves. No deficiency of iron in the white leaves was detected. The details of all the analyses are given. The author made further inquiries with *Eleagnus pun-*

gens as to the three following points:—The amount of matter soluble in ether; the proportion of albuminoid to total nitrogen; presence of calcium oxalate and carbonate. As regards the first, the white leaves yield less than half the amount of extractive given by the green leaves. Nearly 60 per cent. of the nitrogen in the white leaves is non-albuminoid, while the green leaves contain 30 per cent. in that condition. Calcium carbonate and oxalate were present in notable quantities in the green leaves, but almost absent from the white leaves. White leaves contain more (about 10 per cent.) water than green leaves, while the dry organic matter in the former is not quite two-thirds of that present in the latter. To elucidate the question the author made some analyses of a parasite, the Dodder, and its host, the red Clover. The parasite was found to be richer in water and in potash, but poorer in lime, than its host; thus resembling a white leaf. White leaves are therefore related to green pretty much as immature leaves to mature, tubers to foliage, petals to green bracts, vegetable parasites to their hosts. The white leaf may thus be said to be parasitic on the green. The author does not give any decided opinion as to the cause of the whiteness. He remarks that white leaves are usually weaker and thinner, and that albino cuttings cannot be 'struck.' Some attempts have been made to stimulate albino foliage, but without any decisive results. The author promises further experiments, especially as regards the relations of equal areas of white and green foliage to carbonic acid, and the effect of injecting various substances.

"Dr. VOELCKER said the paper was one of great interest, as indicating a new path, which might lead to important results. He should like to ask if Professor CHURCH had paid much attention to the qualities of chlorides and nitrates.

"The CHAIRMAN said that he had listened with great attention to Professor CHURCH's paper as one opening out a new subject, and one which it was rather curious that no one, as far as he was aware, had investigated hitherto. In German analyses of Beech leaves of all ages had been made, and in many respects the analyses of the young leaves corresponded with those of the white leaves, whilst the composition of the old leaves agreed with that of the green leaves. He should think therefore that in the spring Professor CHURCH would find less difference between the white and green leaves than in the autumn. The analyses of the parasite and its host seemed to afford a very good explanation of the differences between the composition of the white and green leaves; all the diffusible substances were found in the white leaves and the parasite, with but little non-diffusible matter.

"Professor DYER remarked that albinism was a disease, probably due to the presence in the white leaf of some minute organism, for albinism can be communicated by grafting a normal plant with an albino shoot. White leaves resembled imperfectly fed leaves, preserving a sort of lingering vitality from their connection with a healthy plant, without which connection they could not exist."

COFFEE IN CEYLON.—We learn from our contemporary, *The Colonies and India*, that an insect has appeared in Ceylon which preys on the *Hemileia vastatrix*, and it is hoped that its introduction may check the present effect the disease has in reducing the crops of Coffee. It is further stated that the new Coffee crop was being gathered at the time the despatch was sent away, and the latest advices from the planting districts were satisfactory as to its probable amount. Heavy rains, however, were falling, which might have an unfavourable influence upon the crops. "Liberian Coffee," we are told, "has been grown at an altitude of 800 feet with success, and young plants grown in Ceylon nurseries are being advertised for sale; but the success of this species of Coffee as a commercial speculation is not yet sufficiently tested to confirm all the hopes expressed respecting it."

Enquiries.

He that questioneth much shall learn much.—BACON.

GLASS CUTTERS.—I should be greatly obliged if some of your correspondents would inform me as to where I can get the glass-cutter (such as is sold at the Old Trafford flower shows) and putty-knife combined. C. G.

PHLOX DRUMMONDII, GENERAL RADETSKY.—Twenty years ago a pretty striped variety bearing this name was in cultivation, and could be found in plant catalogues. It was a singularly pretty and distinct type, in the regularity and harmony of its marking far ahead of the striped varieties of *Phlox Drummondii* now in cultivation. Can any one inform me if it is still in cultivation? At the time referred to, it was propagated by means of cuttings. E. H.

Answers to Correspondents.

BOOKS: North Briton. Hooker's *Student's Flora of the British Islands*, published by Macmillan & Co.—*R. P. Lindley's Genera et Species Orchid.* For cultivated species, Williams' *Orchid Grower's Manual*, fifth edition (Williams, Victoria Nursery, Holloway). The book you mention is not likely to be published soon. It will be issued in parts, and must be costly.

CAMELLIA LEAF: E. S. A fusion of two leaves, and a very common occurrence.

GARDENERS' APPRENTICES: IV. J. C. The licence must be obtained for all gardeners and under-gardeners—which latter term, we should think, would include garden apprentices.

NAMES OF PLANTS: *J. Macdonald*, 1. *Chamaecyparis nutkaensis* variegata—a garden variety: the species is a native of north-west America (Nootka Sound, Sitka, &c.); 2. *Juniperus drupacea*, Syria; 3. *Juniperus chinensis*, China; 4. *Juniperus excelsa*, Southern Russia; 5. *Juniperus recurva*, Nepal, Bhotan, &c.; 6 and 7. *Cupressus torulosa*, Northern India.—*Y. Z.* We are unable to name your shrubs without flowers.—*Subscriber*. The leaves are those of *Cynometra cauliflora*, but we are unable to find any mention of the tree being in any way useful economically.—*T. Hanbury*. *Olearia ramulosa*, and *Cestrum Parqui*.—*R. Andrews*, 1. *Llavea cordifolia*; 2. *Asplenium palmatum*; 3. *Coclogyne flaccida*; 4. *Epilobium*, specimen insufficient.—*A. W.* The Kew authorities consider the specimen sent to be typical *Adiantum aethiopicum*. Could you send us a better specimen either now or later on?

PHYLOXERA: *T. C.* We should be glad to hear how you succeed with the measures you have taken for the eradication of this pest. We found plenty of insects on the roots sent.

PRIMULAS: *W. Foster*. Yours is a very fine strain, the flowers being large, richly coloured, and nicely fringed.

SUCCULENTS: *Ignoramus*. Both the *Leucophyta Brownii* and *Mesembryanthemum cordifolium* variegatum will strike freely enough in heat from cuttings during the spring months. The latter plant is somewhat difficult to winter; it requires to be established in pots during summer, and well ripened off in a hot exposed situation, and then it may be kept on the shelves of a greenhouse during the winter season, and employed for propagation as spring comes on.

TORTOISES: *S., Rotterdam*. They are principally vegetable feeders, very voracious in spring, and not at all particular what they eat. The rest of the year they eat little or nothing. We should certainly object to have half-a-dozen in our garden, but do not object to one as a pet.

VEGETABLE CATERPILLAR: *W. Sharpe*. The statements made by the Rev. Mr. M'Murphy, at the meeting of the Perthshire Society of Natural Science, respecting the Vegetable Caterpillar of New Zealand, are so far correct that out of the head of the caterpillar a fungus does grow, but it can hardly be said to resemble a Fern. The fungus growing out of the specimens brought home by Mr. Moseley, the



FIG. 12.—SPHÆRIA SINENSIS.

naturalist to the *Challenger* Expedition, was *Sphaeria sinensis*, and the New Zealand plant is described as being similar to it. You will find a note on the subject in our number for March 6, 1875, and an illustration, which we reproduce (fig. 12).

VINES: *Fern*. You should get the hot-water apparatus fixed now, or as soon as convenient, before it is required. To ripen fruit in November the Vines might be allowed to break naturally, without forcing; but when the shoots are formed, and until the fruit is full-grown, they will come on the better with the aid of a gentle heat. If, however, the Vines are only just planted—that is, not established—you must not look for fruit this year, and should take very little from them next year. Read up our Calendar on Vine culture, which, *mutatis mutandis*, will be found to apply to your case as well as others.

* * Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early as the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

ERRATUM: COLORADO BEETLE.—One of the names of the Colorado beetle is *Leptinotarsa decemlineata*, not "*Septinotarsa*," as printed at p. 50.

CATALOGUES RECEIVED.—Messrs. Barr & Sugden (12, King Street, Covent Garden), Descriptive Spring Catalogue of Choice Seeds for Flower and Kitchen Garden.—Messrs. Smith & Simons (36 and 38, Howard

Street, St. Enoch Square, Glasgow), Cultural Guide and Descriptive Seed Catalogue.—George Cooper (Hertford), Amateur's Manual for the Garden and the Farm.—Messrs. E. Webb & Sons (Wordsley, Stourbridge), Descriptive Illustrated Spring Catalogue.—Messrs. Dicksons & Co. (1, Waterloo Place, Edinburgh), Descriptive Catalogue of Garden and Flower Seeds, Implements, &c.—Messrs. Thomas McKenzie & Sons (34, Dawson Street, Dublin), Catalogue of Vegetable and Flower Seeds, &c.—Messrs. James Farrar & Co. (86, Golden Lane, Barbican, London, E.C.), Wholesale Trade Catalogue of Garden, Agricultural, and Flower Seeds.—J. G. Hill (Yeovil), Catalogue of Vegetable and Flower Seeds.—C. Cooper (17, East Street, Plymouth), Amateur's Manual, and Descriptive Price List of the Best Seeds in Cultivation.

—Messrs. Clark Brothers & Co. (65, Scotch Street, Carlisle), Illustrated Descriptive Catalogue of Vegetable and Flower Seeds.—Alfred Legerton (5, Aldgate, London, E.), Trade Catalogue of Garden, Agricultural, and Flower Seeds.—Messrs. W. Drummond & Sons (Stirling, and 58, Dawson Street, Dublin), Catalogue of Flower Seeds, and of Flower and Vegetable Seeds; also Directions for Sowing, &c., Vegetable Seeds, and Hints on the Management of Fruit Trees.—Messrs. John Laing & Co. (Stanstead and Rutland Park Nurseries, Forest Hill, London, S.E.), Catalogue of Garden, Flower, and Farm Seeds; also Select List of Choice Tuberous Begonias.—E. Wilson Serpell (21, Cornwall Street, Plymouth), New Seed Catalogue for 1879.—Messrs. M'Kenzie & Sons (Camden Quay, Cork), Catalogue of Vegetable and Flower Seeds, &c.—William Bull (King's Road, Chelsea, London, S.W.), Retail List of Select Flower, Vegetable, and Agricultural Seeds.—Messrs. James Dickson & Sons (108, Eastgate Street, Chester), Catalogue of Vegetable and Flower Seeds, Implements.—Messrs. Hooper & Co. (Covent Garden, London, W.C.), Catalogue of Flower, Vegetable, and Agricultural Seeds.—Charles Turner (Royal Nurseries, Slough), Catalogue of Seeds, Kitchen and Flower Garden, and the Farm.—Messrs. Wood & Ingram (The Nurseries, Huntingdon), General Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds.—William Rumsey (Joining's Nurseries, Waltham Cross, London, N.), Catalogue of Select Garden, Flower, and Farm Seeds, Potatoes, &c.—Messrs. W. Paul & Son (Waltham Cross, Herts), Catalogue of Vegetable, Flower, and Agricultural Seeds.—Messrs. Osborn & Son (Fulham Nurseries, London, S.W.), Catalogue of Kitchen Garden and Flower Seeds, Potatoes, &c.—The Greenbrook and Paterson Nurseries (Paterson, New Jersey, U.S.), Cultural Catalogue, and Floral Guide.

PUBLICATIONS RECEIVED.—Das Wichtigste aus der Theorie des Gartenbaues: von Max Kolb. Stuttgart, Eugen Ulmer. (The Essentials of the Theory of Horticulture.) A brief treatise on vegetable physiology applied to horticulture.—The Gardener.—Monatsschrift des ver. Gartenbaues, Berlin.—Morton's Almanac for Farmers.—Notes on Afghanistan, by James Wyld, 457, Strand.—The Garden Oracle.—Bulletino della R. Societa Toscana di Orticultura.—Graham's Temperance Guide.—Bulbs and Bulb Culture, by D. T. Fish.—Orchids for Amateurs, by James Britten and W. H. Gower.—The Monthly Record.—Midland Naturalist.—La Belgique Horticole.—Report of the Brisbane Botanic Garden.—First Annual Report of U. S. Commission Relating to Rocky Mountain Locust.—Flower Lore (Belfast: McCaw, Stevenson & Orr).—The Horticultural Directory for 1879 (171, Fleet Street, E.C.).

COMMUNICATIONS RECEIVED:—Horton.—J. C. & Co.—J. F. C.—H. E. B.—Senex.—J. H.—E. K.—H. S.—T. C. A. (anticipated by another correspondent).—G. S.—J. W.—J. S.—W. B. H.—R. D.—H. M. E.—D. B.—W. B. & Co.

Markets.

COVENT GARDEN, January 16.

We have no alteration to make this week, our market still remaining quiet. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|--------------------------|-------------|------------------------|-------------|
| Apples, ½-basket .. | 1 6 5 0 | Oranges, per 100 .. | 4 0 8 0 |
| Cobs and Filberts, lb. 0 | 9 1 0 | Pears, per doz. .. | 4 0 8 0 |
| Grapes, per lb. .. | 3 0 8 0 | Pine-apples, per lb. 1 | 1 0 2 6 |
| Lemons, per 100 .. | 1 0 10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0 .. |
| Globe, doz. .. | 2 0 4 0 | Lettuces, Cabbage, | |
| — Jerusalem, bush. | 4 0 .. | per doz. .. | 1 6 .. |
| Asparagus, Fr. sprue, | | Mint, green, bunch. .. | 1 6 .. |
| per bundle .. | 1 6 .. | Onions, young, bun. 0 | 4 0 6 |
| — Fr. giant, p. bun. 30 | 0 .. | Parsley, per bunch. 0 | 4 .. |
| Beans, French, p. 100 | 2 0 .. | Peas, per quart. .. | 12 0 .. |
| Beet, per doz. .. | 1 0 2 0 | Potatoes, new, basket | 1 0 .. |
| Brus. sprouts, bush. 10 | 0 .. | Radishes, per bunch | 0 1 0 3 |
| Cabbages, per doz. .. | 1 0 2 0 | — Spanish, doz. .. | 1 0 .. |
| Carrots, per bunch .. | 0 4 0 6 | — New Jersey, doz. | 2 0 .. |
| Cauliflowers, per doz. | 2 0 3 0 | Rhubarb, doz. .. | 10 0 .. |
| Celery, per bundle .. | 1 6 2 0 | Shallots, per lb. .. | 0 6 .. |
| Chilis, per 100 .. | 2 0 .. | Seakale, per punnet | 2 6 .. |
| Cucumbers, each .. | 1 0 2 0 | Spinach, per bushel | 4 0 5 0 |
| Endive, Batav. dozen | 1 6 .. | Sweet Potatoes, per lb. | 0 6 .. |
| Garlic, per lb. .. | 0 6 .. | Tomatoes, per dozen | 2 6 3 0 |
| Herbs, per bunch .. | 0 2 0 4 | Turnips, p. 12 bunch. | 3 0 .. |

The Potato market is quiet, and without alteration in prices:—Regents, 100s. to 130s.; Early Rose, 110s. to 120s. per ton.

PLANTS IN POTS.

| s. d. s. d. | | s. d. s. d. | |
|-------------------------|----------|-------------------------|----------|
| Arum Lily, or Rich- | | Ferns, in var., p. doz. | 4 0 18 0 |
| ardia aethiop., doz. 18 | 0 24 0 | Ficus elastica, each | 2 6 15 0 |
| Azaleas, per dozen. 24 | 0 60 0 | Foliage Plants, vari- | |
| Begonias, per doz. .. | 6 0 12 0 | ous, each .. | 2 0 10 6 |
| Bouvardias, per doz. 18 | 0 24 0 | Hyacinths, per doz. | 6 0 18 0 |
| Camellias, per dozen 18 | 0 60 0 | Hyacin., Rom., doz. 12 | 0 18 0 |
| Cinerarias, per doz. 12 | 0 18 0 | Mignonette, per doz. | 6 0 9 0 |
| Cyclamens, per doz. 12 | 0 30 0 | Myrtles, per doz. .. | 6 0 12 0 |
| Cyperus, per dozen 6 | 0 12 0 | Palms in variety, | |
| Dracena terminalis 30 | 0 60 0 | each .. | 2 6 21 0 |
| — viridis, per doz. 18 | 0 24 0 | Pelargoniums, scar- | |
| Epiphyllum, per doz. 18 | 0 60 0 | lets, zonal doz. .. | 6 0 12 0 |
| Erica Caffra, p. doz. | 6 0 9 0 | Primulas, per dozen | 6 0 12 0 |
| — gracilis, p. dozen | 9 0 12 0 | Solanums, per doz. | 6 0 18 0 |
| — hyemalis, p. doz. 12 | 0 42 0 | Tulips, per dozen .. | 9 0 18 0 |
| Euonymus, var., doz. | 6 0 18 0 | | |

CUT FLOWERS.

| s. d. s. d. | | s. d. s. d. | |
|------------------------|----------|-------------------------|-----------|
| Abutilon, 12 blooms | 0 6 1 0 | Lily of Val., 12 sprays | 3 0 0 0 |
| Arum Lilies, 12 blms. | 6 0 18 0 | Mignonette, 12 bun. | 12 0 18 0 |
| Azaleas, 12 sprays .. | 1 0 3 0 | Narcissus, paper- | |
| Bouvardias, per bun. | 1 0 4 0 | white, 12 sprays .. | 2 0 6 0 |
| Camellias, per dozen | 3 0 18 0 | Pelargoniums, 12 spr. | 2 0 4 0 |
| Carnations, per dozen | 1 6 4 0 | — zonal, 12 sprays | 1 0 2 0 |
| Cyclamen, 12 blooms | 0 6 1 6 | Primula, double, per | |
| Deutzia, 12 bunches | 6 0 12 0 | bunch .. | 1 0 2 0 |
| Epiphyllum, 12 blms. | 1 0 3 0 | Roses (indoor), doz. | 2 0 12 0 |
| Eucharis, per doz. .. | 6 0 18 0 | Tropæolum, 12 bun. | 2 0 6 0 |
| Gardenias, 12 blms. 12 | 0 24 0 | Tuberose, per dozen | 3 0 6 0 |
| Heliotropes, 12 sp. .. | 0 6 1 0 | Tulips, 12 blooms .. | 1 0 3 0 |
| Hyacinths, 12 spks. | 4 0 12 0 | Violets, 12 bunches | 4 0 9 0 |
| — Roman, 12 spks. | 2 0 4 0 | | |

SEEDS.

LONDON: Jan. 15.—No new feature of importance presents itself this week in connection with the trade for farm seeds. Values of all descriptions stand at a low level, and the supply proves fully equal to the demand. Of ordinary English red Clover the offerings continue liberal; but unless for choice samples the inquiry is not active. The stock of new American in London is extremely meagre, nor can there for some few weeks be any material increase thereto. The total quantity shipped to this port during the three months ending December 31, 1878, amounted in all to only 2322 bags. Samples of new Canadian red are now to hand; these show good quality both for plumpness and colour. In neither Alsike, white Clover, nor Trefoil is there any quotable variation. Blue Peas, Haricot Beans, and Lentils, as cheap articles of human food, attract more attention. Spring Tares, being scarce, tend upwards. Bird seeds keep steady. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday trade was very quiet. English Wheat was in short supply, and the better qualities were steady on former terms. Foreign Wheat was very slow of sale, and quotations ruled somewhat in buyers' favour. Fine malting Barley continued very firm, but other kinds supported the rates of last week with difficulty. Malt was without change. Oats were in limited request, and very little was done in Maize. Quotations as regards both were the same. Beans were flat at some reduction. Peas were dull, and very few transactions were reported in flour.—Trade on Wednesday was characterised by quietness. Holders were not over anxious to sell, but there was so little inclination to buy that a concession was now and then necessary to effect sales. English Wheat was in short supply, foreign Wheat was rather plentiful. Oats were steady; sound corn being well held. Maize, too, supported previous rates; but as regards other kinds of produce the tendency was downwards.—Average prices of corn for the week ending Jan. 11:—Wheat, 39s. 7d.; Barley, 36s. 11d.; Oats, 20s. 1d. For the corresponding period last year:—Wheat, 52s. 1d.; Barley, 43s. 5d.; Oats, 23s. 8d.

CATTLE.

At Copenhagen Fields on Monday the supply of beasts was limited, consequently prices advanced a little on the average, although trade was by no means brisk. The number of sheep was large, but trade was very dull, and prices were rather lower. Choice calves were in demand, and the very small number on offer were readily disposed of at enhanced rates. Quotations:—Beasts, 4s. 4d. to 5s., and 5s. 4d. to 5s. 10d.; calves, 5s. 8d. to 6s. 8d.; sheep, 5s. 4d. to 5s. 8d., and 6s. to 7s.; pigs, 3s. 8d. to 4s. 8d.—Thursday's cattle trade, with fair supplies offering, was dull in tone. Both beasts and sheep were in quiet request, and were only saleable at a reduction from the prices of Monday. Calves and pigs were inactive.

HAY.

Tuesday's Whitechapel report states that with a large supply and very little trade prices were easier all round. Prime Clover, 100s. to 108s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 37s. per load.—On Thursday there was a moderate supply of hay and straw on offer. The trade was dull, and prices unaltered.—Cumberland Market quotations:—Superior meadow hay, 80s. to 90s.; inferior, 65s. to 72s.; superior Clover, 98s. to 105s.; inferior, 72s. to 88s.; and straw, 38s. to 42s. per load.

POTATOS.

The reports from the Borough and Spitalfields markets inform us that, owing to the frosty weather, the supplies have been short, and the trade for the better descriptions steady. Victorias, 120s. to 150s.; flukes, 120s. to 140s.; Regents, 100s. to 130s.; Champions, 80s. to 100s. per ton.—The imports into London last week were confined to 13,070 bags from Hamburg, 241 Dunkirk, 16 Rotterdam, 140 sacks Boulogne, and 100 tons Duclair.

The Finest Primula Ever Seen.

CARTER'S EXQUISITA.—Brilliant ruby-crimson. Undoubtedly the richest coloured and most exquisitely frimbriated variety in cultivation.

New seed now ready, price 3s. 6d. per packet, post-free.

"A magnificent variety, with flowers the size of a five-shilling piece."—*The Garden.*

"Intense crimson, good colour."—*Journal of Horticulture.*

"Exquisita represents a superb selection with rich crimson flowers, and in its line of colour it is so good that anything better could not well be desired."—*Gardeners' Magazine.*

For full particulars see **STERLING NOVELTIES**, gratis and post-free.

CARTERS, The Queen's Seedsmen, High Holborn, London.

Garden Seeds.

CHARLES TURNER'S Descriptive CATALOGUE of the above is now ready, containing several interesting and valuable novelties.

BAILEY'S GREEN-FLESHED MELON "THE SQUIRE."—Great size, delicious flavour. First Prize at the Royal Botanic Society. Per packet, 2s. 6d.

NEW KIDNEY POTATO "EARLY BIRD."—Remarkably early and fine quality. Indispensable for frame work. First-class Certificate at the International Potato Show, Royal Aquarium. Per peck, 10s. 6d.; per lb., 1s.

POTATO "SCHOOLMASTER."—The following few Testimonials from hundreds will show that it is uniformly good in all parts of the country:—

"My opinion is that it is one of the very best Potatoes we have."—A. F. BARRON, *Chiswick.*

"Your Schoolmaster is the very finest in cultivation for the table, and resists disease better than any Potato I know."—W. NASH, *Wilton.*

"To my taste I know no Potato equal to Schoolmaster."—Miss F. MEYER, *Widmermere.*

"I had two tubers from a friend about two years ago, and from those two tubers I have this year dug 60 bushels."—J. DOUGLAS, *Lexford Hall.*

Per peck, 6s.

The Royal Nurseries, Slough.

Owing to the Death of

WM. CUTHBERT, Esq., Beaumont Castle, Hexham, Northumberland, the Trustees are prepared to receive Private Offers for the valuable Collection of large and handsome Specimen, Half-specimen, and other Plants suitable for the decoration of drawing, dining, and other rooms.

Also the whole of the PINES, comprising Fruiters, Succession and Suckers, consisting principally of Queens and Smooth Cayennes. They are a fine, strong-grown, healthy lot.

Also a lot of STRAWBERRIES in splendid condition for forcing. To any one contemplating furnishing an establishment the present is an excellent opportunity.

Amongst Cool, Intermediate and East Indian ORCHIDS the following are deserving of special mention:—

| | |
|--------------------------------|--------------------------------|
| <i>Aerides odoratum</i> | <i>Lælia Dayana</i> |
| " <i>succissimum</i> | " <i>purpurata</i> |
| <i>Brassia verrucosa</i> | <i>Lycaste aromatica</i> |
| <i>Calanthe Veitchii</i> | " <i>cruenta</i> |
| " <i>vestita luteo-oculata</i> | " <i>Skinneri</i> |
| " <i>rubro-oculata</i> | <i>Odontoglossum crispum</i> |
| <i>Cattleya intermedia</i> | " <i>cirrhosum</i> |
| " <i>Leopoldii</i> | " <i>citro-mum roseum</i> |
| " <i>Loddigesii</i> | " <i>insleayi</i> |
| " <i>Mossii</i> | <i>Oncidium sphecelatum</i> |
| <i>Cœlogyne cristata</i> | " <i>varicosum</i> |
| <i>Dendrobium album</i> | " <i>tigrinum</i> |
| " <i>devonianum</i> | <i>Saccolabium Blumei</i> |
| " <i>nobile</i> | <i>Sophranites grandiflora</i> |
| " <i>thyrstiferum</i> | <i>Trichopilia suavis</i> |
| <i>Lælia autumnalis</i> | " <i>tortilis</i> |
| | <i>Zygopetalum crinitum</i> |

The following amongst STOVE PLANTS suitable for exhibition purposes. The Crotons are handsome specimens from 8 feet high and 4½ through to half-specimens.

| | |
|--------------------------------|----------------------------------|
| <i>Anthurium Scherzerianum</i> | <i>Eucharis amazonica</i> |
| <i>Croton variegatum</i> | <i>Euphorbia splendens</i> |
| " <i>pictum</i> | <i>Ixora coccinea superba</i> |
| " <i>angustifolium</i> | <i>Maranta roseo-picta</i> |
| " <i>majesticum</i> | " <i>Veitchii</i> |
| " <i>Veitchii</i> | " <i>zebrina</i> |
| <i>Dracæna Fraseri</i> | <i>Rondeletia speciosa major</i> |
| " <i>Hendersoni</i> | <i>Stephanotis floribunda</i> |
| " <i>Mooreana</i> | <i>Urceolina aurea</i> |
| " <i>excelsa</i> | <i>Begonias and Gloxinias</i> |
| " <i>nigro-vulnera</i> | Also Tree and other |
| " <i>Cooperi</i> | Ferns. |

The GREENHOUSE PLANTS comprise Palms, specimen and half-specimen trained *Azalea indica*, bristling with buds; *Epacris*, *Dracænas*, *Camellias* finely set with buds; also a fine lot of scarlet tuberous *Begonias*, &c.

Inspection invited, and full particulars given to intending purchasers on application to the

HEAD GARDENER, Beaumont Castle, Hexham, Northumberland.

SEEDLINGS, SEEDLINGS.

| |
|--|
| 2,000,000 Native LARCH, 1-yr. |
| 500,000 Tyrollese LARCH, 1-yr. |
| 1,000,000 Native Scotch FIR, 1-yr. |
| 500,000 Native Scotch FIR, 2-yr. |
| 1,000,000 Spruce FIR, 2-yr. |
| 100,000 Silver FIR, 2-yr. |
| 200,000 Silver FIR, 3-yr. |
| 600,000 BEECH, 1-yr. |
| 150,000 BIRCH, 1-yr. |
| 100,000 ALDER, 2-yr. |
| 500,000 ALDER, 1-yr. |
| 100,000 ALDER, 2-yr. |
| 400,000 PINUS AUSTRIACA and LARICIO, 1-yr. and 2-yr. |
| 50,000 LABURNUM, 1-yr. |
| 100,000 SYCAMORE, 1-yr. |
| 200,000 THORN QUICK, 1-yr. |
| 200,000 THORN QUICK, 2-yr. |

The above are generally of first-class quality. Prices and sample on application to

MICHAEL BURKE, Drumlorgan and Garadice Nurseries, Co. Meath, Kilcock, Ireland.

SEED POTATOS.

SUTTON'S MAGNUM BONUM, 3 tons (sample sack, 22s.).

EARLY GODERICH, 3 tons (sample sack, 16s.).

SUTTON'S REDSKIN FLOURBALL, 2 tons (sample sack, 12s.). A sample sack (168 lb.) of each sort will be forwarded to an intending purchaser (new sack included) upon receipt of the above amounts.

ARTHUR BULL, Bernard House, Cottenham, Cambs.

Early Peas for Marketing.

THE BEST EARLY PEA IS

SUTTON'S IMPROVED EARLY CHAMPION.—Extensively used by the principal Pea Growers. Ten days earlier than Daniel O'Rourke; very prolific, good quality. Also:—

Sutton's Racehorse

Prizetaker

Champion of England

Veitch's Perfection

Invicta

First and Best

Fortyfold

Advancer.

Price per bushel and quarter on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

Special Offer.

W. BALL AND CO., Bedford Road Nursery,

Northampton, having a very large stock of the under-mentioned TREES, &c., in fine condition for removal, have much pleasure in offering them at the following low prices:—

ASH, 2 to 2½ feet, fine, 18s. per 1000.

BERBERIS AQUIFOLIA, 1 to 1½ foot, very fine, 12s. per 1000.

ELMS, Canadian, 8 to 10 feet stems, with good heads, 100s. per 100.

" English (upright), 6 to 7 feet stems, fine, with good heads, 90s. per 100.

HORNBEAM, 2 to 3 feet, fine, 20s. per 1000.

LIMES, 8 to 9 feet, very fine, 50s. per 100; 9 to 11 feet, ditto, 70s. per 100.

PRIVET, common, 2 feet, bushy, 10s. per 1000.

OVALIFOLIUM, 3 to 4 feet, very fine, 50s. per 1000.

WALNUTS, 6 to 7 feet stems, nice heads, 60s. per 100.

CHERRIES, Morello, dwarf-trained, splendid stuff, 18s. p. doz.

APRICOTS, Moorpark, dwarf-trained, splendid stuff, 20s. p. dozen.

ROSES, extra fine standards, large heads, fine varieties, 4 feet stems, no better in the trade, our selection, 70s. p. 100.

APPLES fine standards, best market varieties, our selection, 60s. per 100.

PEARS, fine standards, best market varieties, our selection, 70s. per 100.

General CATALOGUE of Seed and Herbaceous Plants post-free on application.

SAMUEL AND JAMES SMITH (late J. SMITH, Sen.), Tansley Nurseries, Matlock, Derby,

beg to offer at prices, viz:—

At per 1000.

ASH, Mountain, 2 to 3 feet, 17s.; 3 to 4 feet, 25s.; 4 to 5 feet, 30s.; 6 to 8 feet, 80s.; 8 to 10 feet, 100s.

BEECH, 2 to 3 feet, 25s.; 3 to 4 feet, 30s.; 4 to 5 feet, 40s.

CHESTNUT, Spanish, 1 to 1½ foot, 18s.; 1½ to 2 feet, 30s.

FIR, SPRUCE, 9 to 12 inches, 10s.; 1 to 1½ foot, 14s.; 2-yr., 1s.

PINUS MARITIMA, 9 to 12 inches, 10s.; 2-yr., 3s.

LIMES, 4 to 5 feet, 80s.

POPLAR, Italian, 3 to 4 feet, 25s.; 2-yr., 10s.; Ontario, 2 to 3 feet, 20s.; 4 to 6 feet, 50s.; 2-yr., 10s.; Silver, 3 to 4 feet, 40s.

PRIVET, Evergreen, 2-yr., 7s. Yellow-berried, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.

SNOWBERRY, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.; 2-yr., 7s.

SYCAMORE, 1½ to 2 feet, 15s.; 2 to 3 feet, 20s.

WILLOW, Bitter, 2 to 3 feet, 20s.; 2-yr., 10s.; Huntingdon, 3 to 4 feet, 25s.; 2-yr., 10s.

BROOM, 1-yr., 3s.; 2-yr., 4s.; Spanish, 2-yr., 6s.

GORSE, 2-yr., 4s.

DOGWOOD, Red, 2 to 3 feet, 80s.; 3 to 4 feet, 100s.

LONICERA LEDEBOURII, 1½ to 3 feet, 50s.

FLOWERING SHRUBS, in many varieties, 20s. to 40s.

LAUREL, Portugal, 9 to 15 inches, 40s.; 1 to 1½ foot, 80s.; 1½ to 2 feet, 100s.

IVIES, in sorts, 20s.

COTONEASTER MICROPHYLLA, 20s.

EUONYMUS RADICANS VARIEGATA, 1-yr., 25s.

JUNIPERS, 6 to 12 inches, 25s.

PERNETTIA MUCRONATA, 2-yr., 15s.

RHODODENDRON PONTICUM, 2-yr., 4s.; 3-yr., 6s.; 5-yr. transplanted, 20s.

YEW, 4 to 6 inches, 4s.; 6 to 9 inches, 50s.; 9 to 15 inches, 70s.

At per 100.

ARBOR VITÆ, 3 to 4 feet, 6s.; 5 to 6 feet, 10s.

BERBERIS DARWINII, 1½ to 2 feet, 8s.; 2 to 3 feet, 12s.

BOX, Tree, 1½ to 2 feet, 12s.; 2 to 3 feet, 20s.; elegantissima, 1 to 1½ foot, 15s.

BROOM, White, 3 to 4 feet, 15s.; common, 8s.

CEDRUS DEODARA, 1½ to 2 feet, 80s.; 2 to 3 feet, 120s.

CRYPTOMERIA ELEGANS, 1 to 1½ foot, 15s.; 1½ to 2 feet, 30s.; 2 to 3 feet, 50s.

CUPRESSUS LAWSONIANA, 2 to 3 feet, 20s.; 3 to 4 feet, 25s.; 4 to 5 feet, 50s.

MEZERON, 1 to 1½ foot, 15s.

LABURNUM, 10 to 12 feet, 30s.

LAUREL, Caucasian, 1½ to 2 feet, 40s.

OAK, Fulham, 6 to 8 feet, 30s.; Scarlet, 6 to 8 feet, 50s.

PINUS CEMBRA, 4 to 6 feet, 40s.

POPLAR, Silver, 6 to 8 feet, 15s.

SYCAMORE, 8 to 10 feet, 20s.

RHODODENDRON, ferrugineum, 12s.; hirsutum, 10s.

THUOPSIS BOREALIS, 1 to 1½ foot, 40s.; 1½ to 2 feet, 50s.

YEW, Irish, 4 to 5 feet, 100s.

WHIN, Double, 9 to 15 inches, 12s.

HARDY HERBACEOUS PLANTS in collection of 100 distinct varieties, 25s.; 300 varieties, 60s. &c.

LIST free on application.

COCOA-NUT FIBRE REFUSE.—

Reduced Price:—In 4 bushel bags, bags included, at 1s. or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—**J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.**

GARDEN REQUISITES.—COCOA-NUT FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners. 3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s. 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s. or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s. or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c.

Write for free PRICE LIST. Goods free to rail.

H. G. SMYTH, 10, Castle Street, Endell Street, Long Acre, W.C.

PEAT for RHODODENDRONS and ordinary POT PLANTS, in trucks containing 14 yards or loads, put on rail at Ringwood Station, £3 15s. Carriage paid to London or any Station on the L. & S.W. Railway, £5 5s. per truck of fourteen loads. Cash or reference.

J. PRYER, Manager, Peat Stores, Vauxhall Station and Ringwood.

PEAT.—South of England Horticultural Peat

Lands.—**C. R. HOLLOWAY, Christchurch, Hants.**

BROWN, FIBROUS, Light-weighting Peat, of excellent quality, for Orchids, Ferns, &c., well cut in Turfs and carefully loaded into Railway Trucks, at 17s. 6d. per ton, in loads of 4 Tons and upwards. Sample bag, 5s.; five bags, 21s.; 12 bags, 40s. Some also, of good quality, at 13s. 6d. per ton, four tons and upwards. "Carriage rates given."

DELIVERED on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

FRESH SPHAGNUM, 10s. 6d. per bag.

WALKER AND CO., Farnborough Station, Hants.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.

Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

FRESH SPHAGNUM, 10s. 6d. per bag.

WALKER AND CO., Farnborough Station, Hants.

PEAT SOIL, PEAT SOIL.

BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. **BLACK**, good quality for American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s. per ton, or 6-ton truck for £4 10s. Delivered on rail at Blackwater, S. E. R., or Camberley, S. W. R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER AND SON, Crown Nurseries, Reading.

THE BEST MANURE.—

CARTER'S FERTILISER FOR FLOWERS.

CARTER'S FERTILISER FOR POTATOS.

CARTER'S FERTILISER FOR VEGETABLES.

Professor CHURCH says, "I am much pleased with the thoroughly satisfactory character of Carter's Fertiliser."

Price 1s. 6d. and 4s. 6d. per tin. Cheaper in larger quantities.

CARTERS, The Queen's Seedsmen, High Holborn, London.

VINE MANURE.—Two-Cwt. sample, in

bag, free on Rail in London on receipt of P. O. O. for 10s. 6d., payable to

COLLINS AND CO., 28, Long Lane, Bermondsey, S.E., and Belvedere Manure Works, Belvedere, Kent.

For Every Garden.

THE NEW FRENCH MANURE,

LE FLORAL, surpasses all others.

FOR VEGETABLES increases the quantity. **LE FLORAL**

FOR FLOWERS increases size and brightens colour. **LE FLORAL**

FOR TREES, &c. increases verdure and luxuriance. **LE FLORAL**

For testimonials, prices, and full particulars apply to

The Sole Agents for England,

SUTTON AND SONS, The Queen's Seedsmen, Reading.

WILKIE'S CONDENSED COMPOSITION.

WILKIE'S CONDENSED COMPOSITION.—A. W. begs to inform the Trade that he has now every convenience for the manufacture of his unequalled Composition, and can therefore offer it on better terms.

A. WILKIE (late of Oak Lodge), 108, Church Street, Paddington, W.

CLAY'S FERTILISER,

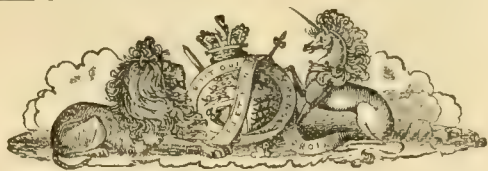
Or PLANT FOOD.

Is now respectfully offered to the Public, after having been thoroughly tested and approved, during the last three years,

by the principal Market Growers and Gardeners. It is a powerful and lasting Manure, quick in action, and clean and safe to use. See correspondence in *Gardeners' Chronicle*, Oct. 5, 12, 19, and 26.

To be had of Seedsmen, Nurserymen, and Florists, in packets, 1s.; and in bags, ¼ cwt., 7s.

GARDEN SEEDS—GARDEN SEEDS.



OSBORN & SONS'

ANNUAL DESCRIPTIVE CATALOGUE

Of the above is now ready for distribution.

It contains a Choice Selection of KITCHEN GARDEN and FLOWER SEEDS of every description, including the following:—

GILBERT'S BURGHLEY CHAMPION BROCCOLI.

A most useful late variety, selected by Mr. R. Gilbert of Burghley from Cattell's Eclipse. It is whiter and firmer in texture, later in season, and the most perfect self-protecting Broccoli extant.

It is undoubtedly a novelty of sterling merit. Sown the last week in April it comes into use the following year during the months of May and June.

Sold only in sealed packets, marked "R. O.," price 2s. 6d. each.

OSBORN'S WINTER WHITE BROCCOLI.

One of the best mid-winter varieties in cultivation. It produces pure white heads of delicious flavour, and by successive sowings, commencing in March, may be had in use from November to May.

Price 2s. per ounce.

OSBORN'S EARLY FORCING FRENCH BEAN.

Generally admitted to be the finest Dwarf Bean ever introduced either for forcing or for the open ground. It is very dwarf, very early, and wonderfully prolific.

Price 2s. per quart.

POTATOS.

All the best sorts, both new and old, at very reasonable prices.

OSBORN'S SELECT RED BEET (Dell's Crimson).

The true and original stock as raised many years ago by Mr. Bogue, and selected by us with the greatest care ever since. It is one of the finest for culinary purposes, and a great acquisition for the flower garden on account of the rich colour of its foliage.

Price 1s. 6d. per ounce.

SCOTT'S SUPERB WHITE COS LETTUCE.

Those who have not tried this should do so at once. It is certainly one of the best, if not the best, of the white Cos varieties. It grows to an immense size, and is very solid and crisp.

Price 1s. per packet.

OSBORN'S SELECT MUSHROOM SPAWN,

Which never fails to give satisfaction. (See testimonial, in catalogue.)

Price 5s. per bushel.

MATS—best Archangel,

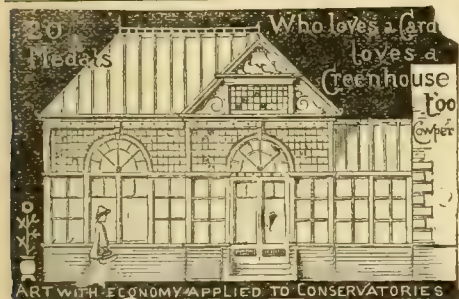
For covering and other purposes, 24s. per dozen.

GARDEN TOOLS, KNIVES, &c., of the best quality.

N.B.—All Orders for Seeds will be forwarded, Carriage Paid, to any Railway Station in England, if amounting to 20s. or upwards; and to any Railway Station in Scotland, or Seaport in Ireland, if amounting to 40s. or upwards. Five per Cent. discount allowed on payments made within One Month of date of Invoice.

CATALOGUES FORWARDED, POST-FREE, ON APPLICATION.

THE FULHAM NURSERIES, LONDON, S.W.



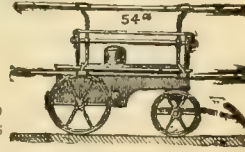
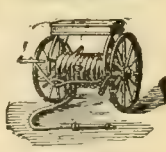
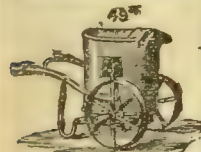
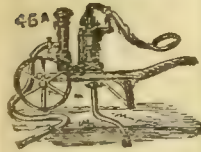
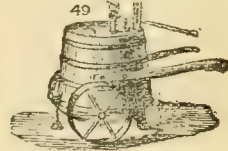
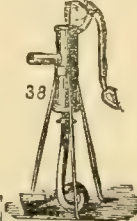
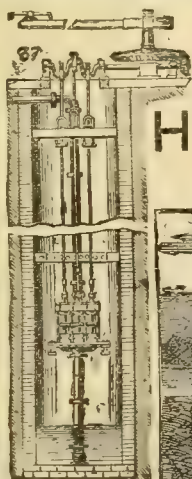
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 QUEEN VICTORIA STREET, LONDON, E.C.,
CONSERVATORY AND GREENHOUSE BUILDERS,
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HYDRAULIC ENGINEERS,
 WHITEFRIARS STREET, LONDON, E.C.



THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive-power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.



- No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
 No. 63. PORTABLE IRRIGATORS, with Double or Treble Barrels for Horse or Steam Power.
 No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering Gardens, &c.
 No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
 No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.
 No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.

- No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
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 No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
 No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
 No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GASWORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c.

Particulars taken in any part of the Country. Plans and Estimates furnished.

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Send for a PRICE LIST of BLAKE'S SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of
Villages, Irrigation, Railway Stations, Mansions,
Fountains, Farms.

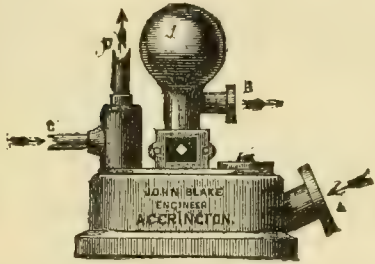
No Cost for Motive Power, which is obtained from the
Stream of Water passing through the Rams.

NO OILING OR PACKING REQUIRED

Made in sizes to raise from 300 to 100,000 Gallons per day.

WILL FORCE TO A HEIGHT OF 1500 FEET.

This advertisement will
appear again on Feb. 1.



This Ram will raise a part of the same water that works it, or will raise pure water from a well whilst it is worked by a stream of impure water.

TESTIMONIALS.

From the Right Hon. T. SOTHERN ESTCOURT, *Estcourt Park, Gloucestershire, September 6, 1875.*

"You will be glad to hear, as I am to tell you, that your Self-acting Hydraulic Ram has worked exceedingly well and continuously since it was erected, more than twelve months ago. It is, in fact, perfectly successful."

(The delivery pipe in the above case is 4200 feet long, with 100 feet rise.)

From Captain TOWNSHEND, *Wincham, February 10, 1877.*

"In answer to your enquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long at the rate of 80,000 gallons per day, although you only promised 50,000."

From W. SCARTH, Esq., *Agent to His Grace the Duke of Cleveland, Raby Castle, Darlington, July 16, 1878.*

"The Hydraulic Ram you supplied to his Grace the Duke of Cleveland in 1875 is a complete success. It worked for more than two years without once stopping, and throws more water than promised."

Deanwater, Wilmslow, November 20, 1873.

"Dear Sir,—In answer to your enquiries respecting the Hydraulic Ram you supplied me with six months ago, I beg to state that I am more than satisfied with it, as it is in perfect order, sending up to the top of the house about 2000 gallons of water in the twenty-four hours, whereas you only contracted to deliver in that time 500 gallons. I have, therefore, every reason to be well pleased with your work, and more especially as I had a Ram supplied me by another maker which could not send up a single gallon of water to the height required, and a second maker informed me that no Ram with a fall of 3 feet could send up water to the distance required, namely, 120 feet. But yours is an accomplished fact, and does its work most effectually.—I am, yours truly, L. HAMMER."

From JOHN TAYLOR, Esq., *The Rocks, Bath, Aug. 22, 1878.*

"The Self-acting Hydraulic Ram you fixed here in March of last year continues to work well. It has only the same quantity of water and fall to work it as the water-wheel and pump which I used previously to force to a height of 294 feet, and yet the Ram sends up more than double the quantity of water than the wheel did to the same height."

From JOHN PENNINGTON, Esq., *Ennott Hall, near Colne, December 21, 1868.*

"Sir,—The Self-acting Hydraulic Ram you supplied me with nine months ago continues in excellent condition. It receives water from a spring through a 2-inch pipe, of which it forces 3500 gallons per day of twenty-four hours to a height of 90 feet, exceeding all you promised, and far surpassing the water-wheel and force pumps which it has displaced. Its cost is small, it occupies but little space (2 square feet), and in mechanical detail is simplicity itself. I have much pleasure in recommending it as a cheap and efficient method of raising water."

**JOHN BLAKE,
ENGINEER, ACCRINGTON.**

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Tiffany and Elastic Netting (REGISTERED), with Canvas and all other Shading and Protecting Materials, manufactured and sold by

JOHN SHAW AND CO., 29, Oxford Street, Manchester.
Samples and prices on application.

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THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design. F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

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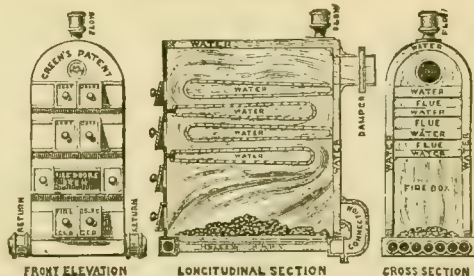
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With Shelves or Tubes, and Hollow
Grate Bars,

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Specially adapted for Heating Greenhouses, Conservatories, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c.

They are the Neatest, Cheapest, Most Effective, and Durable of any extant.

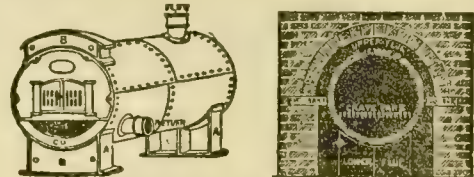


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HOT-WATER ENGINEERS, &c., &c.,
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Our Boilers are the ONLY ones made with the sanction and under the inspection of the inventor, Mr. Stevens—all others being base imitations.

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For COVERING, TYING, and PACKING, are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. SACKS and BAGS of every description. TARPAULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

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The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

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NEW SYSTEM of AIR and WATER-TIGHT
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"Convincingly prove the new Glazing System to be worthy the attention of readers of the *Keys'one*."—*The Keystone.*

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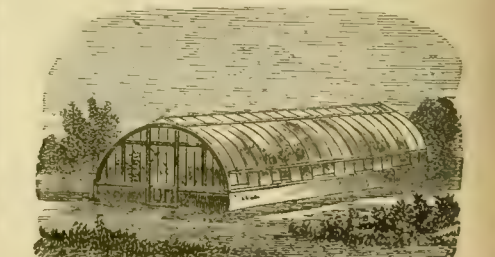
All sizes in Stock or in progress. Made of best material, glazed or unglazed, 6 feet by 3 feet 10 1/4 inches, painted three times, glazed with 21-oz. English glass, 1/6s. each. Special price for a quantity. Carriage free. Packing free.

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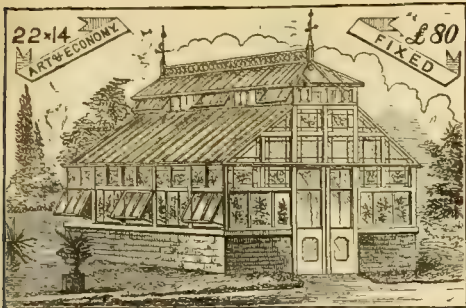
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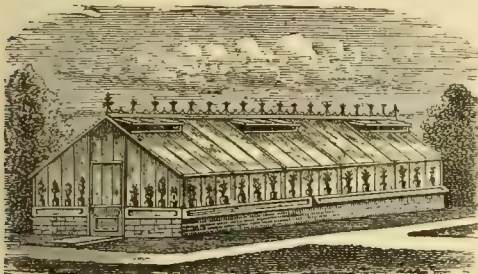
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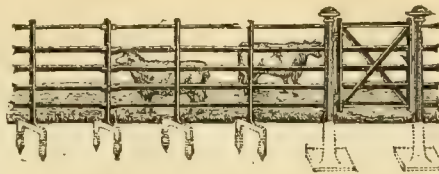
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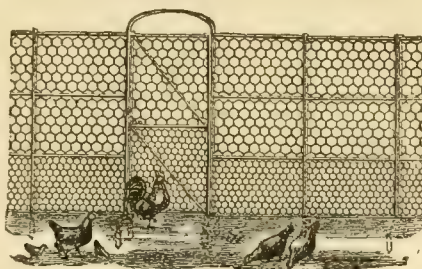
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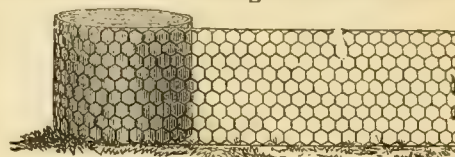


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Also the Sole Highest Awards at Vienna, 1873,
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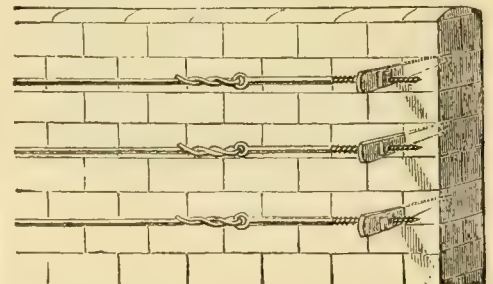
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| No. 14 Gauge Wire | 1 0 | 1 7 | 2 1 | 2 7 | 3 1 |
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| GALVANISED RAIDISSEURS | 3 0 |
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Must be sober, steady, and obliging, with a knowledge of the Nursery Business. Wages, 21s. per week.—W. BARRON AND SON, Seedsmen, Nottingham.

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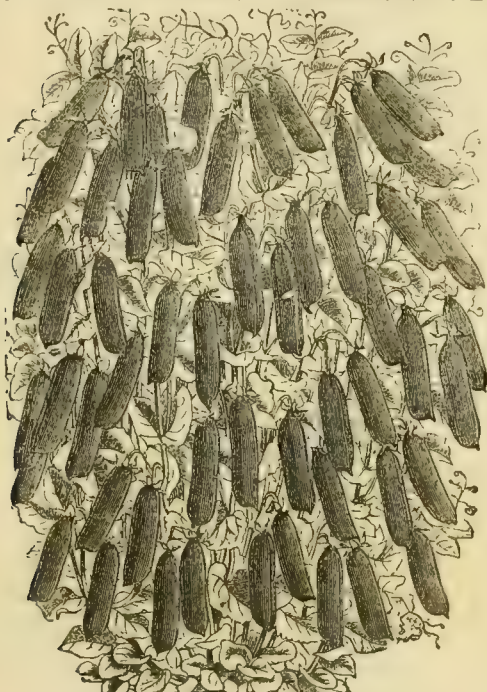
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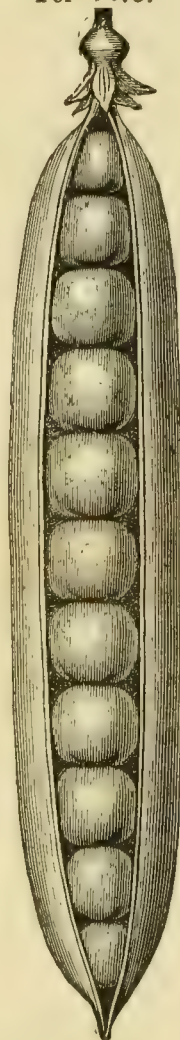
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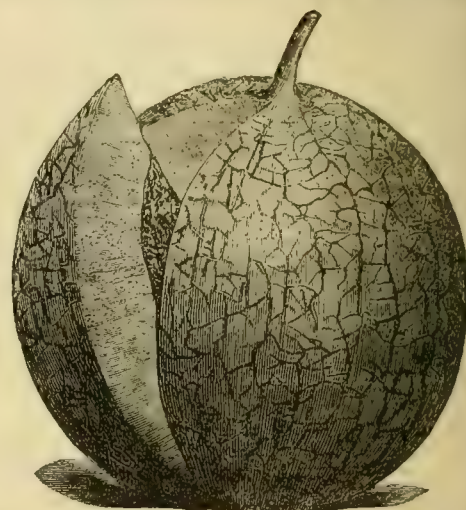
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No. 265.—VOL. XI. { NEW SERIES. }

SATURDAY, JANUARY 25, 1879.

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West Wickham, Kent, S.E.

Close to the "Swan Inn." Three miles from Beckenham and Bromley Stations.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Kirkcaldy to SELL by AUCTION, without reserve, at The Nursery, as above, on THURSDAY, January 30, at 12 o'clock punctually, 3000 Common and Portugal LAURELS, 2 to 5 feet; 1500 HOLLIES and YEW, 3 to 5 feet; CEDRUS DEODARA, 1000 BERBERIS, 2000 Spruce and Scotch FIRS, 2000 PINUS AUSTRIACA, LIMES, PLANES, BORDER SHRUBS of sorts, 500 first-class Standard ROSES, well trained and Pyramidal FRUIT TREES, &c.

View prior to Sale. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, City, E.C.

Cranston's Nurseries, King's Acre, Hereford.

GREAT SALE OF NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, as above, on TUESDAY, February 4, and two following days, at 12 o'clock punctually each day, by order of Messrs. Cranston & Co., several Acres of first-class NURSERY STOCK, all in the finest condition for removal, including 16,000 standard, pyramid, and dwarf-trained Fruit Trees, 5000 Maiden Pears, 6000 Gooseberries and Currants, several thousands of standard and dwarf H.P. Roses, several thousands of Maréchal Niel, 10,000 dwarf Tea-scented Roses, magnificent specimen Conifers and Evergreens, from 6 to 10 feet, well furnished and thoroughly transplanted; 10,000 bushy Laurels, 3 to 4 feet; 5000 English Yews, 3 to 4 feet; 2000 Ponticum Rhododendrons, 50,000 Manetti Rose Stocks, fit for working; 60,000 transplanted Larch, 1½ to 2 feet; 20,000 Spruce Firs, 1½ to 2 feet; 50,000 strong transplanted Hawthorn Quick, &c., together with a selection of Greenhouse Plants.

The Stock may be viewed. Catalogues had at the Nurseries, at the Seed Warehouse, Broad Street, Hereford, and of the Auctioneers, 98, Gracechurch Street, London, E.C.

Wickham, Newbury.

IMPORTANT SALE OF VALUABLE PLANTS, &c., by order of the Executors of the late Rev. W. Nicholson.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION on the Premises, The Rectory, Wickham, Newbury, Berks, three miles from Kintbury Station, on FRIDAY, Feb. 7, at 11 for 12 o'clock precisely, the whole of the choice GREENHOUSE PLANTS, comprising 100 specimen Camellias, beautifully furnished plants, in tubs and pots, varying in height from 4 to 12 feet, the whole being set with bloom-buds and in the most perfect health, several fine specimens of the best double white variety being amongst the number; also some magnificent Orange Trees in tubs, 40 large Callas, a quantity of large Greenhouse Climbers, and numerous other plants, also some elegant Terra-Cotta VASES, handsomely designed FOUNTAIN in Terra-Cotta, three life-sized FIGURES in Iron of Animals, IRON GATES, Glazed SASHES, 10,000 Maw's TILES, and numerous other effects.

May be viewed the day prior to the sale. Catalogues may be had of Mr. JARRATT, on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Taunton, Somerset.

CLEARANCE SALE—Land Sold for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Hocken to SELL by AUCTION, without reserve, on the Premises, The Nurseries, Taunton, on THURSDAY and FRIDAY, February 13 and 14, at 12 o'clock precisely each day, the whole of the NURSERY STOCK, consisting of specimen Conifers and Evergreens from 4 to 12 feet; 1500 Gold, Silver, and Fancy Hollies, 5000 dwarf-trained and pyramid Fruit-trees, half an acre of Stools, thousands of Ornamental Trees and Shrubs, 30,000 Larch, a choice assortment of Stove and Greenhouse plants, together with the erections of eight Greenhouses and Pits, Hot-water Piping, Boilers, Frames, Utensils in Trade, and numerous effects.

On view. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Lilies from Japan and Rare Hardy Bulbs and Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 30, at half-past 12 o'clock precisely, 6000 fine Bulbs of LILIUM AURATUM, just arrived from Japan; 1000 LILIUM KRAMERI and various other JAPAN LILIES; also a quantity of very rare HARDY PLANTS and BULBS, including Erythrina herbacea, Opuntia missouriensis, Fritillaria pudica, Rhinopetalum Karelini, 1000 Allium neapolitanum, Orchis foliosa, Erythronium giganteum, Primula, new species; Clematis Pitcheri, Senecio pulcher, Stobea purpurea, Cypripediums, and many others, English grown Lilies, including carmolicum, columbianum, parvum, californicum vera, pardalinum variety, pardalinum Robinsoni, longiflorum Wilsoni, Brownii, washingtonianum, Bloomerianum, Wallichianum, and many others; Gladioli, Ranunculi, Spiræas, Lily of the Valley, &c.

On view morning of Sale, and Catalogues had.

Vanda cœrulea—Specimen Plant.

MR. J. C. STEVENS will offer for SALE by AUCTION, in FEBRUARY, a magnificent SPECIMEN PLANT of VANDA CÆRULEA, which has been exhibited before the Floral Committee of the Royal Horticultural Society four times, and has been awarded three Cultural Certificates and the Gold and Silver Banksian Medals.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Preliminary Notice of an Important Sale of Plants.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, EARLY in MAY, the magnificent COLLECTION of PLANTS at Dangstein, and which for many years has been one of the most extensive and interesting in the country.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Baker Street Nurseries, Enfield, N.

IMPORTANT CLEARANCE SALE of a large quantity of thriving NURSERY STOCK, comprising Araucarias, Wellingtonias, Yews, Cupressus, Thujas, Thujopsis, Junipers, Variegated Holly, Aucubas, Laurels, Standard Roses, 1500 Limes, quantity of Standard Fruit Trees, &c.

MR. GEORGE COWLES will SELL the above by AUCTION (entirely without reserve), on the premises of the Old Nursery, Baker Street, Enfield, on WEDNESDAY, February 5, at 11 for 12 o'clock precisely, by order of J. B. Butterfield.

Now on view. Catalogues on the Premises, and of the Auctioneer, Edmonton.

In re William Skirving, Deceased.

TO NURSERYMEN, GENTLEMEN, LOCAL BOARDS, PLANTERS OF PUBLIC PARKS, CEMETERIES, and PRIVATE GARDENS, &c.

MESSRS. BRANCH AND LEETE will SELL by AUCTION, on MONDAY, February 17, and several following days, at 12 o'clock each day, at the extensive Nurseries in Walton, near Liverpool, the whole of the important and well-grown NURSERY STOCK, consisting of Forest and Ornamental Trees, Fruit Trees, Evergreen and Deciduous Shrubs, Quicks, Stove and Greenhouse Plants, Vines, Herbaceous Plants, &c. A few of the leading items are Elms, Birch, Scarlet and Common Horse Chesnut, Limes, Mountain Ash, Poplars, Willows, Laburnums ranging up to 15 feet high, strong oval-leaved Privet, fine trained Plums, Cherries, Apples, Pears, &c. Of Hollies the stock is very extensive, the variety great and of all sizes up to 15 feet; Rhododendrons, Irish and Golden Yews, Cupressus, &c.

The stock can be inspected any day prior to the Sale. Noblemen, Gentlemen, and others laying out fresh grounds or re-arranging those at present existing will find this an opportunity very rarely to be met with; and the high standing enjoyed by the late William Skirving, Esq., is a sufficient guarantee for the great excellence of the stock.

Catalogues will be ready in due course. Any information required can be obtained from J. W. DAVIDSON, Esq., Accountant, 10, Cook Street; or at the Offices of Messrs. BRANCH AND LEETE, Hanover Street, Liverpool.

Second Advertisement.

MESSRS. CAPES, DUNN, AND PILCHER have the pleasure to announce that, in pursuance of further instructions from T. M. Shuttleworth, Esq., who has recently purchased another residence, they will SELL by AUCTION at Howick House, near Preston, on TUESDAY and WEDNESDAY, April 15 and 16, without the slightest reserve, the entire and unique COLLECTION of STOVE and GREENHOUSE SPECIMEN EXHIBITION PLANTS, Azaleas, Fine-foliaged Plants, Gleichenias, Tree and other Ferns, together with Orchids, Camellias, and other plants of a miscellaneous character. The specimens to be offered are now in grand condition, and they will be invaluable for the coming season to Exhibitors.

Catalogues will be ready at the end of February, and may then be obtained from the Auctioneers, 8, Clarence Street, Manchester.

To Nurserymen and Others.

TO BE LET or SOLD, the well-known attractive and almost unique FREEHOLD ESTATE, distinguished as The Nurseries, Tooting, established nearly a century and comprising over 5 acres of Nursery Ground, with a detached Dwelling house, twenty-six Greenhouses, several Brick Pits, heated by 6700 feet of piping; also three Cottages, and numerous Out-buildings, the whole being replete with every necessary appliance, and complete in all its arrangements to carry on a high-class Nurseryman and Florist's Business. Terms and detailed particulars may be had of

Messrs. GATLIFF and HOUSE, Solicitors, 8, Finsbury Circus, E.C.; or of Messrs. PROTHEROE AND MORRIS, Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., where plans of the property may be inspected.

To Market Gardeners.

TO LET, a SEWAGE FARM, principally arable (114 acres), and Farm Buildings. Adjoining a Railway Station and Water Carriage; 18 miles north-east of London. Apply to

Messrs. BENINGFIELD, Ware, Herts.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

A New and Brilliant Primula.

CARTER'S VESUVIUS.—Brilliant scarlet. "For which a world-wide popularity may be safely predicted."—Gardener's Magazine.

Price 2s. 6d. per packet, post-free. See STERLING NOVELTIES, gratis and post-free from CARTERS, The Queen's Seedsmen, High Holborn, London.

BLACK ITALIAN POPLARS, 8 to 10 feet, 10 to 12 feet, and 12 to 15 feet, stout, well-grown trees, to be sold cheap. Sample and price on application. G. W. PIPER, The Nurseries, Uckfield.

Trade Price Current—Seeds—1879.

THE LAWSON SEED AND NURSERY COMPANY (LIMITED), have issued their ANNUAL CATALOGUE OF SEEDS, and if any of their Customers have been inadvertently overlooked, copies will be sent on application. 1, George IV. Bridge, Edinburgh; 106, Southwark Street, London, S.E.

New, Rare and Choice Seeds.

W. THOMSON, SEEDSMAN, Tavern Street, Ipswich, respectfully announces that his CATALOGUE of Flower Seeds for the present season is now ready, and will be forwarded free to any address on prepaid application.

STRONG FILBERTS.—Strong bushy Filberts, recently transplanted, and of the best varieties, for sale. Apply to

E. P. DIXON, Nurseries, Hull.

Caution.—Sutton's Novelties.

MESSRS. SUTTON find it necessary to state that their Novelties can only be had direct from them. Every packet bears their Registered Trade Mark. Descriptive particulars on application.

The Queen's Seedsmen, Reading, Berks.

Planting Season.

E. BURGESS begs to offer the following:—Strong Standard PEARS, Standard-trained APRICOTS, Turkey and English OAK, English and Scotch ELMs, LIMES up to 12 feet, BEECH up to 7 feet, and a general Nursery Stock. Prices on application. The Nurseries, London Road, Cheltenham.

ROSES, fine Dwarfs, on Manetti—all the leading varieties, 2s. per 100.—WILLIAM IRELAND, Pilton and Blakewell Nurseries, Barnstaple.

JAMES FARRAR AND CO. beg to announce the publication of their Wholesale CATALOGUE of SEEDS for the present season, which will be forwarded post-free on application. Seed Warehouse, 86, Golden Lane, Barbican, London, E.C.

BARTO VALLE AND CO. have just received, in good condition, their DOUBLE ITALIAN TUBEROSE ROOTS: 2s. 6d. per dozen. 21, Haymarket, W.C.

Seeds.

CUCUMBERS.—Rollisson's Long Gun, 1s. 6d. per packet; Pearson's Telegraph, 1s. per packet. CATALOGUES of all Seeds on application. J. R. PEARSON, The Nurseries, Chilwell, Notts.

PLANTS—SPECIAL HARDY NORTH AMERICAN ORCHIDS. DISA GRANDIFLORA, &c. See CATALOGUE post-free on application.

The NEW PLANT and BULB COMPANY, Colchester.

To the Trade.

SEED POTATOS.—Our SPECIAL LIST, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application.

H. AND F. SHARPE, Seed Growers, Wisbech.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE will be pleased to make special offers of all the leading varieties of SEED POTATOS they have grown this season. The prices will be found very advantageous to purchasers.

Seed Growing Establishment, Wisbech.

Green and Variegated Ivies of Sorts,

Large and small-leaved, in eight kinds.

ROBERT PARKER, having a surplus stock of fine Plants in pots of the above-named, will be pleased to dispose of them in quantities, at very low prices. Names, sizes and prices, per dozen, 100 or 1000, will be given on application.

Exotic Nursery, Tooting, Surrey, S.W.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

WM. CUTBUSH AND SON beg to announce that their SEED CATALOGUE for 1879 has been posted to all their Customers. Any one not receiving a copy they would be glad of intimation to that effect, when a duplicate shall be forwarded.

Highgate, London, N., and Barnet Nurseries, Herts.

DREADNOUGHT CUCUMBER.—The finest Black-spine, and the best paying market variety extant; warranted true. Seed, five for 1s., fourteen for 2s. 6d. POPE AND SONS, 120, 121, 122, Market Hall, 3, Great Western Arcade, Birmingham.

To the Trade.

DAHLIAS, 20,000 (pot roots).—CATALOGUES and price on application to Messrs. KELWAY AND SON, Langport, Somerset.

FOREST TREES.—Alder, Beech, Birch, Chestnut, Elm, Spruce, Silver and Scotch Firs, Hazel, Hornbeam, Oaks, Thorns, and Yews, at very low prices for well-grown stock.

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

SCIADOPITYS VERTICILLATA (Sieb. and Zucc).—From this fine Coniferous plant I expect good Growing Seed from Japan in March, which I can offer at 10s. 6d. per ounce, with usual allowance to the Trade.

FRIEDRICH ADOLPH HAAGE, Jun., Nurseryman and Seedsman (Established 1822), Erfurt, Prussia.—January, 1879.

EAST LOTHIAN STOCK (True).

SCARLET, very fine, 6d. and 1s. per packet. NEW CRIMSON, very fine, 6d. and 1s. per packet. PURPLE, very fine, 6d. and 1s. per packet. WHITE, very fine, 6d. and 1s. per packet. WHITE WALLFLOWER-LEAVED, very fine, 6d. and 1s. per packet.

WILLIAM THOMSON AND CO., Seed Merchants, 3, Melbourne Place, George IV. Bridge, Edinburgh.

SEED POTATOS.—For Sale, for Cash, 100 sacks of splendid Seed Potatoes, grown on soil of light peat and sandy loam, for CHANGE of SEED, consisting of the following varieties, namely:—

| | |
|----------------------------|-------------------------------|
| 5 sacks Myatt's Ashleaf | 10 sacks American Rose, early |
| 20 sacks Early Oxford | 10 sacks " " late |
| 5 sacks Robson's Challenge | 25 sack Paterson's Victoria |

E. WHITE, The Bournemouth Nurseries, Bournemouth.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented flower, 10s. per bushel, 6s. per half bushel, 3s. 6d. per peck. Terms cash with order, package free. Post-office Orders payable at Vauxhall Cross.

Mrs. J. E. ALDERSON, Langley Lane, South Lambeth, Surrey, S.E.

Cover Planting.

MESSRS. JOHN STANDISH AND CO. have the following Plants to offer, in large quantities, well rooted, suitable for Cover Planting:—
RHODODENDRON PONTICUM, 12 to 18 inches, and very bushy.
BERBERIS DARWINII, 1½ to 2 feet.
AQUIFOLIUM, and others.
LAUREL, common, 2½ to 4 feet.
 Portugal, 2 to 3 feet.
 caucasicum, 2 to 3 feet.
AUCUBAS, and other Plants.
 When large quantities are taken a very liberal reduction will be made from the catalogue prices.
 Samples and prices on application.
 Royal Nurseries, Ascot, Berks.

To the Trade.

SPECIAL PRICES ON APPLICATION

GEORGE COOPER, SEED MERCHANT, Hertford, begs to offer the following, of the choicest stocks:—
BEEF, Red, Cooper's Excelsior
BROCCOLI, Hill's June
CUCUMBER, Improved Telegraph
PARSLEY, Curled, Cooper's
SWEDS, Cooper's Improved
 Large Purple-top
TURNIP, Improved Aberdeen
 Green-top Yellow
ONION, White Spanish
 " White Globe
 " Bedfordshire Champion
CELERY, Cooper's Improved
 White
BROMPTON STOCK,
 Giant Scarlet
CYCLAMEN PERSICUM,
 from large flowers.

Season 1879.

VEGETABLE AND FLOWER SEEDS of Superior Quality. Carriage Free.
 Priced Descriptive CATALOGUE, containing select Lists of these, also Potatoes for planting, Hybrid Gladioli, and other Garden Requisites, is now published, and will be sent post-free on application.

DICKSON AND ROBINSON,
 Seed Merchants and Nurserymen, 12, Old Millgate, Manchester.

CALCEOLARIAS.—Spotted, very best strain, in pots, 6s. per dozen; smaller, 4s. per dozen; pricked off, fine plants, 2s. 6d. per dozen, 17s. per 100, post-free; smaller, 12s. per 100.

RASPBERRIES.—The best kinds, price per 100 or 1000, and full particulars on application.
STRAWBERRY "GARIBALDI".—Splendid strong plants, in 6-inch pots, ready for immediate forcing, 35s. per 100; ditto, in small pots, 15s. per 100; strong planted-out runners, of all the best kinds, 5s. per 100, 40s. per 1000.
H. CANNELL, Swanley, Kent.

STOTT'S MONARCH RHUBARB.—
 "Shirley Hibberd says that any one who wants a Rhubarb that makes leaves as big as a dining-table, or stems as thick as a Cedar tree, that rises as high as a tall human dwarf, should order STOTT'S MONARCH at once. After being at sea for three years as to the whereabouts of this wonderful Rhubarb, he has at last discovered that it is to be obtained of Stuart, Mein & Allan, Kelso."—*Canadian Weekly Globe*. See also *Gardeners' Chronicle* of January 11.
 Price 1s. 6d. each.

STUART, MEIN AND ALLAN, Nurserymen and Seedsmen, Kelso.

TO THE TRADE.
RHODODENDRONS, Hybrids, with bloom-buds.
YEW, Common, 3 to 4 feet.
ALDERS, 2 to 3 feet, and 3 to 5 feet.
BIRCH, 2 to 3 feet, and 3 to 5 feet.
BEECH, 3 to 4 feet.
CHESTNUTS, Horse, 3 to 12 feet.
LARCH, Fir, 1½ to 2 feet.
HAZEL, 2 to 3 feet, and 3 to 4 feet.
MANETTI STOCKS, very good and cheap.
ARBOR-VITÆ, Chinese for stock.
DEUTZIA GRACILIS.
SWEET BRIER, 2 feet.

WILLIAM FLETCHER, The Nurseries, Ottershaw, Chertsey.

QUEEN of LILIES, LILIUM AURATUM.
 —Imported Bulbs are now arriving, and orders are solicited. This lovely Lily is quite hardy, and should be generally grown. Before ordering send for Lily List, where all particulars are given.

Reduced Prices.—Size No. 1, 6d.; No. 2, 9d.; No. 3, 1s.; No. 4, 1s. 6d. each. Special quotations to the Trade.

ORCHIDS.—Special offer of the following fine Orchids, for £5 5s. (or other varieties in EXCHANGE for those not required):—1 plant *Phalenopsis Schilleriana*, 2 plants *Dendrobium formosum giganteum*, 1 plant *Phalenopsis grandiflora aurea*, 4 plants *Dendrobium cretaceum*, 1 plant *Saccolabium guttatum*, 1 plant *Dendrobium barbatulum*, 3 plants *Calanthe rubra* and *luteo oculata*, 1 plant *Dendrobium Pierrardi*, 1 pot *Limatodes rosea*.

All orders to be accompanied by a remittance. Lily and Orchid List sent on application to
WILLIAM GORDON, 10, Cullum Street, London, E.C., Lily Bulb and Plant Importer.

To the Trade.—Immense quantities of extra fine **SEEDLINGS AND TRANSPLANTED PLANTS**—Quicks, Scotch Firs, Alders, Fruit Trees, Shrubs, &c. For Descriptive CATALOGUE, apply to **LEVAVASSEUR AND SON**, Nurserymen, Ussy, Calvados, France; or to their Agents, Messrs. R. SILBERRAD AND SON, 15, Harp Lane, Great Tower Street, London, E.C.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of **VINES** is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s **BULB CATALOGUE** for this year.
 Victoria and Paradise Nurseries, Upper Holloway, London, N.

The Best Green-Fleshed Melon of the Year.

DELL'S HYBRID.—The only green-fleshed Melon deemed worthy this year of the Royal Horticultural Society's First-Class Certificate. Smooth, deep yellow, netted skin, small stalk, pale green flesh.
 "All that we have tasted were delicious."—*Gardeners' Chronicle*.

Price 2s. 6d. per packet of six seeds, post-free.
 See **STERLING NOVELTIES**, gratis and post-free, from **CARTERS**, The Queen's Seedsmen, High Holborn, London.

Economy in the Garden.

TO LARGE CONSUMERS.

JAMES CARTER AND CO. being *bond fide* growers of the seeds they offer, are enabled to place **PUBLIC INSTITUTIONS, HOTEL-KEEPERS, &c.** on the most liberal terms. State quantities and sorts required to **CARTERS**, The Queen's Seedsmen, High Holborn, London.

TODEAS.—Healthy young plants of *T. superba* and *T. hymenophylloides* (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.
ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
 The Ottershaw Nursery, Chertsey.

CUCUMBER PLANTS for Sale: Telegraph (true).—The Public may depend on being supplied with Cucumber Plants till June next, by applying to **G. WALKLING**, College Park Nursery, Lewisham, S.E.

TO THE TRADE.—
PEARS, Williams' Bon Chrétien and Hessel, Standards, 75s. per 100; **PLUMS**, Victoria, Dwarf-trained, 140s. per 100; **CHERRIES**, Standard, 75s. per 100; also trained **PEACHES**, **APRICOTS**, and **APPLES**.

CATALOGUES on application to
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey, Surrey.

INTIMATION.

15, Princes' Street, Edinburgh,
 January 21, 1879.

We beg to intimate that the Business so long carried on by our late respected Father, and for the last twelve years in conjunction with ourselves, will continue to be carried on by us in all its departments as heretofore, and under the same designation.

We desire to thank all our friends for the kind patronage bestowed on the firm for the last thirty years, and we beg to solicit and hope to merit a continuance of the same.

JOHN METHVEN,
HENRY WELSH METHVEN.

THOMAS METHVEN & SONS,
 NURSERYMEN,
 SEEDSMEN, and FLORISTS,
 EDINBURGH.

SPRUCE FIRS.—A quantity of strong stuff for sale, 2 feet high, at 30s. per 1000.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf **ROSES, FRUIT TREES** of all sizes, Scarlet and other **RHODODENDRONS** well set with buds, **CONIFERÆ** and **EVERGREENS**, and **DECIDUOUS TREES** for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

To the Trade.

NEW POTATO, "PRIDE OF ONTARIO."
H. and F. SHARPE are now sending out the above most prolific and handsome shaped new Potato. Full description and price may be had on application.
 Seed Growing Establishment, Wisbech.

TREES for AVENUE PLANTING.—Elms, Poplars, Beech, Oaks, Evergreen Oaks, Horse Chestnut, Limes, &c., at very low rates for cash.
J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

The Finest Strain of Primula.

CARTER'S PERFECTION PRIZE PRIMULA, mixed colours, comprising the finest forms and most brilliant shades in cultivation.
 Price 1s. 6d. and 2s. 6d. per packet, post-free.
 See **STERLING NOVELTIES**, gratis and post-free, from **CARTERS**, Queen's Seedsmen, High Holborn, London, W.C.

Special Cheap Offer of

CHOICE SHRUBS.—
CHUJA AUREA, 18 inches, 14s. per dozen.
 " **ELEGANTISSIMA**, 18 to 22 inches, 14s. per dozen.
 " **SEMPER AURESCENS**, 18 inches, 16s. per dozen.
RETINOSPORA PLUMOSA AUREA, 2 feet, 20s. p. doz.
CUPRESSUS LAWSONIANA LUTEO, 2-yr. grafted, 12s. per dozen.
 Package free. Cash with orders.
T. FLETCHER AND SON, Nurserymen, &c., Chesterfield.

To the Trade.

OSBORN AND SONS can still supply a quantity of Dwarf Maiden **PEACHES, NECTARINES** and **APRICOTS**, and a few Standards.
 Also the following **FRUIT TREE STOCKS**:—Common and Brussels Plum, Pear, Crab, Paradise, Quince, and a few Cherry and Brompton Plum.

Prices on application.

The Fulham Nurseries, London, S.W.

SAMUEL AND JAMES SMITH (late **J. SMITH, Sen.**), Tansley Nurseries, Matlock, Derby, beg to offer at prices, viz.:—

At per 1000.

ASH, Mountain, 2 to 3 feet, 17s.; 3 to 4 feet, 25s.; 4 to 5 feet, 30s.; 6 to 8 feet, 80s.; 8 to 10 feet, 100s.
BEECH, 2 to 3 feet, 25s.; 3 to 4 feet, 30s.; 4 to 5 feet, 40s.
CHESTNUT, Spanish, 1 to 1½ foot, 18s.; 1½ to 2 feet, 30s.
FIR, SPRUCE, 9 to 12 inches, 10s.; 1 to 1½ foot, 14s.; 2-yr., 1s.
PINUS MARITIMA, 9 to 12 inches, 10s.; 2-yr., 3s.
LIMES, 4 to 5 feet, 80s.
POPLAR, Italian, 3 to 4 feet, 25s.; 2-yr., 10s.; Ontario, 2 to 3 feet, 20s.; 4 to 6 feet, 50s.; 2-yr., 10s.; Silver, 3 to 4 feet, 40s.
PRIVET, Evergreen, 2-yr., 7s. Yellow-berried, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.
SNOWBERRY, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.; 2-yr., 7s.
SYCAMORE, 1½ to 2 feet, 15s.; 2 to 3 feet, 20s.
WILLOW, Bitter, 2 to 3 feet, 20s.; 2-yr., 10s.; Huntingdon, 3 to 4 feet, 25s.; 2-yr., 10s.
BROOM, 1-yr., 3s.; 2-yr., 4s.; Spanish, 2-yr., 6s.
GORSE, 2-yr., 4s.
DOGWOOD, Red, 2 to 3 feet, 80s.; 3 to 4 feet, 100s.
LONGICARA LEDEBOURII, 1½ to 2 feet, 50s.
FLOWERING SHRUBS, in many varieties, 20s. to 40s.
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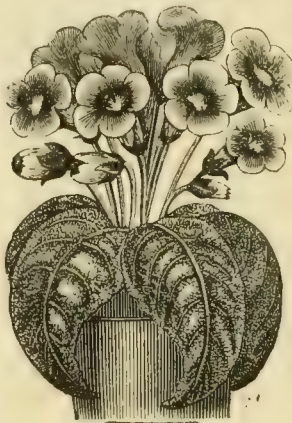
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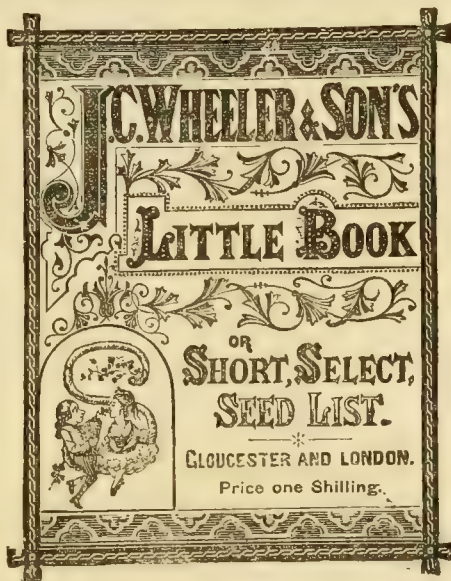
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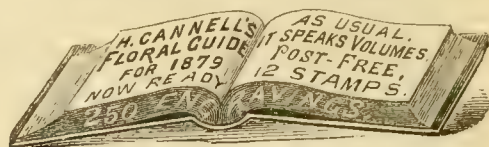
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valuable to the inexperienced amateur and the country nursery-
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Giant Early Marrow.

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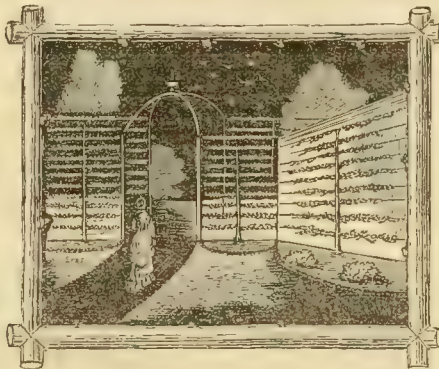
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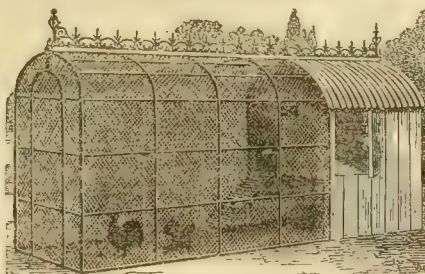
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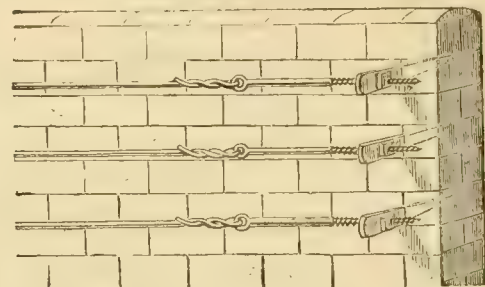
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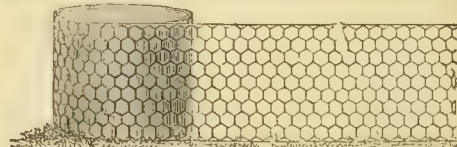
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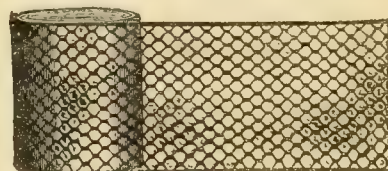
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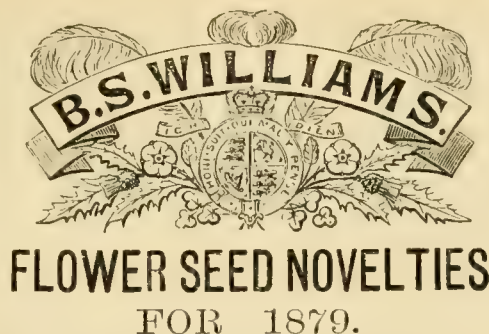
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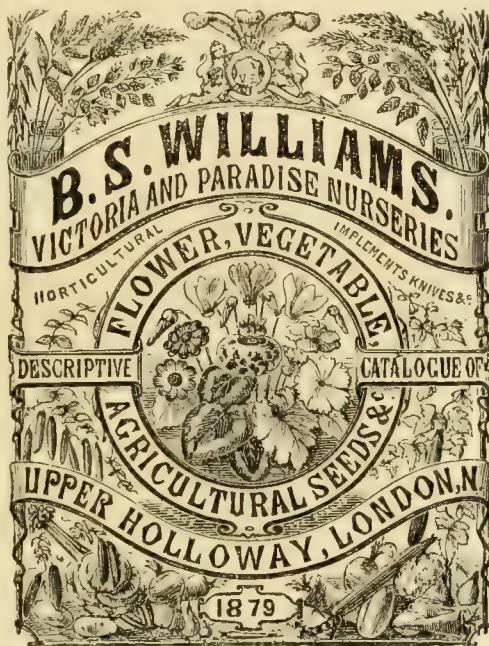
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SATURDAY, JANUARY 25, 1879.

BOTTOM-HEAT.

(Concluded from p. 74.)

IN support of the views I expressed last week, some details of my own experience in the use of bottom-heat with a considerable number of the plants to which it is usually given (or which I may say are generally considered not capable of being well grown without it), may not be out of place. I may preface these remarks by saying that my ideas on this subject were at one time in no way at variance with that of those who pin their faith the closest to the use of bottom-heat as being the one great element of success above everything else in the cultivation of plants that require heat to grow them, especially such as need the most, and are started early into growth. So much was this the case, that I invariably took means, either by the agency of pipes, open tanks, or the ordinary fermenting materials, alone or combined with the help of the heating apparatus, to supply the usual bed in which to plunge the pots and give the roots the supposed requisite heat to enable them to move with or in advance of shoot-growth. The plants that I so treated consisted of the usual stove subjects, comprising Allamandas, Æchmeas, Aphelandras, Combretum purpureum Columneas, Centradenias, Burchelia capensis, Bougainvilleas, Billbergias, Clerodendrons, Euphorbias, Dipladenias, Cyrtoceras, Curcumas, Ixoras, Ipomœas, Hoyas, Hibiscus, Gloriosas, Gesneras, Gardenias, Poinsettias, Medinillas, Musas, Vincas, Tabernæmontanas, Stephanotis, Rondeletias, Thunbergias, and others of similar character. Amongst fine-leaved plants Alocasias, Aralias, Crotons, Cossignia borbonica, Cissus, Cyanophyllum, Cupanias, Dieffenbachias, Dichorisandras, Dracœnas, Oreopanax, Nepenthes, Marantas, Pavetta borbonica, Pandanus, Sanchezia, Theophrastas, and many others, with most of the usually grown bulbous subjects, and a good many of the latter not met with in general collections.

In houses fairly suited to their requirements, and with regular treatment, such as is considered requisite to health, the plants generally used to grow freely and flower more or less satisfactorily; but, like most growers who have had to deal with any considerable number of stove subjects grown in bottom-heat, I often had to contend with a disposition in the plants to make leaf and shoot growth very much in excess of the quantity of flowers forthcoming. The flowers of many species, especially in the spring, were so soft that they were of little use for cutting, which was a serious inconvenience, as quantities were continually required at that season to mix with the usual greenhouse things. Many of the plants were also wanted for exhibition, and here I had frequently the mortification of seeing that which should have been a telling specimen in a group count the wrong way by reason of its flagging to an extent that was painful to look upon. I fancy there are a good many exhibitors besides myself who have had unpleasant experience of this kind, both with flowering and fine-leaved plants. There was yet another purpose the plants were required for in the summer, that was, to decorate the conservatory: and here most of the Ixoras and others that had been plunged into bottom-heat were useless, for their flowers not only fell off directly, but the plants

also were injured seriously if but a short time out of the stove. As the specimens increased in size they naturally required more room, and the space available for plunging them in bottom-heat became too small to admit all, consequently a few had to be stood on the end stage of the house. It was with reluctance I placed them there, but knowing the ill effects of over-crowding I considered it better to do so than to injure the whole. To my surprise, although they did not make such a rapid start at first as the plunged plants, they flowered quite as early and more profusely, the individual blooms, as also the leaves, possessing more substance and lasting something longer on the plant and very much longer when cut. The plants thus treated were an *Ixora coccinea*, a couple of *Dipladenia crassinode*, and an *Allamanda*, with two or three *Gardenias*. I exhibited one of the *Dipladenias* and the *Ixora* with several other plants that had been plunged in the tan-bed, in or about the third week in May, at an exhibition, which necessitated their being out of heat for five or six days, during which the weather was unseasonably cold. Nothing that ever came under my notice in plant-growing surprised me more than the contrast afforded by the ability of the flowers on the non-plunged plants to withstand the chilling ordeal they underwent, as compared with those that had been in bottom-heat. This naturally shook the confidence I had hitherto placed in its use, and in the ensuing year I purposely kept a considerable number of plants out of the plunging material, but not, I confess, without experiencing something of the feeling associated with the difficulty of unlearning or shaking off the disposition to stick to the practice so generally held as indispensable to success in the cultivation of the description of plants under consideration. In addition to the flowering plants, which included a good many others, as well as those grown the preceding year without any bottom-heat, I also tried its effects on such things as *Marantas*, *Caladiums*, and *Cyanophyllum magnificum*, which had not then been so long distributed, and in all cases I found that these would bear removing from the stove in which they were grown to a lower temperature without suffering in reality or in appearance to anything like the extent they did when grown with heat applied directly to their roots. I may here remark that the difference observable was in no way due to having used an excess of bottom-heat, for so long as I employed it I never plunged the plants, not even partially, when the thermometer indicated above 80°. After this I ceased to give bottom-heat to anything in the stove department except some bulbous plants, including *Tuberoses*, and a few others that undoubtedly do better with it.

The pipes that were under the tan-bed I had taken out and placed where they would directly contribute to heat the body of the house, and an increased depth of tan was yearly put in the centre pit, but the roots of the plants were kept completely beyond its influence, to effect which the plants were individually placed on good-sized inverted pots placed upon the surface of the tan-bed. After this time *Ixoras* and other plants that required a strong heat to grow them were regularly each summer put for some weeks in the conservatory, previously being placed for a short time in an intermediate temperature to prepare them for the change.

Another circumstance connected with plants grown without bottom-heat, and which I was not prepared to find, was that although I could not induce them to make growth so fast in the first stage after being started in spring as with heat applied to the roots, yet by the end of the season the former very considerably outstripped the latter, with the great advantage that neither shoot nor leaf development during any part of the season was ever of the drawn-up, over-lengthened description that is always more or less present

when plants are subjected to the root-exciting influences of bottom-heat. The greater solidity in the texture of the leaves was apparent by their longer endurance and less liability to injury from fumigation or other causes alike in their effects, the much freer disposition to flower, as also by the healthy vigorous condition the hard-wooded species maintained for a number of years under the treatment. The rapid leaf development that for a time takes place with plants plunged in bottom-heat is one of the causes which induces many growers to use it. Moreover, it is so generally advocated, that cultivators of stove plants usually adopt it without ever putting themselves to the trouble of trying the results of dispensing with it. I am ready to admit that, in the case of plants that require a high temperature to grow them, and where there happens to be a deficiency of top-heat at command, greater progress may be made with the roots plunged in more warmth than the tops receive; but this is beside the question, and to follow such a course is simply trying to remedy a defect by substituting something else in its place.

As implied by what I have already stated, there can be no question but that the greater portion of bulbous plants that are subjected to or require heat to grow them, will do better with than without its being applied directly to the roots, but in their case we are only assisting the natural development of their roots that takes place in advance of top-growth, and the same principle I venture to assert is applicable to all plants alike in this respect, but none other: at least, such are the conclusions I have arrived at in anything but a hurry, but after careful and patient observation based upon many experiments that I have carried out with a view to satisfy myself upon this important question in the cultivation of stove plants, and such others of a more hardy nature as are subjected to heat. *T. Baines.*

New Garden Plants.

DENDROBIUM SMILLIE, F. v. Muller.

This species was published at Melbourne, in December, 1861. It was compared to no known species, but it was an exciting plant for morphologists, as it was said to have bracteoles and a calyx affixed to the pedicel a little over the middle, so that one could not imagine it. It was dedicated as a "*pulchra planta*" to "*E. T. Smillie, dominæ tam generosæ, quam solerti.*" Then it was described by Mr. Bentham, who did not allude to any extraordinary qualities, but took it as an ordinary *Dendrobe* much allied to *D. viridiroseum*. It was a great satisfaction to me to see finally the rare *Dendrobe* alive. It has a short very rich raceme of flowers, of the shape of those of the well known *Dendrobium secundum*. They are light, whitish, with a rosy purple hue over the ovary and chin and base of the sepals, which have dark green tips, as the base of the pedicel and chin are green too. The lip is rather ligulate pandurate, boat-shaped by its inflexed margins, and its green apex is concave, with an angle on each side and emarginate in the middle; thus it may be said rather calceolate. There is a transverse keel of membranous structure above the middle, overlooked by both the authors quoted. The chin is retuse. The superior part of column is green, the inferior rosy, with an excavation, overlooked hitherto. The anther is green, with white reflexed apex and purplish cheeks; pollinia light brown. I found usually a viscid mass under them. It was discovered near Rockingham Bay by Mr. T. Dallachy. I have carefully sketched the typical specimen in the Kew herbarium. There is a critical species, named by me *Dendrobium ophioglossum*, that was collected near Cape York by Mr. Moseley, the naturalist of the *Challenger* expedition. The specimen is a very bad one. It has a more slender stem, narrower longer leaves, and a very acute, not retuse chin. The transverse keel runs over the lip. It should be well compared with other species when better materials are available. I regard it as a not fully legitimised species.

I have to thank Mr. W. Bull for a splendid and very instructive specimen. Mr. Bull lately introduced the species from Northern Australia. *H. G. Rehb. f.*

GRAFTING OLD VINES.

FROM the experience I have had in working the different kinds of Vines one on the other, I am convinced that many of the varieties are as much improved or altered in the growth and character as most other fruits are when subjected to the same operation. It is generally admitted that the *Hamburgh* forms a good stock, but from what I have seen of the *Alicante* when overhauling and renovating old borders I am inclined to think that it will be found better, as the whole soil in which plants of it were growing was permeated with their numerous fibrous roots, which were at least as ten to one of any other kind. I do not know whether this peculiarity of this particular sort has ever been observed before, but that it is so there could not be the least doubt, as the whole lot, consisting of *Muscats*, *Hamburgh*, *Mrs. Pince*, and *Lady Downe's* were laid bare, and could be seen and compared at the same time.

The robustness and hardy constitution of the *Alicante* likewise points it out as being one of the most suitable to work others on, and the way it colours up its beautiful looking blue-black berries is a great point in its favour, for whatever the condition of others alongside and under the same treatment this sterling variety never fails to colour. What causes or prevents this in *Grapes* is not, I believe, clearly understood, but if the *Alicante* will as a stock impart some better finish than can generally be seen in *Hamburghs*, *Madresfield Court*, *Mrs. Pince's Black Muscat*, and others, its value for grafting purposes would be great. It is strange that Vines have not been more experimented on than they have, especially as two of the above-named and many others of our best *Grapes* refuse to finish off satisfactorily when grown on rods on their own roots, but although this is so they are never offered, so far as I am aware, by the trade worked on any others, and yet one would think it would pay well to do so.

Now and then we hear of this or that kind doing well on certain stocks, but beyond that the knowledge gained does not appear to be profited by as we get no further; and were it not for the interest such cases as the *Culford* sport excites, many would not have their attention called to grafting or budding Vines at all. This is much to be regretted, as it is a work in which I believe there is much to be done and many advantages to be gained; and if those who have practised it will come forward and state results it would be productive of much good. With me *Foster's Seedling* worked on *Muscat* of *Alexandria* makes splendid growth and bears fine bunches, but whether better than it would on its own roots in the same border I am not in a position to say. The same kind of *Muscat*, however, inarched on the *Hamburgh* is greatly improved, and this was my reason for using the one I did as a stock, and as another in a second house with *Hamburgh* did not ripen satisfactorily I have served that in like manner. The ramification of the roots of the *Muscat* is so great and its strength and constitution so good, that those who have it established need not hesitate in turning it to a similar account as all others appear to thrive well on it, and if I mistake not Mr. Thomson recommended it as the best stock for the *Golden Champion*, a *Grape* that has puzzled so many good growers. *Madresfield Court* is much improved by union with the *Hamburgh*, the latter as a stock, as I find it not only colours better but is not so liable to crack. *Lady Downe's*, too, appears good to use in the same way, for a *Hamburgh* worked on one growing in the same border and house as others on their own roots is stronger than any of them.

What I have the strongest hopes of as stocks are the *Alicante*, *Syrian*, and such as these with robust constitutions and thick massive foliage; as the larger the wood Vines make, provided it is properly ripened, the finer are the bunches and berries when they come. Another Vine with which I am acquainted called the *Chavoush*, would, I think, form an excellent stock, as might also the *Gros Guillaume* that generally grows so rampant even in the poorest of borders. The first-named of these two is a remarkably strong-habited kind, that on the open wall here annually makes shoots of immense size, although its roots are partly under a gravel walk, and are robbed by a hedge of *Scotch Roses*. In a well made border, therefore, it could not fail to well feed any variety that might be worked on it, and render them able to bear heavy crops.

Seeing the useful work that Mr. Barron so well carries out at *Chiswick*, if space could be spared and it

would not add to the multitudinous labours that tax his time and energies so much now, might the gardens not be rendered additionally useful by trying experiments on grafting Vines, and reports given in the way they are after trials of Potatoes and other things by which he has already rendered such good service? Coming from such an authority any remarks would have special weight and be of great value to all those in any way connected with gardening pursuits. Any readers of this who may be disposed to put any of the hints into practice, should bear in mind that it will not do to cut Vines down for the purpose of working other sorts on them in the way they would a Pear or Apple tree, for the simple reason, that when the sap begins to flow it is pumped up at such a rate as to quite drown the scion, and the loss at the cut part is so great as to seriously weaken the stock, if not to destroy it altogether. The best way to manage is to keep some eyes or prunings back by sticking the ends in clay at the back of a north wall or other cool place, till the Vine to be operated on is in leaf, when it may be cut down with safety and with a certainty that the graft put on will grow if the work is properly carried out.

With those not thoroughly up to grafting, however, a safer plan is to inarch, which may be done either by having a young Vine in a pot to stand near, or by putting the end of a shoot it is desired to work in a bottle of water, which will sustain it and keep the bud plump till a union is effected. All that is required is to cut well through the inner bark of both stock and scion, and tie the two parts so bared quite close together, after which some moss should be bound round and kept moist by an occasional syringing. The proper time for inarching to be done is when the young bunches are showing, as at that stage the granulatory matter forms rapidly, and the parts brought in contact soon get a firm hold. One great advantage in inarching is that there is no sacrifice of a Vine for a season, as the old rod can be left till the new one is long enough to take its place, provided there is light and room under the glass for training it up. Budding, too, has the same advantage in its favour, and this is an operation that is easily carried out, and is a very simple one that any body can manage, as it does not in the case of a Vine require the careful manipulation it does with a Rose, on account of the wood having to be taken out of the latter. In a Vine bud this is left in and inserted with it, when if bound in the usual manner they cannot fail to grow. Vine budding is best done about the same time as that mentioned for inarching, as then the bark runs freely as well as heals quickly again after. The buds used should be ripe and dormant when put in, or they shrivel. Such as may be obtained from very early forced plants answer well, or they may be kept back from the autumn in the way already alluded to. J. S.

THE GULF STATES AS A TEA COUNTRY.

So much has been written during the last century, especially during the last thirty years of that century, as to the possibility of growing Tea in the States for domestic use, that it is time to look for something more advanced than the ebullitions of the book choppers at the Agricultural Department.

There has been enough money spent in the propagation and distribution of plants to localities where they will grow (but not with profit) to thoroughly determine all the leading questions appertaining to the cultivation of the plant, but one wisecrack of agricultural "science" (?) after another hashes, propagates, distributes, wastes, and spends, without advancing the question a single peg.

There is probably as much Tea grown in the world to-day as the world wants to buy; America gets all she wants, but it is neither so cheap nor so good as it should be. England and tea-drinking Europe have no further use for Japanese Tea, America gets it all, or nearly all, and the Commissioners of Agriculture kindly repeat the process of manufacture.

If any one has time let them experiment by all means, but experiment also with a better process. The most likely Tea country will be within a line drawn from Charleston, South Carolina, through Montgomery, Alabama, on to Shreveport, Louisiana; from there south-eastward, to Baton Rouge, Louisiana; from there to Tallahassee, Florida; and from there back to Charleston. This district possesses a climate very similar to that of many of the Asiatic

Tea countries. It has copious spring and summer rains, plenty of heat for those seasons, and a minimum of injurious winter and spring frosts. The growing season, or that season between the last frost of spring and the first frost of autumn is sufficiently long to secure a good crop season, good Oak lands are cheap and abundant, populous towns for the supply of labour are numerous, means of communication abound, manure can be had with facility, machinery can be worked with more economy than in India, China, or Japan. If the planter know enough he can combine the business of a market gardener with that of a Tea planter; if he possess capital he can build cheap hothouses heated by hot-water, grow Tomatoes in them during the winter, and use them for factories in the summer.

In short this southern Tea district of the possible future possesses many advantages, which set off the labour difficulty, and even that, though higher priced, can be made infinitely more effective than the labour of either India or China.

The State Governments interested must, however, institute the necessary experiments—the Federal Government will hardly do so, nor can a private capitalist be found to undertake what must of course seem to him a risk. *James Macpherson.*

THE FROST.

WE are likely enough to have plenty of opportunity of studying the effects of frost on the tender subjects with which our gardens are furnished; and it may, therefore, be as well to correct some errors that have crept into the question of the action and effects of frost. I have been told a hundred times that certain vegetables (red Cabbages, for example), are improved by frost, and it is believed by many that the sharp frost kills insects in the earth, and thereby benefits the crops in field and garden; moreover, that heavy falls of snow are followed by heavy crops of grain. A hard black frost without snow may be very beneficial to the farmer to enable him to cast manure over soft fields and spread it at his leisure, and for want of such frost much inconvenience may be experienced during green winters, such as we have had lately, but with this exception, frost is the destroyer and not the friend of either horticulture or agriculture.

Frost certainly has the power to disintegrate clay, marl, &c., and unwieldy lumps turned up to the weather in autumn will be friable as sand in the spring, and form a very superior tilth. Indeed, without the action of the weather these adhesive clays are said to be either "all ire (iron) or all mire." So much for the credit side of frost on clays. But in the debtor account there is a heavy bill for damages, and were it not for the mantle of snow usually accompanying sharp frosts, the damage to the Wheat would be very much increased, while the succulent plants in the garden where they have not been in some measure protected would "leave but their wreck behind." Red Cabbages reserved for seed require to be replanted, laid flat, and well earthed-up at the neck to protect them from the weather; but this does not apply to red Cabbages for market, for the heads would be soiled and the frost and wet would unfit them for food. All ideas of allowing red Cabbages to get frost-bitten are false and misleading. Again, the great staple article, the Turnip, is often destroyed by untimely frost, proving, if proof were needed, the inability of the Brassica tribe to endure frost, they being for the most part plants extremely succulent. Dearly bought experience has taught farmers and gardeners this doctrine:—"Safe bind (under cover), safe find." So much for the chance of red Cabbages being benefited by frost.

Sharp frosts are thought to kill the insects injurious to corn, &c. We have only to examine the wire-worm to see how very unlikely a subject it is to suffer from frost, as it is nearly as hard as the wire that gives it its name. It is not to be crushed by heavy rollers nor killed by cold, so long as the remedy is at hand for it to go down lower. But leaving such small examples, let us see what the mole can do in times of frost and snow, for we see the fresh earth in molehills above the snow, thereby showing good work notwithstanding the depth of frosty earth overhead. By far the most marvellous escape from frost, however, is to be seen in the dragon-fly, rising out of a deep pond where the larvæ had been deposited and the chrysalis state passed, with a heavy column of water overhead, frozen it may be to several inches deep, yet always

protected by the ice on the surface; the sight of the perfect insect on the wing proves that the dragon-fly had wintered where frost had little power. Such exquisite beauty rising to the light might well look like a new creation, for how could life be sustained, and a clean pure creature come out of such a bed of mud?—but the same power that made it was able to preserve it against all odds.

As to heavy falls of snow being of service to the coming grain crops, it may be remarked that in the North, where Oats and Barley are grown, and where frost abounds, it is usual to sow these in the end of March and beginning of April, usually only a very short time after the winter's snow has disappeared, thereby shortening the growing season of the grain crop.

I recollect sowing some Onions in the neighbourhood of London early in February, and the ground was in good order for the work; now if we look at the margin of time as shown by the seed time, say February 14 for London and April 14 for Aberdeen, we shall be able to give the frost its due character, for it shortens the number of growing days at both ends of the summer, and hinders the sun from warming the ground. I have watched the fall of the leaves of the Ash, the destruction by frost of Dahlias, Pelargoniums, Heliotropes, &c., in their beds in the garden, and of the tops of the Potatoes in the field, a month before the usual time. Perennial plants retire under ground, and there bide the approach of milder skies, and we see such weeds as Chickweed and Groundsel, sheltered under some hedgebank struggling for existence when, like the last Rose of summer, their companions are gone.

Frost therefore is the destroyer, and has no hand in the coming harvest being either a light or a heavy one. When we have a mild autumn or a green winter we see the record in your columns of the gathering of a dish of ripe Raspberries or of Strawberries in the month of November. But let no one be deceived, for the late spring frosts frequently scatter all our hopes of a good fruit season, and we fall back upon glass-houses well managed for a supply of high-class fruit. Murphy's Almanac, published many years ago, had an immense run on account of his forecasting heavy frost on the memorable 7th of January, and we have this year suffered serious losses by frost at the same date. There is yet time to do a great deal to save the bloom of wall fruit; and it is well to talk the matter over so as to be forewarned and thus forearmed; and should the spring after all be mild we shall all be agreeably surprised. *Alex. Forsyth.*

PLANT SHADING.

PERMIT me to offer a few remarks in reply to the observations (p. 21) of Mr. W. Payne on Bamboo shading.

1. The climatic conditions at Taunton, whence he writes, are very different from those prevalent in Essex or in the Midland Counties; he has there the benefit of an atmosphere far moister than that we are blessed with at Colchester, and of an amount of sunshine and a freedom from smoke, fog, and dull days that many an Orchid grower resident in midland and northern counties and in our large towns would gladly welcome. For these reasons it is (I believe) much easier to grow Orchids in the south-west than in many other parts of England. Orchid growers, therefore, in considering the value of tiffany used as a permanent inside shading must rightly estimate the atmospheric conditions of their locality. Conceding to Mr. Payne that by "tacking tiffany" at Taunton he is a successful Orchid grower, he might and probably would if at Birmingham find it "quite another pair of shoes."

2. With regard to the question of fixed permanent shading and rollers and blinds, your remarks (vol. ix., p. 492) must be taken as exactly expressing the truth as regards the greater part of our British Isles. "In our variable climate, even during the spring and summer months, although one day may be bright and cloudless as in the tropics, yet the chances are that in the next we may not get a glimpse of the sun, and this fitful condition alike holds good from hour to hour. This points to the necessity of whatever shading is used being of a movable description, for when fixed, not only is it there intercepting the light from the plants on the very many days which we get through the spring and summer, wherein the sun never makes its appearance, but even in the brightest

weather it is over the plants for many hours from morning's dawn to the darkening of evening, when it is not only unrequired for the purpose of warding off the sun, but is inflicting a positive injury by reducing the amount of light. The same holds good with all sorts of compositions with which the glass is smeared."

3. Durability.—Your readers would, I think, be glad to learn from Mr. Payne how long his tiffany inside lasts. Cheap it may be in its first cost as compared with roller blinds, but unless it will last many years it may prove in the long run more expensive. Our Bamboo shading, now in use for four years, seems as good as new, and I see no reason why it should not with ordinary care last twenty years more.

4. As to light: the idea put forth by Mr. Payne, that "there would be lines of light and shade" beneath Bamboo shading, is simply an idea. You really get a subdued light evenly spread over all the house, but were these lines of light and shade travelling over the plants as the sun travels, resting awhile on each plant, then it would be simply an imitation of a natural process, where a branch for a while shades the Orchids beneath it till the sun has travelled further. Mr. Payne in his letter, vol. ix., p. 800, mentions the true secret of success in ventilation. He writes: "When air is admitted the current is so thoroughly broken by the fine meshes through which it has to pass, that the circulation never becomes stagnant, or perceptibly in motion, so that ventilation can be most freely, fully, and safely applied."

Ventilation must be either vertical (A), oblique (B), or horizontal (C). A is exemplified by Tobin's system, in which, as is well known, currents of air from out-

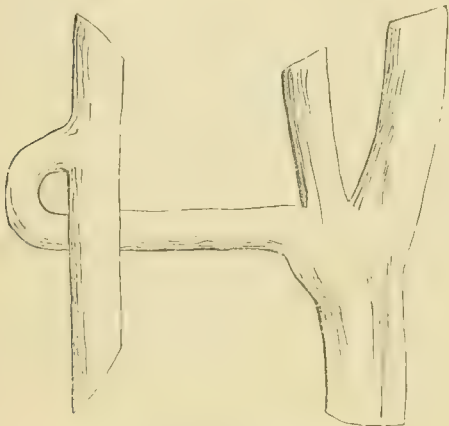


FIG. 13.—NATURAL GRAFT OF TWO BRANCHES.
(SEE P. 112.)

side pass through a vertical tube of considerable diameter, from 4 to 8 feet long, and are discharged, as through the barrel of a gun, in a straight line upwards till deflected at the ceiling and spread all over the chamber. This method can only be safely applied in plant-houses by placing the vertical tubes in a hot-water table opening just above the level of the water: thus the currents of air from outside are warmed before delivery; but even then it is desirable to break up the air into fine currents as explained by the method C. B. Oblique, as exemplified by Sherringham valves, which are a modification of Arnott's, wherein the entering currents are deflected by an oblique shelf in an upward direction: they are generally inserted in the outer wall near the top of the chamber, and act sometimes as entrance, sometimes as exit valves; they are scarcely applicable to plant-houses. C. Horizontal or lateral. Any one who sits near a broken window knows well the feeling of a draught of cold air on his neck, and would scarcely advise exposing plants to a lateral direct current, yet we do use this method with certain precautions, for we insert ventilator openings below our shelves, so that the air admitted in the vicinity of the hot-water pipes is warmed before reaching the plants; and we further obviate risk by breaking up the single current into a number of smaller ones by covering externally the opening with perforated zinc, and inside by tiffany—as Mr. Payne does so successfully—or other material, such as canvas, gauze, or the finest perforated zinc, and possibly use the oblique system by a flap or shutter inside to direct the currents of entering air on to the hot-water pipes.

This horizontal system can be further developed in exposed situations by using several layers of per-

forated material with a slight interspace between each to diminish draught, the innermost layer being the most finely, and the outer layer the most coarsely perforated. The entering air is then split up into a great number of small streams, and, freely entering, imparts a more agreeable freshness to the interior of an Orchid-house, yet the foliage nearest the opening will scarcely flutter in the current. This admirable ventilation, no doubt, has greatly assisted Mr. Payne in his Orchid culture, but it must be remembered that tiffany used for ventilation and tiffany used for shading are distinct applications. The horizontal system of ventilation thus guarded is perfectly safe, and may be adopted anywhere and at any level, not only in plant-houses, but in our ordinary dwelling or in large assembly-rooms, churches, &c.: it is the simplest and cheapest mode of ventilation without draught, and the most effective. The want of good ventilation in large buildings is most scandalous. I have never yet been in a church or large room filled



FIG. 14.—NATURAL GRAFTING.

with people in which one hour after admission the air was not abominably impure. Exits for air are provided, but a supply of fresh air without draught is never dreamt of, consequently there is no pressure to force out the impure air. *Alexander Wallace, Colchester.*

HOME - PREPARED MANURE, FROM EITHER HOUSE REFUSE, OR REFUSE OF THE FARM.

WE have received from Mr. Moule a detailed account of a manure which he recommends, not only for its intrinsic value, but for the readiness and cheapness with which it can be prepared. It is suitable alike for the garden of the cottager, or the broad acres of the farmer. Mr. Moule acts on the principle that a manure, to be serviceable as plant food, must be in a state of infinitesimal sub-division, and must be most thoroughly diffused—in a word, that it must be so contrived as to be absorbed with the greatest facility by the plant. We cannot follow Mr. Moule

in his long discussion of these principles, but we may cite the following passage, which gives the results of his own experiments:—

"The extent of my own little kitchen garden is 20 perches. Of these, 3 perches are occupied with sheds and a fowl-run (which receives also all the vegetable refuse), and 3 perches are occupied with paths. The cultivated portion is therefore only 14 perches in extent. This, for twelve years at least, has never had any other manure applied to it than that supplied from the house refuse. Yet from it and from about twenty fowls I can raise every year produce worth at least £20. This present year, from the more exact use of immediate and alternate cropping, and from the method about to be described for the disposing of the slops and sink water of the house, has shown a still larger produce than that stated. At the same time it is evident to every one capable of forming an opinion that the soil, so far from being impoverished, is, by the manure applied in continuous and immediate cropping, greatly enriched.

"Further it should be observed that these 14 perches

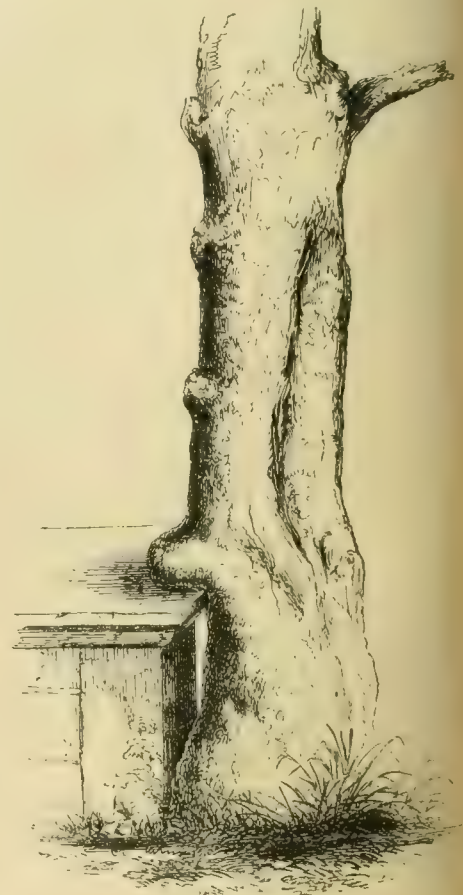


FIG. 15.—DOWNWARD GROWTH OF WOOD.
(SEE P. 112.)

of ground can, with complete prevention of nuisance or injury, receive the whole of the sink-water and slops of the house, and from them derive this increase of fertility. But so great is the fertilising power of this liquid sewage, especially when treated in the way to be presently described, that by it and the earth-closet manure and other refuse together, of a family of from five to ten persons, half an acre, or even an acre, might be rendered equally productive with my eighth of an acre. From an acre might be raised £160 per annum, or, deducting £60 for wages and other expenses, a nett profit of £100.

A quantity of any fertilising substance, very small in proportion to the volume of water which is to hold it in solution, or to the bulk of earth into which it is to be absorbed, will, as a natural result, be in both cases very efficacious.

"The first substance," says Mr. Moule, "which I will mention as that from which a large amount of matter may be extracted and diffused throughout a large bulk of water is Linseed whole and not in the form of meal. . . . We will suppose this Linseed, then, wherever necessary, to be placed at the bottom of a hogshead or small tank, the latter say 3 feet square and 4 feet deep. Then for

the sake of the alkalis and acids contained in other vegetable matter and given out as it decays, there should be placed in such a tub or tank one or more wheelbarrow-loads of weeds or leaves of any description.

"Together with this, or rather under the vegetable matter, should be placed 1 or 2 pecks of fowl's dung, or the same quantity of crushed bones, or a small quantity of superphosphate. After what has been observed of the effect of half a wineglass of resin on 6000 gallons of brine, or of half a bushel of Charlock seed on perhaps 60 hogsheads of water, it will not be a matter of surprise that 4 lb. weight of superphosphate would be sufficient for as many tons of earth.

"For special crops nitrate of soda, as I believe, might be introduced in the same proportion as superphosphate."

THE USE OF SILEX.

Mr. Moule proceeds then to state his views as to the value of silica as a manure, an idea first suggested to him by an expression of Liebig's to the effect that some day soluble glass would be sold for manure. From this, combined with other observations of natural phenomena, it occurred to Mr. Moule to make use of pulverised glass, as follows:—

the extent of ten or twelve strands. They afterwards so filled the ground as to lead some to suppose that the sowing had been too thick. Some of them had forty stalks; the lowest number was fifteen stalks. When in blossom their height was generally 7 feet, and the stalks strong and stout in proportion. They yielded when threshed and cleaned a peck and a-half of grain, which would give 8½ quarters to the acre, and the straw, which weighed 50 lb., was at the rate of 4 tons per acre. Of the amount of silic introduced into the manure which produced such an effect I now say nothing; but the result in the size and polish of the straw was noticed by every one who looked at it. I ought here to observe that I have often grown Wheat in my garden before, but never any so fine as this."

Mr. Moule's views as to the efficiency of silica in enabling the Potato plant to resist disease are now generally known, but not so generally accepted; but it is only right to let Mr. Moule speak for himself.

"The Potatos in my garden last year exhibited some frightful instances of disease. This year the Potatos, either saved from the former crop or some of the same kind purchased in the neighbourhood (most of them the Early Rose), were set in the same ground. And, with-

manufactured under my own eye—one in particular, carried on in the Model and Experimental Garden, Hereford, with respect to which the head gardener stated, September 19, 'As yet not a bad Potato where they were properly manured.'

"But since such details might be confronted with many complaints of failure of the manure manufactured professedly on the same principle by the Phospho-Silicon Manure Company I forbear; and with reference to such complaints I would remark that, very soon after the commencement of the work of that company, I felt unable to answer for any very careful and exact adherence to one of the main principles above stated. In all cases in which I have been sure that in the manufacture there has been such adherence to that principle, and that there has been a proper application of the manure so manufactured, I have not known a single failure. In the year 1877, when the Potato disease was very sad in the gardens of two neighbours, and never worse in the whole neighbourhood, I did not have in my little garden a diseased tuber. From 2 perches of ground I dug 300 lb. weight of fine and sound Potatos. In 1878 there has been the same immunity.

"Previous, however, to quitting the subject of pulverised glass or flint and its place in the manure, of which I write, I feel it due to myself to anticipate an objection which I have reason to believe will be expressed respecting it; indeed, it has already been expressed to me by one whose science and whose judgment I hold in the highest estimation. This gentleman would have me omit this ingredient (pulverised glass or flint) from



FIG. 16.—SPANISH CHESTNUT TREE WITH A LIMB OF A BEECH GROWING THROUGH IT. (SEE P. 112.)



FIG. 17.—NATURAL GRAFTING. (SEE P. 112.)

the manure, on the ground that in no soil is it required; for hundreds of experiments in Germany and England have satisfied the ablest agricultural chemists that every soil contains a sufficient supply of silic, and that, if any do not contain enough the attempt to supply the deficiency would be vain.

"To this, then, I venture to reply—1. That even admitting these conclusions from experiments to be correct, the use of 3 lb. or 4 lb. of finely powdered glass in as many or even a greater number of tons of valuable manure, could in no way injure or weaken the power of the other ingredients. But beyond this it should be observed that in the mode of manufacture proposed no silic, but only the silicic acid extracted from it, would enter into the manure. Does not, however, the very frequent indication of a deficient amount of silicate in the epidermis of the stalk of Wheat, Barley, and Oats, clearly point to this conclusion—that although there may generally be a sufficient quantity of silic in the soil, it may either be not in that very minute form in which alone it is soluble, or, if in that state, it may not be distributed throughout the soil with needful uniformity, so that frequently it might not be within reach of a large portion of the plants? In either case the effect, so far as the cause should exist, would be almost the same as in the entire absence of silic from the soil.

"2. Then, although the attempt might be vain to introduce a proper supply of silic into the soil, especially if that attempt should be made in the ordinary way of manuring land, yet, according to the method described above, it is quite feasible to introduce silicic acid into the manure to be applied to the seed or plant. Every particle of earth may be impregnated with it; and, being drilled in either with the seed or beneath it, the manure then presents this and the other nutritive substances contained in it to every plant in the field at the right time and exactly in the condition in which the plant can take it up."

(To be continued.)

out any idea that the Potato any more than, as I believed, the Pea, would be affected by the presence of silic in the manure, I had about an ounce of the manure impregnated with silicic acid placed under each tuber when planted.

"The manure in the previous season was applied in the same way and in larger quantity, and differed from this only in the want in the former of silicic acid, salt and bone-dust. The planting in the former year was in lines, 3 feet and 4 feet asunder, and 1½ foot or 2 feet in the line, and each Potato was earthed up to a great height. This year the Potatos were not earthed-up, but the ground between them (they were 2 or 3 feet apart, was well forked. From the first they showed a strong and vigorous growth. In some cases the haulm was so luxuriant as to require to be supported by a stout stick. In the greater number, though the haulm stood 2 and 2½ feet high there was no need of such support. Under those whose growth was the most luxuriant the tubers were the largest and most abundant. Now although the blight has affected more or less severely every garden and every field in my parish, not a diseased tuber has been found among these Potatos. Occasionally during the month previous to the digging of the last portion of the crop the dark spot appeared on the leaf here and there, but it never was attended by the withering of the plant or stalk or even of the leaf itself.

"I might detail many similar experiments with manure

"Having in September last prepared a certain quantity of pulverised glass and of phosphate and mixed them with other substances, namely, earth from closets, slaughterhouse refuse, sink-water, slops, &c., I applied the manure so manufactured in the following manner:—I sowed in that month 500 grains of Wheat, and in the months of October and November I transplanted the plants which sprang from them into a piece of ground the full measure of which was 240 square feet. They were 12 inches apart in the drill, and from 6 to 9 inches in the line. With each plant I put in about half an ounce of the manure, more indeed than was requisite. I should here observe that although Wheat, like the Cabbage, is somewhat improved by transplanting, this part of the process adopted on this occasion, and which would appear to be scarcely feasible on a large scale, is by no means a matter of necessity, for in a neighbouring garden at the latter end of November I drilled some Wheat in the ordinary way, applying to it in the drill half the amount of manure used in the former case, and although the blade did not appear until December 29, the plants in the middle of June following were much stronger and nearly double the height of any in the hundreds of acres in the neighbouring cornfields. (The grain was allowed to be eaten by sparrows.)

"The 500 plants in my own garden even before January 1 showed a very extraordinary growth, tillering out to

OUVIRANDRA HILDEBRANDTII.

It is now more than half a century since *Ouvirandra fenestralis* was discovered in Madagascar, and when some twenty years ago it was introduced into our stoves, the singular beauty of this pretty aquatic immediately found many admirers. In some gardens they succeeded well in growing it, and I have seen this Juncagineous plant well treated in English, French, German, and Portuguese gardens, but nowhere to such perfection—the leaves attaining such enormous size—as in the ducal gardens of Carlsruhe.

M. Decaisne some years later described another species of this genus, *Ouvirandra Bernieriana*, coming from the same island, and which is now equally cultivated in some places, for instance the Paris Jardin des Plantes and Kew.

A third species was discovered not long since by M. Hildebrandt, the well-known African traveller. My countryman found this new *Ouvirandra*, which was dedicated to him, at Kitui and Ukamba, on the east coast of the African continent. There the plant was growing in flat puddles on rocky soil, and the puddles only contained water during the rainy season. It flowers in March, and in May when the water has evaporated, the plant goes to rest. During the dry season the tuberous rootstock, thickly covered with fibres and of about the size of a Cherry, remains dormant, but as soon as the rain sets in it soon pushes forward a good many leaves and long-stalked inflorescences, which after expanding their flowers for a few days, sink back under water.

On his return to Germany last year, M. Hildebrandt presented some of these rootstocks to the Royal Botanic Garden, Berlin, where they soon began to show life, and developed in April last a great quantity of forked spikes with blue-violet flowers, which after fading submerged, just as in their native country. In September a second and not less profuse florescence made its appearance, but unfortunately again without ripening any fruit. This is the more to be regretted, as the specific character which distinguishes M. Hildebrandt's *Ouvirandra* from the Madagascar one, *O. Bernieriana*, is supposed to be in the fruit. Nevertheless, the proportions of the vegetative organs—leaves and flower-stalks—are so very distinct as to allow no doubt of the distinctness of the new species. *E. Goetze.*

Notices of Books.

Relazione sulla Cultura dei Cotoni: in Italia seguita da una monografia del genere Gossypium. Compilete da Agostino Todaro. Palermo, 1878.

The publication of the reports on various collections shown at the several exhibitions is not the least important advantage that accrues from these great gatherings. The present work affords a favourable specimen of the reports in question. It comprises an elaborate report on Cotton cultivation in general, and in the various provinces of Italy in particular. The most valuable portion of the work, however, consists in the careful monographic description of the extremely numerous varieties of *Gossypium* cultivated under the author's eye in the Botanic Garden at Palermo. The careful examination of these and the study of the extensive literature of the subject from the earliest times to the present, have formed the basis for the best and most complete monograph that we have. In most herbaria the specimens are relatively few, cultivated plants as a rule not being largely represented in such collections. It is, therefore, not surprising that Professor Todaro has raised the number of species—we would rather say "forms"—to fifty-four, while most modern botanists refer them to not more than half-a-dozen. On such matters there is room for the utmost diversity of opinion. Again, the task of determining the synonymy appears to us to be all but hopeless. A fair starting-point would be obtained could we know for certainty the wild forms, but in most cases these are not forthcoming, for even in the interior of tropical Africa the Cotton is cultivated. Nevertheless, in a few instances we do know the wild species, as in the Australian species of *Sturtia* and *Fugosia*, which are relegated to *Gossypium* by Professor Todaro. Again, we have little doubt that *G. herbaceum* as now grown is not to be found truly wild anywhere, but the probability is that the species called *G. Stocksii*, a species wild in Scinde, is the origin of the plant cul-

tivated in India as herbaceum. Professor Todaro, acknowledging the affinity, places *Stocksii* as a synonym for *G. herbaceum* of Linnaeus. Now Linnaeus only knew the cultivated plant, which presents considerable variation from the wild *G. Stocksii*, and it is a nice point, therefore, whether Professor Todaro has done well to refer *G. Stocksii* to *G. herbaceum*. To our thinking *G. herbaceum* only exists as a cultivated plant, or rather it is the appellation for a whole group of cultivated forms, no one of which in particular can be considered as the type of the species. *G. Stocksii* on the other hand is an aboriginal native, and as such entitled to bear specific rank. Such points as these, however, are of little consequence in a monograph of this character, where every known species and variety is catalogued and described with its appropriate synonymy. An atlas of coloured plates accompanies the work, but we miss any reference to Colonel Clarke's valuable experiments on hybridisation.

— *The Rose Annual for 1878-9*, by W. Paul, Waltham Cross, puts in the fore-front coloured plates of Duchess of Bedford, a fine H.P. of good form, scarlet crimson colour, raised by Mr. Postans, of Brentwood; Souvenir de Madame Pernet, a Tea Rose with salmon-pink flowers, something like those of Souvenir d'un Ami, raised by M. Pernet, of Lyons; Jean Liabaud, H.P., introduced by the raiser whose name it bears. The flowers are very dark velvety crimson, "a really good rose;" Madame Lambard, a Tea Rose introduced by Lacharme, of Lyons, "who has given us as many good Roses and fewer bad ones than any of the French raisers;" flowers salmon-pink, "fairly hardy." After the pictures the letterpress, devoted to a review of the current year dating from October.

PUBLICATIONS RECEIVED.—*Gartenflora*.—Indian Forester.—*Annales Agronomiques*.—*Bulletin d'Agricoltura*.—*Nuovo Giornale Botanico Italiano*.—Remarks on the Agricultural Prospects of Fiji, by John Horne, F.L.S.

Garden Operations.

FLOWER GARDEN, ETC.

Since I last wrote another great frost and another thaw has come upon us, rendering necessary all the precautions I have before advised with regard to the treatment of the bedding plants generally; and the value of early-struck autumn cuttings which have become plentifully rooted will now contrast most favourably with later struck and imperfectly rooted plants, which, without a considerable amount of care and attention in changing the atmosphere of the pits and frames as often as possible, will inevitably damp off. Water should at present be withheld so long as vitality is not threatened, but a certain amount is absolutely necessary; and where there is a deficiency of both roots and foliage, the cuttings, in a severe and protracted winter as this promises to be, are almost sure to go to the bad, and recourse must be extensively had to early propagation in spring. In fact the time is now approaching when it will become imperative to examine the stock thoroughly and make the necessary provision against all possible deficiencies. Here it is that the plants of zonal and other scarlet Pelargoniums which were lifted and potted in the autumn will afford a very large supply of excellent cuttings, the wood of which, being hardened and in a great measure deprived of its succulent sap, will throw out roots very freely; and where there is a command of heat, such as that of starting an early vinery, they may be put singly into 2-inch pots and placed therein close together on a stage, and by frequently pouring water amongst the pots, and by withholding it from the soil until there are signs of growth, they will make excellently rooted and useful plants. Where economy of room is a great object a much greater number of plants may be secured by planting such cuttings in boxes of a convenient size for moving about, and about 4 inches deep, which allows of drainage, and the plants can be kept in them until the planting season. It is also a great advantage to get the cutting back of the old store plants done as early in the season as possible, as it promotes an early flowering habit. When cut back late in the season they break more freely it is true, but it is some time before such shoots throw up flower, and the gain of a week or two by beginning early is a great advantage when we consider how comparatively short the prime of the blooming season is. The propagation of other varieties of bedding plants as well as Pelargoniums may be deferred for a time if there is a good stock to draw upon, but if any important sorts

are deficient it will be as well to commence at once to propagate, so that the cuttings themselves may furnish other cuttings by-and-by. Roses do not at present appear to have suffered much from the severity of the frost, but as the sap will soon be in motion, thereby rendering the plants more susceptible of injury, we are taking the precaution to mulch the borders with about 3 inches of decayed vegetable matter and manure, which will remain until the pruning is finished later in the season, when it will be pricked in. Blanks should all be filled up, and new plantations made before the season is too far advanced. As long as the plants are dormant, and the weather mild and open, planting may be carried on with safety, but when the buds are started there is great risk, and, generally speaking, the plants will require a season to recoup their strength. The mulching with manure above recommended will also be of great assistance to all fresh-planted trees. There are several signs of the approaching vitality of vegetation. Tulips, Hyacinths, Narcissus, and Crocus are peeping through the surface. Most of them are perfectly hardy, but as the winter and severe weather appear likely to be prolonged it will do no harm to cover the beds, particularly of choice sorts, with 2 or 3 inches of leaf-mould, particularly beds of Anemone and Ranunculus, which are much benefited in severe weather by such coverings. The time is approaching for the planting out of Hollyhocks from the stores in frames, but it is hardly safe at present, so that the plants had better be looked over now and then and decayed foliage removed and the surface disturbed with a pointed stick, and let them be freely exposed whenever possible to do so without injury, as a thorough good bloom depends upon planting out permanently as early as the weather will allow; the treatment, therefore, during the winter should be directed to the maintenance of a hardy constitution. The borders, beds, or single sites intended for their permanent situations should be deeply trenched up, and some good manure incorporated with the soil some time before the planting is attempted. The propagation of Dahlias, where large numbers of bedding varieties are required, may soon be commenced by removing the roots to a gentle bottom-heat, but the whole stock of roots should be looked over, and all decayed matter removed. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

We are still "frozen out" to a certain extent, but not altogether prevented from attending to some of the routine business. A certain amount of pruning, nailing and tying can be done during spells of fine weather, and if these be but short, so much the more reason is there for making the most of them. The present is a good time to look over Apple and Pear trees with a view to thinning the fruit-buds, a branch of pruning that is not always carried out even in places where it is well understood, a pressure of other work often causing a little too much hurry over this. Trees of the kind under notice, that are trained as bushes or pyramids, produce a number of spurs in and near the middle that are of no use whatever even if they are covered with bloom-buds, as any fruit that might set upon them would be too much enveloped in foliage to ever attain a respectable size; they had better therefore be cut out. The same may be done to espalier-trained trees, although there is somewhat less need for it in trees of the latter form than in those of a denser shape, and such as are trained against walls, the latter requiring the most thinning. Use every precaution against unduly wounding the trees by making clean cuts in the right place, and no more of them than is necessary to secure the object in view: there will then be neither snags nor hollow wounds left behind. A strong sharp knife and a small sharp saw properly gauged, will be found sufficient for the purpose and superior to many of the more expensive and complicated tools. Standard orchard trees may be looked over when the weather is favourable, and any superfluous branches cut out, but many young trees will probably require little beyond the unripe parts being taken off and a little thinning and regulating, according to the natural habit of each particular sort. Fully developed trees that are still vigorous may require to have the twigs of last summer's growth trimmed off the main branches, and a few bits cut out where the smaller branches are chafing each other, but very old trees, like very old people, do not much like to be interfered with, and are often best left alone. Where rabbits and hares are numerous they have been put to great straits for food during this long winter, and have broken through in many places where it was thought they were securely shut out, especially in orchards and gardens, and as the bark of young fruit trees is one of their dainty dishes, care must be taken to see that the parts within reach are secure from their attacks. Where wire netting is not at hand for this purpose a good makeshift may be made with pieces of Gorse or thorns tied closely together round the trees. Examine the fruit in the fruit-room frequently, and pick out for immediate use all that show signs of not keeping. Choice specimens of Apples

and Pears may now be wrapped in separate papers and put away in drawers, &c., where they will keep better than if left with the main bulk. *F. Harrison, Knowlsey.*

FRUIT HOUSES.

VINES.—A keen biting north-east wind, under a leaden sky, with the thermometer ranging several degrees below the freezing point, however satisfactory to the weather prophets, are conditions the reverse of favourable to gardeners who are engaged in early forcing, as minimum heats at least must be maintained; and fortunate are they who have their houses well furnished with hot-water pipes, good blinds for running down at night, and a plentiful supply of fermenting material which they can turn daily for the purpose of counteracting the parching influence of incessant fire-heat. Proceed with the tying and stopping of young growths until the foundation of an even spread of foliage over every part of the trellis has been secured. Select the most compact bunches for the crop; fertilise all shy-setting kinds with *Hamburgh* pollen as soon as they come into flower. Thin the most forward bunches of *Hamburgh* first, but defer the operation until the properly fertilised berries of *Muscats*, *Alicantes*, and *Mrs. Pince* begin to swell. These kinds, if grown with *Hamburghs*, should always have the warmest end of the house, as they require at least 5° more heat. *Madresfield Court* does well under *Hamburgh* treatment, and it is decidedly the best *Muscata*-flavoured Grape we have for early or mid-season house. *Mrs. Pince's Muscat* and *Black Morocco* should always have a house to themselves, and *Gros Colmar* should be planted where it can be started by the middle of February, as it requires more time than *Lady Downe's*, and always eats best from thoroughly ripened wood some time after the leaves have fallen. If the internal borders have not been watered since the early Vines were started they should have a good supply, at a temperature of 80° to 85°, as soon as the thinning has been brought to a close. The external covering should also have attention, and if fermenting leaves are used a temperature of 80° must be kept up by means of additions and frequent turnings. Syringe succession-houses two or three times a day, and turn the fermenting materials frequently, for the twofold purpose of setting ammonia and moisture at liberty. Discontinue syringing when the bunches become prominent, but keep up atmospheric moisture by damping the paths and walls until they come into flower, when a free circulation of dry air with a little more heat will facilitate the setting process. Look well to fruiting pot Vines; thin early and guard against over-cropping; feed well with tepid liquid-manure a few degrees warmer than the house, and add a little fresh top-dressing as the roots appear on the surface. Cut-back Vines intended for growing into fruiters may be taken into heat for starting, and when they have made 2 or 3 inches of growth shake out and repot in rich rough compost; use pots 6 to 9 inches in diameter, plunge in a mild bottom-heat, and keep them near the glass. Look over Grapes in the store-room, dispense with fire-heat as much as possible by keeping the shutters closed. Give sufficient air to prevent an accumulation of damp, and keep the bottles filled up with pure soft water. *W. Coleman, Lashor Castle.*

MELONS, if sown as recommended in our last Calendar, will now have made one or two rough leaves, and so soon as the roots have approached the side of the pots those intended for trellis-work—in the Melon-house—should receive a shift into small 32's, and be plunged again in a bottom-heat of from 75° to 80°, and kept near the glass, previously putting a small stick to each plant for support, while those plants which are intended for planting in hot-water pits or dung frames for training over the surface of the beds can be planted out as soon as the soil has become of the same temperature as the pits or frames. The soil the Melon delights in is a good turfy loam, which has been cut and stacked the previous summer or autumn. The top 3 inches of a sheep or deer park, when to be had, or a down which has been grazed by sheep, is the best possible soil for the growth of the Melon, and kindred subjects of the vegetable world requiring a loamy soil. Assuming that this turf, if taken off a down, will be necessarily fibry from its being continually grazed, and also that in consequence of the soil being, as a rule, shallow it will be necessarily rich in consequence of the sheep being pastured on it, it will, without the addition of any other ingredient, be amply sufficient, so far as the soil is concerned, for the production of first-rate Melons. The turf should be chopped into small pieces, a couple of inches long. But, on the other hand, if the loam at hand should be of a stiff and adhesive nature, old lime rubble or charcoal must be added in sufficient quantity to render it porous; and if the loam should be of a poor description one-fourth of well decomposed short dung (free from worms) should be added. The whole should be turned over twice, and when moderately dry got into the pit or

frame—the same having been thoroughly cleansed—the brickwork lime-washed, and the woodwork washed with soft soap and warm water—the glass with water only—previous to putting the soil in. Make a hillock in the centre of each light, by putting a barrowload or more of soil, according to the size of the light, in each, and leave a space of at least 10 or 12 inches between the surface of the hillock and the glass, so that the foliage of the plants will not ultimately come in contact with the latter. In planting put two plants in each light, so that should one or more of the plants, in this the earliest planting, through damp or other causes, die, there may be no inconvenience or disappointment experienced later on in consequence. Moreover, if all the plants should grow and flourish, the shoots can be thinned-out to the proper distance, and more fruit obtained from each light than could be secured from one planting. In planting press the soil firmly around each plant, and see that it has been moderately moist at the root before turning it out of the pot; then, as recommended on former occasions, make a ring of quicklime and dry new soot around each plant, which will serve a double purpose, viz., that of preventing an unnecessary amount of moisture setting on or near the stems of the plants, and also of keeping slugs at bay. Stop the plants when they have commenced to grow at the third rough leaf, and maintain a bottom-heat as advised above, running up—when there is a chance—to 85° with sun. Sow some more seed for successional crops and fill up any vacancies that may take place through death or other causes. Get some more fermenting material ready for making up linings or additional hotbeds. *H. W. Ward, Longford Castle Gardens.*

CUCUMBERS.—Now that the days are becoming longer and a little brighter, with a consequent increase in the growth of the plants, they will require a corresponding supply of water to the roots, and hence copious and frequent applications of tepid liquid manure in a diluted state. Maintain a night temperature of from 60° to 68° (according to the state of the weather), running up to 85° or 90° with sun, with a bottom-heat of from 80° to 90°. Shut up the house early in the afternoon, and damp the pathways and plants with tepid water when the state of the weather and other circumstances require such operations. Look over the plants and remove forthwith any superfluous fruit or decayed portion of wood or leaf that may appear. Should mildew or red-spider put in an appearance, apply flowers of sulphur to the former (when the foliage is damp) and a soapy water-sponge to the latter, which will be the means of arresting their mischievous incursions, and should green or blackfly be troublesome fumigate lightly with tobacco-paper two evenings in succession, which will be more effective and safer than filling the house too full at one time. Shift young plants as they require more room, and keep them near the glass till ready to plant for trellis-training, putting a stick to each plant. The soil in which we find Cucumbers to grow satisfactorily is an admixture of three parts of light loamy soil and one of short dung (from an old hot-bed), road scrapings, and a little charcoal; this mixture, we find, suits them admirably for the spring and summer cultivation. The hillocks can be made the same as advised for Melons. The same holds good respecting the planting of plants intended to be fruited in pits or frames without trellises, as also advised for Melons, stopping the plants as soon as they have made a fresh growth—say at the third leaf; and as a preventive of the depredations of slugs, make a ring of soot and lime around each plant. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

STOVES.—The present winter, with the severe and continuous frost we have had, and a remarkable absence of sun, has been a most trying one for stove plants, the whole of the heat necessary having had to be kept up by artificial means; and, as the difference between the internal and external air has been so great, this has been no easy task, unless in cases where the heating apparatus is more than usually efficient. Should we get a recurrence of such weather, or, what is even worse, cold, cutting winds, it will be found that the coal bill may be considerably lessened by covering at night the more exposed portion of the roof with tarpaulin, or anything of that kind that can easily and quickly be run up and down. It is surprising what an effect even the thinnest material has in helping the temperature, and anything that tends to reduce artificial heat is not only a great gain in the matter of fuel, but is much in favour of the health of the plants. This being the case, the fires should be kept in abeyance every morning till the day declares itself and it can be seen whether the sun is likely to break through or not, as to get the pipes hot and then let in a rush of cold air by opening the ventilators is productive of much harm by the rapid motion it causes, thus robbing the atmosphere of most of its humidity, and causing a chill to the tender foliage of

the occupants of the houses. This may readily be seen by their distressed appearance under such circumstances, and more particularly such as have thin delicate leaves, the susceptibilities of which are more quickly affected than those of stouter texture. Where an early bloom is desired it will now be high time to think of starting such plants as *Clerodendron Balfourianum*, the different kinds of *Allamanda*, *Bougainvillea glabra*, &c., each of which are exceedingly useful during the summer months for conservatory decoration—a time when they will remain much longer in beauty than where they are subjected to more heat. It is the practice with some to shake these out of the old soil at once, but it will be found that they break far better and more regularly with their roots left undisturbed, and all that is necessary now is to give them the requisite pruning and stand them in a position where their stems can be kept moist by being syringed occasionally, which with the balls maintained in the same condition will soon put them on the move. As both the *Bougainvillea* and *Allamanda* flower on the young shoots they form, the thing is simply to leave sufficient of last year's growth to form a frame as it were when arranged and trained to the trellis or stakes used for their support, and all beyond this should be cut away, leaving only a spur at the base, from which they break and furnish the plant. To get fine specimens of the beautiful *Clerodendron Balfourianum* it is necessary to retain and lay in as many of the long twining shoots as there is room for, the buds on which furnish the rich racemes of blooms that render it such a conspicuous object when well managed. *Gloxinias*, *Achimenes*, and *Caladiums*, so useful and lasting when got in early, should at once be brought forward by having the soil just moistened, and standing them where they will get a little more heat than where they have been wintered. *Achimenes* are best managed by having their tubers picked out and laid in pans of finely sifted leaf-mould, from which they can be transferred to their flowering pots.

FORCING HOUSES.—Among plants for forcing none are more showy and serviceable than *Rhododendrons*, the early-flowering kinds of which, subjected to a little moist heat, may be had in a few weeks, and as they will endure an ordinary greenhouse or conservatory temperature, they are doubly valuable on that account. The best and most distinct are *altaclarensis*, *Brilliant*, *Broughtonianum*, *caucasicum*, *c. album* and *pictum*, *ignescens*, *coriaceum*, *Jacksoni*, *Mars*, and the different kinds of *Nobleanum*, of which the latter are all good. As companion plants to these and equally useful are the *Ghent* or *hardy Azaleas*, the delicate tints of which when forced far surpass any that are ever seen in the open. For cutting, too, the flowers of these are of great value, and being most of them very sweet-scented are the more prized on that account. To afford us a list of delicate greenery to dress with them and others, *Solomon's Seal* should not be forgotten, as there is nothing to approach it in the exquisite finish it gives to any vase or epergne in which it may be used. This and *Lily of the Valley* may be considerably advanced in any dark place or beneath other plants, as may also *Dielytra spectabilis* and others of that class. *Lilacs*, too, and the *Azaleas* above named, together with [*Azalea mollis*], *Deutzias*, *Weigelas*, and such-like, are amenable to the same kind of treatment, but once the buds of these are fairly on the move light is essential to aid them in their development, and induce the blooms to come strong and fine. The great scarcity of yellow flowers renders *Cypripedium racemosum* most acceptable just now, but, being impatient of artificial heat, they must be brought on slowly, and will then come in to replace *Coronilla glauca*, a most valuable plant for winter decoration. Directly any of these latter are over, a little warmth is of great assistance in pushing them into fresh growth, which, made early and well ripened during the summer, is sure to produce a good display hereafter. In the matter of seed-sowing, that of *Cyclamens* should not be longer deferred, as any raised now and pushed on in a stove temperature will make corms sufficiently large and strong to flower at this time next year. A pinch of *Schizanthus retusus* and *S. papilionaceus*, with the beautiful little blue *Browallia elata*, will make fine pot-plants for the greenhouse if nursed on in light rich soil, and stood in a warm place near the glass. *J. Sheppard, Woolverstone.*

ECHEVERIA RETUSA.—This is one of the most showy of succulents when in flower, and there are now several in the succulent-house at Kew. It is not one of those requiring an educated taste to appreciate—none can fail to admire the delicate reddish-orange colour or waxy texture of the bell-shaped flowers. We recommend that propagation for next winter's flowering ere long receives attention. The young plants during summer may be utilised among others of the same class in forming beds, and be lifted carefully in the autumn. A few of *E. metallica* should also be taken up at the same time, for both afford an attractive feature among ordinary greenhouse plants.

THE

Gardeners' Chronicle.

SATURDAY, JANUARY 25, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, | Jan. 27 | { Sale of Lilies from Japan, by Protheroe & Morris. |
| THURSDAY, | Jan. 30 | { Sale of Libum auratum, &c., at Stevens' Rooms. Sale at The Nurseries, West Wickham, by Protheroe & Morris. |

CIRCUMSTANCES enable us this week to give sundry illustrations of PLANT-GROWTH possessing considerable interest as bearing on the operations of grafting, and as examples of the mode of growth of trees. The first that we shall notice is that shown in fig. 13, p. 108, which is the transcript of a rough sketch of a Sycamore tree in the grounds of Fulham Palace. Two main branches of this tree, as pointed out to us by Mr. HENDERSON, are tied one to the other by a branch which extends horizontally between the two. The branch is perhaps as thick as a man's arm, and it is difficult, or rather impossible, to say precisely how the phenomenon has been brought about. It would seem, however, as if two twigs had, at an early state of their growth, become somehow inextricably intertwined so that a fusion ultimately took place, and which, once effected, the successive annual growths have obliterated all trace of the union and produced a smooth nearly cylindrical branch. This case is very similar to that figured at fig. 14, p. 108, and reproduced from an earlier volume. In this case an Oak tree had, from some cause or another, divided into two main trunks a little above the ground-line. Some distance above the point of separation the two trunks were united by a cross-branch, which proceeded from the right hand trunk, and "is so firmly imbedded in the left one as to be forced into a semi-cylindric shape at the point of contact." Above this again the two trunks were united by a thick cross-branch so perfectly that no suture or inequality can be detected, the surface being as "smooth and uniform as if no such connection had ever been formed" (*Gardeners' Chronicle*, 1845, p. 257). The correspondent who sent us the sketch suggested that this was originally a single tree, the branch of which, by some accident, had become perforated at an early stage of growth, forming what is called in Sussex a "rind gall." Taking this view of the question, the connecting portion could not be looked on as a branch but simply as the upper part of the trunk of a tolerably large tree, with an extraordinary aperture through it.

Whatever may have been the case with the Oak in question we do not think it at all probable that a similar explanation is feasible in the case of the Sycamore at Fulham, where the diameter of the cross-piece, its curious twist, and the height from the ground, and consequent size of the aperture, all militate against the notion of perforation. We should rather consider it a case of natural grafting similar to that of two Elms recorded in our columns in 1849, p. 421: see fig. 17, p. 109.

In the preceding cases we have been dealing with the inosculation or natural grafting of branches of the same tree or possibly of branches of two trees of the same species, but equally curious phenomena are occasionally observed in which a sort of false union is brought about between branches or trunks of two trees of different species. It is not uncommon to find Honeysuckle girdling a tree so tightly that the latter grows over it and more or less perfectly embeds the climber in its tissues. In Richmond Park there is, or was, a case of this kind in which a Thorn was embedded in a Hornbeam tree in

this manner. No one will believe in any actual grafting of these two plants, but the two trunks were so firmly appressed one to the other that the union was as firm as that of any graft, still there would be no commingling of the sap of the two plants.

Mr. WHITTAKER, of Crewe Hall Gardens, sends us an illustration of this latter class of cases, and which is shown at fig. 16, p. 109.

"About twelve years since," says Mr. WHITTAKER, "I noticed that the branch of a Beech had grown against the stem of a Spanish Chestnut, and that it was gradually becoming covered by the bark of the latter. This process has gone on till the branch of the Beech is now completely enveloped at the lower part for a length of 15 inches, and partially so for a length of 3 feet 4 inches. The circumference of the branch below the covered portion is 11 inches, and above, where it touches the Chestnut, 1 foot 3 inches. On this portion there are several rings or wrinkles formed on the bark, as if the sap there had been obstructed, causing the greater size of the branch above than below the junction. A portion of a dead branch of the Chestnut remains in one part of the stem, and around this the bark has grown so as nearly to cover the branch of the Beech. It will be interesting to know if the branch will continue to have life and health, when, as must happen in a few years, it becomes completely enclosed all the length where it touches the Chestnut, as it is now for a length of 15 inches." In Mr. WHITTAKER'S case, then, we have a marked case of gradual embedding by the formation of wood in a downward direction.

At one time it was considered that the wood of trees was formed mainly or entirely in a downward direction, as if the wood were the direct, and not merely the indirect, product of the leaves. Since the researches of TRÉCUL, however, it has become clear, that although wood is formed in a downward direction, yet that this is not the only manner in which it can be formed, seeing that it can be formed in wounds under circumstances which preclude downward growth or immediate leaf action, but from previously elaborated sap, to use a gardening phrase, stored up in the tissues or conveyed to the spot where required. Still the operations of girdling, ringing, and in some cases of grafting, sufficiently show that there is a downward growth, which becomes manifest when any obstruction to growth occurs, as in the case figured at p. 108, fig. 15, where the downward growth has been stopped by a stone seat beneath.

— THE ROBINIA AT FULHAM PALACE (see fig. 18).—Fulham Palace, the residence of the Bishops of London, is one of those estates which have a special charm for the plant lover. Bishop COMPTON, a great enthusiast in tree culture, enriched his domain with many rare trees, which have now grown into their prime, and in some cases have passed it. The garden as a whole has been so frequently described (see *Gardeners' Chronicle*, vol. viii., 1877, p. 234) that little need be said of it, but we propose from time to time to give illustrations of some of the more remarkable trees, photographs of which were taken for us last autumn by Mr. ARTHUR SMITH. The feathery foliage and clusters of fragrant white Pea-shaped blossoms of this species are known to most of our readers, and some will remember the craze caused by COBBETT'S exaggerated description of its merits as a timber tree. The sway of the pendulum has caused it to be unduly neglected, for it is a rapid grower, and its timber, if not so valuable as COBBETT thought, is still not without merit. Travellers along the French railways, eastward and southward from Paris, must have remarked how freely it is used along the railway embankments, which it serves to keep together by means of its long creeping roots, while its young shoots treated as coppice are useful in the vineyards and elsewhere. Great variation in colour, form of leaf, and habit, is readily observable. Several of these varieties are cultivated

in our gardens, and a descriptive account of some of them will be found in our volume for 1876, vol. vi., p. 748. The name Robinia is given to commemorate the services of JEAN and VESPASIAN ROBIN, under whose auspices the tree was introduced into France from Virginia before the middle of the seventeenth century. A veteran tree, planted by one of the ROBINS, still exists in the Jardin des Plantes, but its rival at Fulham has the advantage over its French compeer.

— THE EFFECTS OF THE FROST.—Now, when a little time has elapsed to give us an opportunity for more correctly seeing what has suffered by and what has withstood the effects of the low temperature, though there are a sufficient number of the killed and maimed to cause regret in such localities where the usual accompanying conditions exist of greater severity, with a correspondingly less ability to bear it—as is almost invariably the case in flat, low-lying situations, where the generally deeper and richer soil stimulates luxuriant growth with less chance of its full maturation in autumn—yet so far as the southern part of the kingdom is concerned, at all events, there is very much less injury done than we might have expected, or than usually happens when the thermometer falls to near zero. All that has come under our notice, which has extended over a fairly wide field, goes to confirm previous experience—that plants of all kinds, the hardiness of which there are doubts about, are much more likely to escape in sufficiently elevated positions, where the conditions of air and soil are such as to restrict growth in a way conducive to solidity of the woody fibre, and which is so much better calculated to withstand a severe ordeal than the soft pithy formation resulting from conditions opposite to these. In respect to the way in which many doubtful species of trees and shrubs have escaped injury we have heard reference made to the thoroughly ripened state of the wood in autumn—a condition, without doubt, that has much to do with the little damage sustained by many things. We think, however, that the direct cause to which is attributable the matured state of last summer's growth has in the present case often been lost sight of. In the South and West of England, as also in the Midland Counties, there was last summer an absence of the continued hot roasting weather, with an accompanying dry condition of the soil, often looked upon as the precursor of a fully ripened state of the wood by the close of autumn, but which is frequently anything but conducive to a well-matured season's growth. When the summer is so dry as to reduce the soil to a condition that arrests both root action and shoot development at the time when these should naturally be making the greatest progress, it very generally happens that we get heavy rains at the beginning of the autumn, which falling upon the heated earth bring about a continued condition of soil and air that forces most things again into active growth much too late for any possibility of its getting solidified before winter is upon us. Last summer the complete reverse of this occurred over the greater part of England; we had very little spring, the protracted cold retarded growth a great deal later than usual, but as soon as warm weather commenced we had at short intervals much heavier rain than ordinary, consequent upon this there was no check to growth, and although the rains in autumn were plentiful it was only in the case of exceptional species of plants that it had an influence in stimulating shoot development. The result was that the current season's growth in most things was so well matured, and the whole energies of the plants brought so nearly to a dormant state, that they were in the best condition to bear a low temperature—a state of matters completely different to what was present in the memorable autumn of 1860.

— ADULTERATION OF SEEDS.—The *North British Agriculturist* reports that in the course of a conversation on adulteration of seeds, at the late meeting of the Scottish Seed Trade Protection Association, Mr. CRAWFORD observed that the mixing of Yellow Suckling with white Clover seed was becoming too frequent in samples offered from London and the Continent, and the worst of it was, there was nothing in the Act to prevent that sort of thing. It was resolved, on the motion of Mr. MACKINTOSH, Edinburgh, seconded by the Chairman, to offer a premium not exceeding £5 for the best essay on "How to Discover such Cases of Adulteration, and to Ascertain the Names of the Seeds so Mixed."

— MR. BAKER ON THE COLCHICACEÆ. — At the meeting of the Linnean Society on January 16, Mr. J. G. BAKER read a paper on "Colchicaceæ and the Aberrant Tribes of Liliaceæ." Colchicaceæ is the smallest of the three sub-orders of Liliaceæ, and includes thirty-nine genera and 153 species. In its typical form it is marked by extrorse anthers, a septidial capsule, and three distinct styles; but as twenty-four out of the thirty-nine genera do not possess all these three characters in combination, but recede more or less decidedly from the type in the direction of true Liliaceæ, it seems injudicious to follow those who have proposed to keep up Colchicaceæ, or Melanthaceæ, as a distinct natural order. The tribes are:—1, Colchicæ, marked by the type-characters of the sub-order in combination with a gamophyllous

the floras of which the order as a whole forms an element. The three aberrant tribes of Liliaceæ are Conantheræ, a connecting link between Liliaceæ and Amaryllidaceæ, marked by its partially inferior ovary and anthers dehiscing by terminal pores; Liriopeæ, and Gilliesiæ. Liriope is an older name for Ophiopogon. These two last sub-orders contain genera which recede widely from the Liliaceous type, and others which bridge over the interval between the extreme form and the ordinary Lilies; of Gilliesiæ, which are almost exclusively Chilian, we now know seven genera; of Liriopeæ three.

— ROYAL HORTICULTURAL SOCIETY. — The Council of the Society has issued a summary of the privileges of Fellows and members for the present

— COLCHICUM LUTEUM, in flower at Kew in the Cape-house, is of great interest as being the only yellow-flowered species. Though known from about 1840, being then discovered by GRIFFITH, its introduction was effected only about four years ago, and it has since remained extremely scarce. It belongs to the Mediterranean group of the genus, the flowers and leaves being produced together towards spring. The flowers, when expanded, are not quite $1\frac{1}{2}$ inch across; the colour is either pale or deep yellow. It is a native of Kashmir and Afghanistan.

— DR. DENNY'S PELARGONIUMS. — We are requested by Dr. DENNY, treasurer to the Pelargonium Society, to state that he considers the first or second week in February the best time for planting



FIG. 18.—THE OLD ROBINIA AT FULHAM PALACE. (SEE P. 112.)

perianth and bilocular anthers; 2, Merenderæ, with the type-characters of the sub-order in combination with a polyphyllous perianth and bilocular anthers; 3, Veratreæ, with the type-characters of the sub-order in combination with unilocular anthers; 4 and 5, Anguillariæ and Heloniæ, which recede from the type by their loculicidal capsule; 6, Uvulariæ, which recedes from the type by its united styles; and 7, Tofieldiæ, with a loculicidal capsule, anthers slit down the edge or face, and equitant distichous leaves. This sub-order includes several genera which recede in a striking manner from the general Liliaceous type, as, for instance, Hewardia, which connects Liliaceæ with Iridaceæ, Petrosavia, a Saprophyte with three apocarpous carpels, and Scolopus, with a unilocular ovary and three parietal placentas. In geographical dispersion Colchicaceæ agree completely with the true Liliaceæ, as they enter, broadly speaking, into all

year, which, we are glad to note, are much more liberal than the Fellows have hitherto enjoyed. A Fellow paying four guineas a year is now entitled to *personal admission* at all times when the gardens are open to Fellows, and two yearly tickets, both of which are transferable, and which give the bearers admission every day, as well as to all shows, *fêtes, conversazioni*, and promenades, both at Chiswick and South Kensington; while a Fellow paying two guineas a year is entitled to personal admission the same as a four-guinea Fellow, and to one yearly ticket, transferable, admitting the bearer every day, and to all shows, *fêtes, conversazioni*, and promenades, both at Chiswick and South Kensington, and the bearer with two friends on all ordinary days. The added privilege is that of "personal admission," an addition which should result in a considerable increase in the number of applications for Fellowships.

the seed of the Pelargonium, and that he will be pleased to forward to the amateur members of the Society the offered packet on application.

— THE HORTICULTURAL CLUB. — At a meeting of the Horticultural Club, held at the club-house, Arundel Street, W.C., on Tuesday the 14th inst., the following gentlemen were elected as the committee for 1879:—Herbert J. Adams, Hon. and Rev. J. T. Boscawen, William Bull, Captain Christy, Philip Crowley, James Cutbush, George Deal, Dr. Hogg, the Rev. George Henslow, Lewis A. Killick, John Laing, W. A. Lindsay, John Lee, Dr. Masters, Thomas Moore, Horace K. Mayor, Charles Noble, General Puckle, Charles Turner, A. C. Wheeler, B. S. Williams, C. P. Wheatstone, and Maurice Young. We are glad to state that the Club is in a prosperous condition, financially, and that the

arrangements for the comfort of the members are very satisfactory. Provincial horticulturists would find the Club a useful house of call in London.

— THE SALE AT MESSRS. ROLLISON'S NURSERY.

—It may be interesting to some of our readers to know the result of the sale of Orchids, stove and greenhouse plants, a portion of the indoor stock of Messrs. ROLLISON, of Tooting, Surrey, and which was conducted by the firm of Messrs. PROTHEROE & MORRIS, 93, Gracechurch Street, E.C. The sale commenced on Monday the 13th inst., and continued five days. Altogether there were upwards of 2000 lots, 1100 of which were exclusively devoted to Orchids and the remainder to Tree Ferns, New Holland, stove and greenhouse plants. The attendance was very large, and the biddings throughout were of an unusually animated character. We quote the prices of a few of the most interesting:—Lot 52, *Dendrochilum filiforme*, 15 guineas; lot 567, *Odontoglossum vexillarium*, 10 guineas; lot 1000, *Cyclopogon cristata*, 11½ guineas; lot 1058, *Aerides Schroderii*, £7, a small plant; lot 1120, *Aerides affine superbum*, £7; and lot 1400, *Anthurium Scherzerianum*, £11. We understand the collection of choice plants is not yet exhausted, as the auctioneers gave notice of a further sale, particulars of which will duly appear in our columns. The freehold has, we believe, not yet been disposed of.

— **WEeping Nut.**—The Weeping Nut, *Corylus Avellana pendula*, is a remarkably fine small-growing tree of drooping habit. The leaves, which resemble those of the common Nut, are large in proportion, and the weeping character of the branches is boldly developed.

— MANLEY PARK COMPANY, MANCHESTER.

It is stated that a petition to wind-up this company has been presented to the Chancellor of the Duchy of Lancaster by Mr. SAM MENDEL, now of Chislehurst, and which will be considered on the 27th inst., before Vice-Chancellor LITTLE. We fear from the statement in another column, that this Manley Park Company has injured the Manchester Royal Botanical and Horticultural Society to some extent, without itself doing much to contribute to the advancement of practical horticulture, and certainly nothing to that of horticultural science. Genuine horticulture is lowered by association with meaner things, and resources which would be more advantageously utilised for horticultural purposes are squandered for less legitimate ends.

— **A NEW SOURCE OF MILK.**—As an illustration of the sort of food the readers of many of the daily and weekly papers are served with, we may refer to a paragraph in a weekly contemporary of Saturday last. Writing of the difficulties of the milk supply and the irresistible temptation there is for adulteration, besides the well known fact of the spread of infectious diseases, our contemporary gravely suggests that the "head of the family may find at last in the *Brosimum Galactodendron*, or Cow-tree, the specific remedy he wants. Of course much depends on the result of further inquiries, but it is not impossible that the *Brosimum Galactodendron*, so inherently rich, may grow well, even in the desert patches to be found to a greater or a smaller extent at the back of most London houses. If it prove to be so, great indeed will be the domestic revolution wrought when the milk supply of a house may be obtained by sending out the servant with a gimlet and a jug to the back yard when the Cow-tree will be, presumably, flourishing in all its fatty fertility." This is a picture of an extremely rosy character. Just at present our climate seems far from suited to the cultivation of Tropical South American trees in the open air in our back gardens.

— **SALIX MASCULA PENDULA.**—What is the *Salix mascula pendula* found growing in the nurseries? That is to say, to what species should it be referred? As an ornamental plant in the young state it is much superior to the common Weeping Willow, being not only more vigorous in growth, but less affected by frost. The bark on the young shoots is reddish, becoming greener as it ages. The leaves are lanceolate and slightly falcate, with ½ inch stalks, the blade 5½ inches long, and 1 inch wide; they are of an opaque green above, glaucous beneath, both surfaces roughish, but without hairs, and the edge finely and sharply serrate. The young trees in the nursery quarters look something like Peach trees, but a little

more flexible in the wood. It is a tree decidedly worth looking for.

— EUROPEAN TRADE IN CHINESE HATS.

In a recent report on the trade of Ningpo we are told that a very large traffic is carried on between that port and London in hats plaited or woven by hand, and made from a small species of *Carex*. The plant is described as being indigenous, and to be found in damp situations among the hills, but that employed for the manufacture is cultivated in Rice grounds. The hats are made by women and children at their own homes, and sold by them at ½d. to 2d. each. They are strong and serviceable, and are bought wholesale by the foreign merchants, who send them to London, whence, it is said, they are shipped principally to the Southern States of America. This trade has grown to very great proportions during the last three years, the number exported during 1877 amounting to 15,000,000. The plant used in the manufacture of these hats is probably *Cyperus corymbosus*.

— THE SCHOOLMASTER POTATO.

—With reference to the claim made by Mr. EDWIN BENNETT, of Enville Schools, to be the raiser of the Schoolmaster Potato, "One who worked in the gardens at Enville" writes to say that he supposes Mr. BENNETT meant to have said that he christened it, as the Potato was raised in Lord STAMFORD's garden at Enville, and was grown for three seasons by Mr. EDWARD BENNETT, now of Rabley, before it passed into Mr. EDWIN BENNETT's possession. Perhaps Mr. EDWARD BENNETT will give us the true history of the Potato in question, and also explain, if he was the raiser, why he did not make the claim when the Potato was first sent out.

— **MR. WILLIAM HINDS.**—We hear that Mr. HINDS has resigned his situation, after being seven years with Sir THOMAS EDWARDS-MOSS, at Roby Hall and Otterspool, during which time he has remodelled and replanted both places. Mr. HINDS leaves with the best wishes of Sir THOMAS and Lady EDWARDS-MOSS, and having credentials of the highest order, we shall be glad to hear of his obtaining an appointment worthy of so able a practitioner.

— MAGNOLIA GRANDIFLORA FERRUGINEA.

It is in such seasons as this that the ferruginous variety of *Magnolia grandiflora* shows its superiority, and we have little doubt it will generally be found that it is unhurt or comparatively so, while the first favourite—to use a sporting phrase—the Exmouth variety, is killed down to the ground, if not indeed killed outright. It usually happens under such circumstances as these that *M. grandiflora ferruginea* stands quite uninjured, and therefore we have come to regard it as the hardiest, as it is the freest-blooming, and in every way the best variety of this grand American evergreen. Such has always been the experience of it in the Knap Hill Nursery, and doubtless the same will be found to hold good for the trying winter of 1878-79.

— THE CULTIVATION OF JASMINE IN CANTON.

—As is well known much of the black Tea imported from China is systematically perfumed or scented, which is done by mixing the leaves with the flowers of several different plants which are regularly cultivated for the purpose, notable among these is the *Jasminum Sambac*, which is known in Canton as the "Mok-lei." The gardens where this plant is cultivated, it is said, are principally in the Honam and Fatee suburbs of Canton. The plantations in the latter place were much damaged a year or two since by the flooding of the river caused by the giving way of the embankment at Ch'ing-yiin. This disaster caused the flowers, for a time, to realise a much higher price in the market—fetching, in fact, twice the ordinary value.

— **STRAW PLAIT FROM CHINA.**—Owing to the more general adoption of woven fabrics, such as silks and satins, for ladies' bonnets and hats, the English straw plait trade, the headquarters of which is at Luton and Dunstable, has been for years languishing. It was, however, hoped that the visit of the Prince of WALES to Luton, some short time back, would give a fresh impetus to the trade. It seems, however, that the English manufacture has a powerful competitor to contend against in China, from whence

straw braid is imported in very large quantities and is still increasing. We are told that its production in China is entirely for the foreign market, about two-thirds of the entire production being sent to England, and one-third to the United States of America. During the last ten years the export has increased from 1772 peculs (a pecul being equal to 133½ lb.) in 1868, valued at £9170, to 20,802 peculs in 1877, valued at £196,090.

— **IRIS FIMBRIATA**, which we observe in the succulent-house at Kew, is so charming when in bloom as to require a brief note. The flowers are elegantly formed, and the mauve colour relieved with yellow can scarcely be exceeded for delicacy. It is not quite hardy, though frequently withstanding the winter, and therefore requires greenhouse culture, which it well repays. This plant is frequently known as *Iris chinensis*, and also as *I. japonica*.

— AURICULAS DURING AND AFTER THE FROST.

—Auriculas have been having a somewhat rough time of it in cold houses and frames where outside covering alone could be employed as a protection. The cultivator who kept his plants dry during the greater part of December has most reason to rejoice that he was not tempted to water when the weather was warm and sunny. In a cold house to which no external covering could be applied we have found a layer of newspapers to answer well during the severity of the frost. The labels on the pots kept the paper from pressing on the plants, and no harm was done from that cause; and the dense covering of hoar-frost which lined the inside of the glass a quarter of an inch or more in thickness fell on the covering and not on the plants when a fall in the temperature caused it to give. So keen was the frost in an unheated house on a north aspect that for a fortnight nearly plants, soil, and pots were encased in hoar-frost despite the covering of newspapers, but owing to the dryness of the soil no harm happened to the most delicate plants. Last year, at this time, Auriculas were fast becoming excited into growth; but now they appear to be in the very depth of their repose, which is a more natural condition at this period of the year. It is only the plants whose leaves are actually flagging that require water; it is best to withhold it from the bulk till there is a prospect of settled milder weather. The removal of any decaying leaves, and a slight stirring of the surface soil is necessary; meanwhile the soil intended to be used for top-dressing can be got ready, as after the long periods of drought some assistance in this way will be necessary to give the plants a fair and necessary start into growth. The recently-formed roots, which are the prime feeders to the plants, are near the surface, and need invigorating when the time for action comes.

— INDIGO IN SALVADOR.

—The following contribution to the history of the cultivation and preparation of indigo in Salvador is gathered from the *Catalogue des Objets Exposés par la République du Salvador*. It is stated that this indigo is classed in Europe as Guatemalan indigo. It is usually known in the country as "Iquillite," and is considered the most important agricultural crop of the entire Republic. The plant grows wild, but is generally cultivated in properly prepared ground. Both the crops and produce vary according to the geological composition of the soil. Thus at the base of the volcano of San Salvador the yield of dye is sometimes about half a pound per load of leaves, while at Santa Barbara and Santa Cruz, which is situated some distance from the sea, thirteen or fourteen ounces are obtained. Indigo is grown nearly all over Salvador, forming extensive fields, and furnishing one of the most valuable products to its agricultural industry. The localities where the plants are grown are called *manchones*. The workmen, who are called *sacateros*, cut the plants with a small sickle, and make them up into sheaves of from fifty to sixty pounds' weight. The plants after being cut are thrown into vats filled with water; they are here allowed to soak for a period of from twelve to seventeen hours, the time varying according to the temperature and composition of the water. When the liquid is in a state of fermentation the colouring matter is drawn off into another vat, where it is beaten, or kept in motion, by means of wooden wheels, and then the dye is precipitated by the sap contained in the bark of the "Tihuilate," of the *Platanillo*, or of the "Cuaja tinta." The first is referred to a species of *Ionidium*,

and the second to *Canna indica*; and of the scientific name of the third no clue is given. These plants have no acid reaction. When once the dye is precipitated it is allowed to settle during the night, and the following day it is boiled, filtered, pressed, and lastly dried in the sun. Each bale or *suron* contains 150 lb., the different qualities or grades of Indigo being specified by numbers—from four to six ordinary quality, or “cortes;” from seven to nine, fine or superior, or “sobresalientes.” The usual annual produce of indigo in Salvador amounts to about 2,400,000 lb., the annual exports being between 14,000 to 15,000 *surons* of 150 lb. each, which represent an approximate value of 1,721,378 piastres, or dollars. The superior quality indigo is sold in the country fairs at about 8 reals per pound. In the European markets the prices of course vary according to the supply from other countries.

— CONIFERINE AND VANILLINE.—Less than twenty years ago HARTIG discovered the substance called coniferine in the descending sap of *Larix europæa*, and its presence has since been detected in all the Pines and Firs submitted to examination. But the importance of this discovery has only become apparent since it was found, in 1874, that coniferine might easily be transformed into vanilline, the aromatic principle present in the seed-vessels of Vanilla. During the last two years coniferine has been collected in North Germany by hundreds of pounds. The price varies from 50s. to 65s. per kilogramme (a kilogramme is nearly 2½ lb. avoirdupois); and as the operations of collection and preparation can be easily and economically performed by women, this industry will prove another source of income to the forest population. Coniferine, it is stated, exists only in the descending sap. When the trees are cut down in spring or summer, the branches are at once lopped off and the trunk flayed of the bark; the trunk is scraped with a sharp instrument, and the sap collected in sponges and expressed into pails. A tree of medium size, in vigorous health, yields from 7 to 9 pints of sap, and each pint of sap contains about 100 to 125 grains of pure, dry coniferine. By boiling, evaporating, and filtering the sap, the coniferine is separated in the form of crystals.

— IMPROVEMENT OF ST. PAUL'S CHURCH-YARD.—We learn from the *City Press* that the Coal and Corn and Finance Committee, having had before them plans and estimates for the embellishment of the ground around St. Paul's Cathedral, have made choice of such as seemed to them to meet the wishes of the Corporation upon the matter. The railing on the north side of the churchyard will be lowered, and a new gate formed at the north-east corner, by Cheap-side. On the south side the railing will be shifted within the churchyard, so as to allow of the formation of a public footway on the outside. The purely ornamental department has been entrusted to Mr. E. MILNER, of Norwood, who will superintend the laying out of the ground somewhat in the form of a modern pleasure-garden. The whole of the north-east, south-east, and south-west of the churchyard will be planted with trees and shrubs; and flower-beds, and the customary accessories of the landscape garden, will find their place in the development of the work, which will go forward immediately upon the signing of the contracts; and by Midsummer next, at latest, we may look for a pleasing addition to the number of City oases.

— THE RANGE OF TEMPERATURE during the late frost has, as usual, from all we hear, been very considerable even in places not far apart. Elevated positions, as compared with such as lie lower, will to some extent account for this; yet we think that in many cases, where within comparatively limited distances there would appear to have been so much difference in the minimum recorded, there cannot be much doubt but that the instruments from which the observations were taken, if thoroughly tested, would be found at fault. We speak with more confidence upon this point from experience, not with a single thermometer or two in use at the same time, made by one or more of the best makers, but by several, which gave an opportunity of observing their liability, through no apparent cause, to get out of order. We have on several occasions had three or four thermometers at a time, combined maximum and minimum, as well as each separate high-priced instrument, from some of the most noted makers, and which at first all

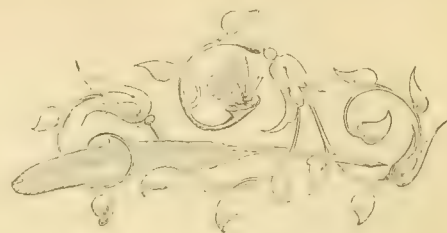
corresponded within a shade of each other, but invariably found that very soon after they varied considerably at different points in the scale, comparatively few continuing for a number of years to register accurately. Hence, without in any way discrediting the disposition to observe correctly on the part of those who have reported the extreme low temperatures as having occurred in the south of the kingdom, we very much doubt the correctness of the instruments from which such returns were made. Nothing less than a couple of well-proved thermometers placed side by side under exactly similar and fair testing conditions, and closely watched to see that they corresponded in both their higher as well as their lower readings, are to be relied upon in extremely hot or extremely cold weather.

— FRUIT CULTURE IN JAPAN.—We have often heard and read of the primitive state of fruit culture in Japan, of the bad quality of the fruit, and the peculiarity of the Japanese in eating green fruit, even green Peaches. The *Monatsschrift* for October and November contains a lengthy article on this subject, by the late Dr. AHLBURG, whose sudden death we recorded a few weeks ago. The author seeks to show that Japanese fruit is much better than its reputation. He maintains that the essentially Japanese fruits, as the Kaki (varieties of *Diospyros Kaki*), and several kinds of Citrus, &c., are exceedingly good, and the result of centuries of cultivation and selection. Excellent Grapes are brought to the markets in large quantities, but Dr. AHLBURG was of opinion that the Vines were of American origin. Both Peaches and Pears are good when allowed to ripen; it is true, however, that the natives prefer them unripe.

— CHANGE OF OWNERSHIP IN A GERMAN SEED BUSINESS.—The seed business so long carried on under the style and title of MARTIN GRASHOFF, at Quedlinburgh, has been sold by Mrs. GRASHOFF to her cousins and late managers, Messrs. HERRMANN GRUSSDORF and ERNST LIESENBERG, who will conduct it under the same name as before. We understand that Mr. HERRMANN GRUSSDORF has for the last twelve years been manager of the commercial and practical part of the business, and Mr. ERNST LIESENBERG has for some time past devoted his entire attention to the agricultural part of it.

— THE WEATHER.—From the report issued by the Meteorological Office for the week ending January 20, we learn that the weather generally was fine in Scotland and the north of England, but very dull and wet in the western and south-western districts, with a good deal of fog over England on the 14th. Temperature uniformly a little above the mean in “Ireland, S.,” but below it in all other districts, the deficit ranging from 1° in “Ireland, N.” and “England, S.W.,” to 4° in the northern districts, and 5° over the Midland Counties. Thermometer highest at commencement of week, when maxima ranging from 42° to 45° were recorded over England; lowest towards close, when minima were below 25° generally, and as low as 15° at Loughborough (on the 20th). At Glenalmond on the 20th the sheltered thermometer fell to 11°, and that on the grass to zero. Rainfall less than the mean in Scotland and the north of Ireland, but more in all other districts excepting “England, N.W.,” where the amount was about the average. In the northern and eastern districts the fall was mainly in the form of snow, but in the south-west it was principally rain. The exceptionally heavy fall of 2.84 inches reported from Valentia on Sunday the 19th was quite local, the amount at the other stations in the district being less than half an inch. Wind westerly at some of the south-western stations on the 15th, and again on the 18th, but usually S.E. to E. over the whole country; generally moderate in force in the east and south-east, but strong to a gale in the west; severe easterly gale at Scilly on the 16th, and south-easterly gales at many of the south-western stations on the 20th.

— GARDEN APPOINTMENTS.—Mr. THOMAS SNELLING, gardener for the last twelve years at Ampton Park, near Bury St. Edmunds, the seat of B. B. HUNTER RODWELL, Esq., Q.C., M.P., has been appointed successor to the late Mr. JOSEPH DALE, as manager of the Middle Temple Gardens. Mr. SNELLING is in the prime of life, an excellent gardener and plant grower, and has for many years been successful as an exhibitor at the Bury and West Suffolk Horticultural Society's shows.



Home Correspondence.

Destructive Birds and Fruit-Buds.—Alluding to “tits,” your correspondent “F. F. B.,” p. 84, says, “These little mischievous imps are assisted in this work of destruction by our implacable foe, the gay-looking bullfinch.” Is “F. F. B.” quite sure that the gay-looking bullfinch, instead of merely assisting, does not generally do all the work of destruction? It is really astonishing what an amount of this kind of work one or two of these gay-looking gentlemen will quietly perform in a very short space of time. But will you allow me to ask your readers generally if any one has ever found buds in the crop of a tit? I have opened and carefully examined the contents of more than one of them, and I must admit that I found no buds; so, as far as my experience in the matter goes, I am compelled to admit that the charge against him is not proven. Or, if he even does occasionally remove a bud, it may be that it is only when such comes in his way when searching for scale and other minute insects. The buds of trees are evidently not his natural food, so it is unlikely that he will pick many of them off for merely the fun of the thing. But as regards the bullfinch, a *post-mortem* will at once decide as to his guilt. The common house-sparrow is also openly accused of picking buds from Gooseberry bushes and fruit trees generally, and I am far from feeling inclined to say that he does not do so. He bears an ill repute; and to give a dog an ill name and hang him is a simple and may sometimes be found to be a convenient method of settling a doubtful question; but even the “devil should have his due.” I have on several occasions shot sparrows while busily engaged in some way among the branches of Gooseberry bushes, and on careful examination of their crops failed to find any buds. *P. Grieve, Cusford.*

The Protection of Gooseberry and Currant Buds.—Your remarks in a previous issue respecting the protection of Gooseberry and Currant buds are well timed, as just at this season sparrows are particularly destructive, and being such homely birds, and so much about one's house and premises, they often commit a deal of mischief before they are in any way suspected. I know of many gardens round about here where the bushes were annually stripped, and the owners could not make out why it was that they got so little fruit, till I pointed out the cause, and even then they were quite incredulous; but since they have used the wash as advised they have suffered no further depredations of the kind. The time sparrows attack buds most is just as they begin to start, and as they are now on the move it will require much vigilance, if not coated at once, to render them safe. Many trust to late pruning, but that is of little avail, for although it leaves more buds on for the winter it only affords the greater feast to the feathered depredators when they begin their attack; and once they do this it is seldom they leave many to select from, and what do escape are only those at the ends of the shoots or other positions equally difficult of access. In rural districts bullfinches are most troublesome. These birds have a special weakness for Plum buds and those of the genus *Prunus* generally, and it is astonishing what ravages even a pair or two of these songsters will commit among a plantation of trees if left quietly to them for a few weeks in the spring of the year. I have always an aversion to killing any of the feathered tribe, but to save a crop it is often necessary to assail these with powder and shot, and so be rid of the nuisance. In cases, however, where trees are inclined to moss or lichen, it pays well to use the lime and soot wash, as a single dressing effectually rids them of these pernicious parasites, and soon renders the bark clean and healthy. For Apples and Pears, and, indeed, all kinds of fruits, it works wonders, and I would strongly recommend any one having any in an unsatisfactory state to give it a trial, as I am sure, unless the ailment arises from unhealthy roots, that they will have reason to be satisfied with the result. Where there are many trees of large size, the quickest and best way to apply it is by means of a garden engine, as it can then be driven to a greater height and distributed with more ease and regularity than is possible by using an ordinary syringe. Whichever instrument be used it is necessary that the wash be strained through a fine sieve, so as to take any lumps of soot or lime that may remain unslaked, and which would on that account be too large to pass through the tube of the engine. *J. S.*

The Hot-water Apparatus: Good and Bad Stoking.—The first thing in the morning open the top and bottom dampers to their full extent, stir the fire, fill up with fuel, cram it on until it will hold no more, leave it burning until night, then fill it again, bank it down as it is often called, put on wet ashes, beat it down tight, then shut the damper, or dampers, as the case may be; next day repeat the operation, and so continue it, find fault with the boiler and pipes, when the frost and cold wind proves too much for you. This is just what I have very often seen and heard. Now let us see what the better stoking is, or what thirty years' practice has taught me. First, open the dampers, then stir up the fire, draw out all the clinkers, stir out the small ashes, clean out all soot and dust from the boiler and flues, then put a little fuel on, pour a little water in the ash-pit (if a dry one), then clean all ashes from the pit—this is a very important part of good stoking to keep the boiler, flues, and ash-pit clean; add a little more fuel, place the dampers partly in (as required), stir the fire lightly, and so repeat the fuel and stirring until the fireplace is full of bright clear fire, then almost close the dampers top and bottom, say within 1 inch, and it will keep bright for hours, and give its full amount of heat to the boiler. Towards evening open the dampers, get up a good fire in the same way again, and when the pipes are quite hot and the fireplace will hold no more, and the fire is bright, shut the dampers again, bottom and top, as close as possible without putting the fire out, leaving just sufficient draught to cause combustion. Every boiler has its own good or bad qualities, which can only be learnt on the spot, so that the proper regulating of dampers must be a case of observation and practice. This stoking refers to all saddle forms, it is my intention to speak next of the tubular boiler, with its requirements. *R. Densham, The Gardens, Leigham Court, Streatham Hill, Surrey.*

The Right Man in the Wrong Place.—In the interests of gardening and gardeners, it may be asked why such an appointment as that at Edinburgh ever should have been made. Surely some practical man of sufficient ability could have been found to fill up the gap; and it says about as little for practical gardeners as for Her Majesty's Commissioners, that they could not put forward some representative worthy to follow in the footsteps of the late admirable Curator, James MacNab. No one who knows the recently appointed Curator can doubt his general abilities in the field of botany, and his aptitude for labour in every thing in connection with the literature of the science and art; but as you truly remark, he has yet his spurs to win as a practical man, capable of directing a great national concern where administrative capacity is of the first importance. Under Professor Balfour the scientific department of the garden is not likely to suffer; and, unless in the interests of economy—if the Government were looking forward to the merging of the scientific and the practical in one—there was no need for the appointment of Professor Balfour's lieutenant at the head of what we all in Scotland here looked to as one of the prizes of the profession. If gardening is to rise at all, gardeners cannot afford to be snubbed in this way, and to have the prizes of the profession snatched from their grasp, and given away under what looks amazingly like a "job." The late Curator was a man of high tone, eminently practical, who kept the prestige of his garden abreast of the times we live in. The present Curator may in time, by steady perseverance and undeviating attention, be able to achieve this, but he is not the man in the meantime either to warrant confidence among horticulturists or even among those over whom he has control. Apart from my position as a horticulturist, I have no interest either one way or other in taking a side in this matter; but I hold it is due to the profession (for I shall yet call it so) that such appointments as you had made in controlling the London parks and we have now in the Edinburgh Botanic Garden, should not be allowed to pass without a voice being raised to point out their obvious injustice. *Glasgow.*

Frost and the Potato Disease.—Those who expect any abatement of the Potato disease owing to the action of frost and the probable destruction of the *Peronospora* germs, will, I fear, be greatly disappointed, as the winter in 1860-61 was even more severe and continuous, and yet the scourge was quite as bad the summer after, and has continued so with little variation ever since. If it is stamped out, it seems to me that it must be done by planting early varieties that are off the ground before it generally makes its appearance, or by raising and growing thick hard leaved and stemmed kinds that resist it in a great measure as such are known to do. Instead of this we are being flooded with American novelties, the reverse of what ought to be aimed at, as the texture of the foliage of most of them is soft and flimsy, which being the case they are generally the first to

succumb to the disease and spread it to others. This is to be regretted, as some of them are great croppers, but as regards quality few if any can compare with such as Regents, Victoria, and other standard sorts. Potatoes for planting are in many places much weakened by the way they are stored, as in most cases they lose their first shoots; but if laid out thin in cool airy sheds or lofts secure from frost, these might be preserved, which would be a considerable gain, and help materially in securing a good and profitable crop. Instead of being so housed they are often pitted, and when in bulk, air-tight as they then are, they engender heat and exhaust themselves in sprouting. It shows the great endurance of the noble tuber to stand all this bad treatment, but although slow to show it in a more marked way, it cannot be without its effect. *J. S.* [The germ will bear a low degree of frost, but it will not stand fire. Diseased haulm should always be burnt forthwith. *EDS.*]

Culverwell's Telegraph and Carter's Telephone Peas.—At p. 51 you have made mention of Carter's Telephone Pea as a remarkably fine sort. As I am the raiser of Culverwell's Telegraph Pea I think I should not let this pass without protesting against a practice of selecting a portion of the stock of my Telegraph, and calling it Carter's Telephone Pea. If there were two varieties in the stock Messrs. Carter might have taken what really was my Telegraph Pea, and given it the name of Telephone, because certainly I should have chosen the best to name for myself. There cannot be two sorts, as the stock in the first place came from one single Pea, carefully hybridised, as every Pea in the pod produced a stock quite different to each other, some dwarf and others tall growing. Messrs. Carter state that the difference between the two is that Telephone is a wrinkled Pea, and singularly, too, my Telegraph Pea is wrinkled, and grows immense pods in a strong rich soil, the Peas so closely packed in the pod that every Pea grows out alternately on each side, and forms a double row in the pod. Have Messrs. Carter clapped their name to this Pea with the intention of extinguishing my name and Telegraph? The latter Pea has been out before the public three years, while Telephone is out this year for the first time, and yet they are both sold at the same price, 5s. per quart. This will show the absurdity of the case altogether. I may ask how have the Messrs. Carter managed to get a stock in the second year they grew it, to select a part of it, and not only to send some to the Royal Horticultural Society under the name of Telephone, but to have sufficient to offer to the public the third year after getting so few of my Telegraph seed? I fear this is another instance of adding a second name to a sort when there really is no difference. My attention has been called to this matter by several of your readers. I am proud of having raised the Telegraph Pea, as it is the most remarkable second early tall Pea in cultivation, and wants no one to praise it, only give it time. *William Culverwell, Thorpe Perrow.*

Unfruitful Damsons.—I have no doubt but that your correspondent's failure to get fruit from his Damson arises from the birds taking the buds out, as bullfinches (if there are any in the neighbourhood) are sure to find them out, and follow them up till they are completely denuded. Sparrows, too, are almost as bad, and the best way therefore is to syringe the trees with thick lime-wash at once, as now is the most dangerous time. If put on fresh immediately after being slaked, it will adhere till no longer of use. If the white appearance is likely to be objectionable, a little soot added takes off the glare, and quassia chips, boiled in some of the water before using, makes the mixture more obnoxious to the birds' palates. *J. S.* [In the Damson growing districts of Kent, fruitfulness is maintained by pollarding the tree. *EDS.*]

Yellow Ground Picotees.—Your correspondent, "R. D.," in his notice of these flowers at p. 78, has used words of such an equivocal character that, unless explained, they will, I fear, lead to a serious misunderstanding. He says, "The past year was remarkable, in that Mr. Turner was able to produce a most useful break in yellow-ground Picotees of a vigorous growth and sturdy habit—decided advantages over the varieties of a more refined character and delicate constitution included as show varieties; and as not less than five varieties gained First-class Certificates, the value of the break can be readily determined." I have italicised the words I desire to draw attention to. What are the "varieties of a more refined character and delicate constitution included as show varieties" referred to by "R. D."? I do not know. Beyond the parent of this fine break of Mr. Turner's, I know very few good-constituted yellow-ground Picotees indeed; but I can assure your readers and "R. D." that the flowers certificated had refinement of a very marked character, or they would have had

no notice from the gentlemen on whom was devolved the duty of selecting the flowers worthy of such notice at the last exhibition of the National Carnation and Picotee Society. *E. S. Dodwell, Hon. Sec.*

Morello Cherries on Wired Walls.—The aspect your correspondent "Chevalier" mentions as facing north and east will suit Morello Cherries well, and he cannot do better than wire his walls for them after the manner of that illustrated in the *Gardeners' Chronicle* of last week, placing the studs 9 inches apart, excepting those at the end, should he prefer a trellis diamond shaped, which may then be a foot of every fourth course, so as to come right for the joints of the bricks. The training may easily and quickly be carried out during the summer by means of Privet twigs, thus doing away with a good deal of tying and loss of time such labour involves. If there is any other matter I can assist your correspondent in, I shall be glad to do so. *J. Sheppard.*

Staphylea colchica*. (See fig. 19.)—The common Bladder-nut, *Staphylea pinnata*, is one of our most striking hardy shrubs, its light green pinnate leaves and drooping clusters of white flowers being alike elegant, while its bladder-like pods generally excite the attention of the curious, so much so that it is one of the plants which we expect to see regularly on our table in the autumn, with a request for its name. *S. colchica*, the plant to which we would now call attention is the Eastern representative of the common Central European species just mentioned. It is a native of the Caucasian provinces to the east of the Black Sea, and differs from the more widely known *S. pinnata* in its wider leaflets, generally erect clusters, larger flowers, spreading sepals, and smaller seeds. Our first knowledge of the plant as a garden plant was derived from a notice and figure in the *Revue Horticole*, 1870, p. 257, where it is stated to have been introduced from the North of Europe (an obvious error) some fifteen years previously. The error arose probably from the fact that the plant was first described by a Russian naturalist in a French scientific periodical in 1849. Under natural circumstances *S. colchica*, like its congener, flowers in early spring, so that it is a very desirable plant for the shrubbery. According to M. Carrière, it is propagated by layers at the end of May, though it might probably be readily grafted on the common species. But it is more especially as a plant for early forcing that we would recommend it to the notice of our readers. Those who saw the plant at the Royal Horticultural Society on the 14th inst., where it was shown by Messrs. Veitch, will have no doubts as to this point. Its pure white flowers rival, if they do not excel, the white Lilacs and Deutsias, but they are deficient in fragrance.

Calanthe Veitchii at Alton Towers.—To see any particular kind of flowers in quantity and of excellent quality is always a delight to the gardener and the gardening community in general, and especially when not a single flower is to be found out-of-doors, as is the case in this neighbourhood and has been during the severe weather we have had and are now having. Any one might have had a treat, if not an agreeable surprise, had they paid a visit to the Orchid-houses at Alton Towers during the last two months; for to see at once in bloom 450 very strong spikes, with from thirty-five to fifty-five flowers on each spike of *Calanthe Veitchii* is not a sight to be seen every day, and I venture to ask you to allow me to record the occurrence—not that it is one of those unusual hits in cultivation which gardeners are glad to meet with, but is an ordinary blooming of the *Calanthe Veitchii* under the treatment there, for I know it to be a plain practical method of growing them that Mr. Rabone has pursued for many years with the same results. And I think when the value of this flower in a cut state is more fully known, the *Calanthe Veitchii* house will be as general as the Poinsettia, Gardenia, or any other winter-flowering plant-house in any garden. I also saw some very nice young pieces of *Odontoglossum Alexandræ*, good pieces of *Cattleyas*, *Dendrobiums*, *Lælias*, *Cœlogyness*, &c. The houses they are grown in are lean-to's facing south, and of Mr. Rabone's own design. *A. Bradshaw, The Gardens, Colwich Abbey, Jan. 14.*

Lapagerias and Solanums.—I see I have been anticipated in predicting the possible superior hardiness of *Lapageria alba* over *rosea*, by the observation of the fact, more or less, at Gunnersbury. I have no doubt, however, that *rosea* is quite as hardy as many things which are grown out-of-doors by everybody; and in spite of the superior loveliness of the white, we have fewer rich red flowers in the way of hardy

* *Staphylea colchica*.—Steven, in *Ann. Sc. Nat.* 1840, xii., 375; Boissier, *Flores Orientalis*, i., 954; Koch, *Dendrologie*, i., 517; *Revue Horticole*, 1870, 257 c., &c.; *Gard. Chron.* 1871, 412.

creepers. I only mention them, however, in connection with another point on which it would be desirable to have exact information. I called attention some time ago to what had struck me as a remarkable case of the superior hardiness of plants with white flowers—that of a white variety, if variety it can be called, of the woody Nightshade, or *Solanum Dulcamara*; the common hedgerow creeper, as most people know, has small delicate dark purple flowers. The flower of the Potato, again, is sometimes white, and sometimes bright mauve or light purple. Now, in the article in your columns some weeks ago, on the useful subject of poison berries, the Deadly Nightshade is described as having solitary

Solanum with purple flowers and dark berries, but I cannot be sure of their being solitary. However, some other plant may be meant, for I see the *Belladonna* tincture is made from the green leaves, and I can hardly think even cattle could eat them with impunity. The *Solanum* referred to has a straggling growth, very unlike the upright habit of *Atropa Belladonna*. There is a curious analysis of white and coloured leaves in your last number; I should think, though white flowers seem to be thoroughly natural, not morbid, that there would be the same kind of chemical difference between them and coloured flowers. *J. M., January.*

will kill yourself: it is rank poison." "I am a living proof against that, as I have used it for a month," was James' answer. *J. McDonald, Chichester.*

Witloof.—This is a large variety of Chicory, introduced from Belgium, and a very useful vegetable it is. Last year I had to put a new boiler in to heat my office and Mushroom-house, and took the opportunity to run the pipes on to heat my harness-room, and as it was some little distance off I begrudged the heat lost from the pipe going there, and so built a brick pit over the pipe for the purpose of forcing the Witloof, and the plan has answered capitally. We have had plenty of salad from it all the winter. The Lettuce



FIG. 19.—STAPHYLEA COLCHICA. FLOWERS WHITE. (SEE P. 116.)

purple flowers. I have only seen it with white flowers (and should not at first sight have taken it for a *Solanum* at all), and it is generally described as white-flowered. [The Deadly Nightshade, *Atropa Belladonna*, has dark lurid flowers; we never heard of a white flowered variety. There seems to be some confusion here. EDS.] Does the *Atropa Belladonna* vary between purple and white, like its kindred? It is as well to know the plant exactly; it is not so much that the berries seem to contain the poison in exactly the state most fitted to act on the human frame, as that they are also tempting and eatable. Catastrophes from them recur regularly, so they should if possible be labelled correctly like other poisons; not many chemists' preparations would kill a man in ten minutes as these berries did a gipsy a year or two ago. If the plant was commoner it would be less dangerous from being better known. There is a large

Proliferous Plantain.—A few weeks ago some one was writing about a proliferous *Plantago*: there is plenty of *P. major* on the roadsides opposite Hainault Farmhouse, Hainault Forest. The first plant I found a plough ran against, but turned on one side and spared my pet. Dr. Lindley said it was the best variety he had seen. I brought it here with me, and had it stolen. I found on that same farm *Lathyrus Nissolia*, the brightest thing I ever saw, but the colours are evanescent—they fade directly it is gathered. There is a meadow in this neighbourhood (Chichester) where the double Cuckoo-flower is very common. My early mentor was an old Chelsea man, J. Smith, Monkwood, Ayrshire; when at Chelsea he worked four days a week, and spent the other two on the commons collecting. In going home one evening with a handful of Dog's Mercury, he met the Professor, who asked what he would do with it. "Make tea," he replied. "You

failed us first, then the Endive, but this plant is most accommodating, for in a small space one can fill and clear out, and fill again, just as one does with Seakale. It should not be sown before June, or it will run to seed, and should be taken up before frost comes, and if introduced periodically the result is a regular succession. *J. Rust, Eridge Castle.*

Carnation Dressing.—At page 10 of the *Journal of Horticulture* for January 2, Mr. John Slater, of Manchester, in some remarks on dressing Carnations, instituted a most uncalled for comparison between the skill of Mr. Turner and myself in that art. For the following week of that publication I wrote the few words I forward herewith, and to which I beg you will give publicity. I am constrained to this course because the Editors of the journal in the exercise of their discretion struck out the protest I

made against these comparisons of the skill of living men, and so altered my expressions in other ways as completely to reverse their sense, and when I remonstrated with them on this fact they simply inform me "they cannot insert anything more relative to the subject; as they consider it wholly unnecessary." *E. S. D.*—

"Carnation Dressing."—Much as I may be supposed to be flattered by Mr. Slater's remarks on my assumed skill in this art at p. 10 of your last issue, I do nevertheless most emphatically protest against them. Dogberry tells us 'comparisons are odious,' and I cannot think observations on the relative skill of living men can be profitable or proper. Let the art of floriculture be discussed with the utmost freedom, and described with the nicest minutiae by all means, the results of skill compared and amplified until thoughts and words are exhausted, if the gift exists for the work, but pray let the individual be spared. Mr. Slater compliments me to-day, and I do not question his *bona fides*, or the simplicity of his purpose, but to-morrow possibly some brother florist equally entitled to express his opinion will violently cast me from the pedestal assigned to me, and call me pretender, or what not; and if this sort of observation is to be allowed, what could I reply? Seriously I much regret the Editors allowed my name to appear in such a connection, and especially to the disparagement of Mr. Turner, to whose instruction long years since, when I made an annual pilgrimage to Chelvey, and subsequently to Slough, I owe whatever of art in the cultivation of the Carnation, or taste in its preparation for exhibition I may be supposed to possess. All florists recognise the *maestro* in Mr. Turner, the *facile princeps* of floriculture, and those who have sat nearest to his feet are the most ready and most cordial in recognising his power. Mr. Slater's opportunities, as compared with mine, have been limited, and he therefore may be pardoned for his error. I am proud and grateful to find him proclaiming that I benefited Lancashire in the art. *E. S. Dodwell.*

Poinsettia pulcherrima.—One has to begin with an apology when bringing the merits of this old favourite before your readers, seeing that they are generally admitted; still we think there is room for improvement in its culture, if we may judge from the gaunt and starved specimens we sometimes meet with. Taking it all in all there is no plant that repays with more interest any little attention we may bestow. The demands on our resources at mid-winter for decorative purposes are of comparatively limited extent compared to many, yet, owing to the past sunless weather, we should have been stripped of their principal contributor had we been bereft of the Poinsettia. When well grown, at such a season their power of attracting attention is irresistible; even the most listless are brought to bay by their dazzling brilliancy. So much is this the case that their vivid colours have to be toned down by the more sober hues of a collection of foliage and other stove plants. Such a combination has only to be seen to be admired. Being moderately successful in the cultivation of the above, I venture to give my experience, which may contain some hints which may be useful to some of your readers, not that any new or special treatment can be adduced, except it be a cooler treatment than is too often adopted. After the plants have done flowering we stand them along the front of the stove, where they get as much light as possible, which with almost withholding of water tends to ripen the stems. When deemed ready we have them cut up in lengths with several eyes, preferring the bottom cut, which is more solid. We have them stuck into any common cutting soil, plunging them into a hotbed, where they can have a good bottom-heat. When rooted they are potted into 3 or 4 inch pots, using light rich soil, returning them to their former quarters. When rooted out, shift again to 5 or 6 inch pots, using soil of a stronger nature, but no manure of any kind, except in a liquid state. If small plants are wanted, 4-inch pots will be big enough. In May or June, our plants are transferred to a cold frame on a wall, border, or other sheltered place, having a south-west aspect; and are kept close for a time in their new quarters, they gradually get more air till, as the weather gets warmer, the sashes are taken off altogether, first during the day, and latterly at nights. As the pots get filled with roots they should get liberal waterings with manure-water, when they will show their gratitude by a robust sturdy foliage, which is the foundation of after-success: it is this cool, generous treatment that we would specially insist upon so much for the cuttings. We keep over the best of our cut-over plants to grow on another year, finding that they throw the finest heads—we have some now that were thus treated which have thrown up three stems, the blooms averaging over 12 inches each. I need scarcely say that, when the old plants are cut down, they get no water for a time. When they show signs of starting they are shaken clean of the old soil, repotted in light sandy soil; as with the cuttings, plunged in hot-beds, and shifted on as

the pots get filled with roots: they thus make the largest plants. When the weather gets so cold that there is any danger of the foliage suffering, they are removed to a greenhouse or pit, where they can be kept as near the glass as possible, and again removed to the stove about the middle or end of October. By taking into heat twice, or oftener, you have a succession of bloom. These remarks apply to a district of average natural advantages as to climate, hence each will have to judge in practice as to how soon or late they can keep their plants with advantage out-of-doors. We have grown the double Poinsettia, but for general decorative purposes we prefer the single, it being more effective. *L. L.*

Lælia acuminata alba and **L. anceps Dawsonii**.—One finely-flowered specimen of the former and two of the latter may just now be seen in the Orchid-houses of J. S. Bockett, Esq., The Hall, Stamford Hill, N. Both of these Orchids are very beautiful as well as rare. *G. W.*

The Prices of Seeds.—Is there no possibility of regulating the price of garden seeds? It is a rule with me in December to take stock of all the seeds that I have and then to begin to consider what my wants will be for the next season, and what amount I can afford to spend on what by the advertisements profess to be "new," "improved," or "selected" novelties. By the middle of January I am inundated with seed catalogues, and, the evenings being long, I take up six of them which I think the best, tick off my wants, and then reckon up the cost. By this means I find that what would cost me £5 if I sent my order to one firm, I can get from another for £4. Now as a servant which firm is it my duty to trade with? And if I have traded with the cheaper firm for twenty years or more and have no complaints to make, is it reasonable that I should change? Again it is a pretty general practice now for two catalogues to be sent, one to the gardener and one to the master. And since the master has to find the cash is it not right that he should have his say in the matter, notwithstanding that I was put into the place by Mr. Cauliflower or Mr. Pine-apple, who consider that I am under some obligations to give him my orders? If we had a market price for garden seeds as we have for most other things it would save us from much that is disagreeable. *Achnanthes*. [The prevailing system of nurserymen recommending gardeners is open to very grave objections. *Eds.*]

The Schoolmaster Potato.—The remarks of "W. D." in your issue for January 11 deserve commendation. I observe at p. 73 of this week's issue that Messrs. Webb offer Schoolmaster Potato, "true stock." Now are the readers of this advertisement to understand from this that the Potato this firm offers shows an improvement on the original variety? As a gardener desirous of growing the best of everything, I am induced to make this inquiry. *D. McD.*

The Champion Potato.—Mr. Knight represents the Champion Potato as a disease-resisting variety, but it has been quite the opposite here, for on digging some of this variety to select a few tubers for exhibition, to my great annoyance I had to dig until I had over a barrowload of large tubers before I could get the number required. Mr. Knight says the only objection to it is its tall-growing shaws, but I think it has more objections than that. It grows too large for culinary purposes, is too deep in the eyes, and gets "boss," or empty, in the heart; and a great many of them, I find, contain a deal of water in the centre, which I consider a great drawback to the Champion. The varieties grown alongside of it were Paterson's Victoria, Glenbervies, &c.; very few of these were diseased. The Champion was the same here the year before last—very much diseased. It is a late-ripening Potato, for here last year the haulms were blackened by frost before the tubers were fully ripe. That was about the third week of October. It is a great cropper, but a Potato not altogether suitable for a gentleman's table. On the neighbouring farm it was in the same condition, very much diseased. The farm overseer informs me he is going to discard it altogether, owing to the above bad qualities. I may state that the soil it was grown in is a good sandy loam. *George J. McBeth, Pitmedden, Dyc.*

Aerating the Soil.—We find this to be a frequent subject of comment during the winter months, and it is a common recommendation that, early in the winter, all spare plots of garden ground should be turned up deeply and roughly, that the undersoil may receive all possible benefit from exposure to the frost. Special stress is laid also upon the probable destruction that will follow to all kinds of insects and vermin that prey upon our plants during the summer season. Perchance to some it may be a matter of opinion whether it is the wisest course to turn down all the top surface of the soil so far under

before the frost comes, as with it go into comfortable shelter the very insects whose death is so much desired. When the soil is left undisturbed, after, for instance, a crop of Potatoes, the worms work it freely, and it is through their instrumentality aerated to a great depth; in fact earth-worms are Nature's aeraters, and perform in that sense a marvellous service. The slugs, grubs, and other insects take refuge under leaves, plants, grass, or just beneath the soil, and such severe frost as we have of late been visited with will find all such secreted creatures and kill them if frost can do so. Bury them 9 inches beneath the surface, and they are out of the reach of the hungry birds, and in comfortable quarters. Newly turned soil if exposed to heavy rains soon shows a highly pulverised surface, which washes into every crack and cranny, and excludes every chance of aeration. Heavy soil so turned up will during the winter wash into the consistency of clay, and be ten times more difficult to cultivate in the spring than soil that has been left untouched. Aeration after the style of the turned-up soil may be the most valuable, but it is not fully proved, whilst experience has shown that it is dangerous to move heavy soils until all probability of heavy rainfalls has passed. There is no rule without an exception, and, in this instance, a pretty large one. *A.*

Vines Planted in Churchyards.—Are Vines usually planted in churchyards? I ask the question because I know of one church near here which has a Vine growing against its walls, and I like the idea. It is not "unscriptural," quite the reverse; but I have heard people cavil about it, so I want to find out if any of the readers of the *Gardeners' Chronicle* know of other instances. The church I allude to has been built by a nobleman as distinguished for his goodness as he is for his high intellectual attainments, yet the tablet inside the building simply records that the "edifice was erected by a parishioner." *Mrs. Alfred Watney, Liss, Hants.*

Turner's Union Potato.—Your correspondent Mr. E. Morgan asks for information respecting the origin of this variety. It was raised at the Union Workhouse here (Slough), by the then master, Mr. Phillips, and put into our hands to test its merits with other kinds. We found it all that Mr. Morgan says in its favour, a distinct and first-class early variety, and introduced it to the public. It is grown largely by some of the market gardeners near London for a first crop, and is still recommended in our catalogue. We know nothing of Ronald's Frame, which may be an "Improved Union," after the modern style of descriptions. *Charles Turner.*

Vines Bleeding.—Mr. Sheppard states at p. 83 that Vines are impoverished through bleeding. I witnessed an instance in 1873, caused through grafting a large Vine in an early house. The old Vine was deeply cut on purpose to get more adhesion to the graft, and a few hours afterwards it commenced to bleed, and continued so till the Vine was well clothed with foliage. The graft grew and made a short-jointed rod 6 feet in length and as thick as one's thumb, while the old Vine carried a good crop, and finished the fruit equal to any in the house. Our Vines here in 1877 bled so profusely that I anticipated bad results, but they ripened a crop of fruit equal to those not affected by bleeding. One rod of Foster's Seedling bled to such an extent that we feared it would be a bad case of exhaustion, yet the result was quite the reverse, for it finished ten bunches quite equal in size and flavour to any in the house, and the same rod in 1878 carried six bunches, averaging 3 lb. each. I am sure it would be most interesting to every one if some of our most eminent Grape growers would state their experience. *W. S. H.*

Winter Dressing of Peaches and Vines.—That the winter dressing of Vines and Peaches is, under certain circumstances, beneficial, there cannot be the least doubt, but to continue it annually, whether there are insects on the bark or not, is simply a waste of time and labour, and productive of no good whatever, unless it be regarded in the light that prevention is better than cure. If there were no risks in applying it this might be the case, but I have known so much harm result from using strong mixtures in the injury it has caused to the buds of Peaches and Nectarines, that I would warn all to be careful of the strength they apply the wash, and instead of making it potent with any of the insecticides, to depend more on the smothering properties of lime and clay forming the thickening matter. Except these two latter ingredients and a little soft soap, I seldom use anything else, unless it be tobacco juice, when I know there are thrips lurking under the bark of the Vines, as this liquid is always fatal to them and their eggs, and at the same time quit safe as regards the well-being of the plants. Were it not for scale, that sometimes gets on Peaches, I should never dress at all, and I have many trees that have not been touched

in that way for twenty years, which are at this moment perfectly healthy and clean. In the houses I have not had occasion, till this winter, to use anything on them; but noticing at pruning time that some of them had a few of the above-mentioned insect, we painted the main stem and branches with the never-failing mixture of clay and lime, soft soap and water, and as this falls or is washed off, the remains of the scale come with it. The stripping of Vines to the extent it is carried out in many places is a barbarous practice, as it takes away that which Nature intended as a shield and protection, and to hasten her work in getting rid of the old garments is the greatest mistake possible, as she is sure to do that at the proper time. Unless on the score of tidiness and to get rid of insects, such denudation admits of no defence, but not content with removing that which is loose, I have seen Vines made perfectly bare and skinned to the quick. No doubt this barking process is carried out by many simply because they have seen it done at other places, and therefore think it must be right to go on with it as a duty, but I much question if they will find a practice so fraught with evil consequences continued in any place where first-class Grapes are grown. The thick coating of clay, &c., in a measure protects the stems, but not to the extent necessary, and the hot sun acting on the epidermis under causes contraction, and thus prevents the regular swelling of the stems. This may be seen by their small size where they are yearly stripped as compared with others of the same age that have not been treated in like manner. I do not consider that a dressing impedes the progress of Vine or Peach buds, as they throw it off in the spring, but the danger is, as already observed, in the strength of the stuff, and this is where the mischief is done. J. S.

— We have long since discontinued the practice of painting either Vines, Peaches, or Figs, with any mixture at the winter cleaning, being fully satisfied that it can be dispensed with, and the trees kept clean without it. The only ingredient used here is Gishurst Compound. About half a pound is dissolved in a pailful of warm water, and with this solution the whole of the old wood of the Vines is well brushed over twice, the young wood, of which we lay in a good stock, being carefully sponged to prevent the eyes being injured by the brushing. No old bark is taken off, only the portions loosened by the scrubbing removed. Fig and Peach trees are served in the same way as the Vines, only we occasionally give the Peach trees a syringing with hot-water put on as near the boiling point as we possibly can do so: this I find is a great preventive of insects, and if brown scale has put in an appearance it will soon make short work with it. For this hot-water recipe I am indebted to my old neighbour, Mr. Miller, now of Clumber, previously of Workshop Manor Garden, and who, I know, used it extensively with the best results. Gishurst Compound is also used for the cleaning of the woodwork, and mixed with the wash thus is put on the walls of the houses. Having now for a number of years carried out this practice we have as yet no reason to complain of doing so. J. Jefferson, Workshop, Jan. 21.

Vicar of Wingfield Pear.—This is considered a stewing Pear, and generally it is only fit for that purpose, but I have had it very finesome seasons, especially after a long hot summer. There are four trees of it here; one on a south wall, which very rarely fails to bear a crop, but in some seasons the crop is heavier than others. When the crop is light the fruit is larger, and when fit for dessert, as it occasionally is, it is a very fine Pear. The other trees are pyramids. Two of them are on the Quince, and one on the Pear stock. This season the trees on the Quince bore a few fruit, rather small, not half the size of the fruit from the tree on the wall, but whilst the latter are only fit for stewing, those from the trees on the Quince are really very good at the present time (January 15); indeed, they are much better than Glou Morceau, Easter Beurré, Beurré Rance, and some others now fit. I cannot say if the fruit from the trees on the Quince are always fit for dessert or not. Pears in general here have been deficient in flavour, owing to the very unfavourable season we had. Except a few days at the end of June and beginning of July there was very little hot weather last season, and many things suffered so much from the continuous and excessive rainfall in May, they never recovered from it. M. Saul, Sourton.

Ronald's Early Frame Potato.—I believe that this excellent early round Potato is nearly extinct. It has suffered most severely from disease in the open field, and consequently for the last two or three seasons it has not been entered in our list, the only one I ever saw it in, although we have kept a few for stock. I cannot remember how many years we have had it, but, when I left school, and came into business, it was the favourite Potato here for early purposes, and specially so for frames. I think my father obtained it from some gardener of the name of Ronalds, and the late Mr. Cockburn, for many years gardener at Ken Wood, used to grow it

largely. I have some idea that Turner's Union is almost, if not quite identical; at any rate, whether it is or not, I quite endorse Mr. E. Morgan's opinion of its excellent early qualities, having grown it for two seasons in our newly broken-up land at Barnet, and I hope another season to secure a good stock of it. I shall try and coddle up Ronald's Early Frame, and if I succeed I imagine that it will whip the "Yankee notions" clean out for flavour and as a gentleman's early round Potato for many years to come. I have not time, from my heavy business engagements, to enter into "comparative" growing of Potatoes; I wish I had, that I might help to get rid of the ridiculous number of so-called sorts. A gentleman said at the National Potato show, held at the Crystal Palace last autumn, that he had planted over 300 sorts. Poor fellow! what a plight he would be in if he had lost the tallies. His condition would be something akin to that of a nurseryman who during the Tricolor Pelargonium rage said to the man potting them, "For heaven's sake don't lose the labels; if you do we shall never distinguish any difference." James Cuthush, Highgate Nurseries, N.

Heating Power.—Your comments on this subject at p. 80 recall the time when I was foreman at a large place in one of the northern counties, where we had two large boilers which could either be used separately or together. We always worked them both, and could get plenty of heat, but the care and watchfulness required in regulating the valves was very trying to those in charge. It was an impossibility to keep the temperature up to any fixed point, as we found many a time on a cold winter's morning houses that should have been at 60° were nearer freezing, the heat having gone to places where so much was not required. I have found that lesson very useful. Last autumn we had some alterations made in the heating apparatus here, and the person who did the work suggested to my employer that the vineries should be heated from the same source. Of course he was pleased with the idea, thinking to have one fire the less; but my previous experience was of use to me, and the present severe weather has further convinced me that it would have been wrong to adopt the plan suggested, as we should have been in the same predicament that has befallen others. F. F.

The Weather of 1873.—Perhaps the accompanying notes on the temperature and rainfall of 1873, taken here, nine miles north of London, may be interesting to some of your readers. They are taken from standard instruments, the thermometer standing at 4 feet from the ground. Taking 21 inches as the average annual rainfall near London, it will be seen that we have had an excess of more than 1 foot. One other fact is worth recording: on Christmas eve the minimum thermometer reading was 12°, that is 20° of frost; on New Year's eve it was 50°, nearly temperate; this evening (January 2) it is 22°, or 10° of frost, with 3 inches of snow on the ground. Last evening we had a heavy fall of rain, which later on was succeeded by snow, together amounting to 1.20 inch of water. Of course there is something to complain of, though we cannot call this weather at all unseasonable; but 3 inches of snow firmly fixed on the branches of our choice Conifers is not altogether a satisfactory state of things; some of them will probably suffer irreparable injury from such a weight, for unfortunately the usual plan of dislodging it with a pole is in this case impracticable, the necessary violence would do as much harm as the snow. But we will endeavour to look at the bright side, and trust that not only will this touch of frost free us of many of our troublesome pests, but also that, as we are having our winter in season, we may also get our spring in due time.

| Months. | Rainfall. | Average Min. Tem. | Average Max. Tem. |
|-------------------|-----------|-------------------|-------------------|
| | In. | | |
| January | 1.34 | 31.4 | 41.6 |
| February | 1.64 | 35.9 | 46.4 |
| March | 1.09 | 31 | 42.3 |
| April | 4.12 | 37.1 | 46 |
| May | 4.88 | 46.7 | 62.3 |
| June | 4.85 | 49 | 67.4 |
| July | 6.65 | 51.7 | 71.4 |
| August | 6.85 | 51.4 | 69.4 |
| September | 1.04 | 47.2 | 61.9 |
| October | 1.5 | 41 | 58.6 |
| November | 3.46 | 35.5 | 44.5 |
| December | 1.51 | 26.2 | 37.1 |
| Total | 33.41 | | |

Although it is usual to fix thermometers at about 4 feet from the ground, I am rather puzzled as to the reason for it, as the air is colder on the ground generally by about 3° more or less; on the evening of Dec. 25 there was a difference of 6°—that is, while the thermometer at 4 feet stood at 12°, that on the ground stood at 6°, and considering that most of our plants grow very near the ground-level, it seems to me the

thermometer should be there too. G. Duffield, Hinchmore Hill, N.

Meteorological Statistics from Lowther Castle, Westmoreland.—Latitude, 54° 30'; longitude, 2° 40'; altitude, about 750 feet above sea-level.

| Months. | Max. Temp. of Month. | Min. Temp. of Month. | Rainfall of Month. | Highest Barometer. | Lowest Barometer. |
|-------------------------------|----------------------|----------------------|--------------------|--------------------|-------------------|
| | In. | In. | In. | In. | In. |
| January | 52 | 30 | 2.65 | 30.10 | 28.60 |
| February | 55 | 23 | 1.85 | 30.20 | 28.60 |
| March | 61 | 21 | 2.04 | 30.21 | 28.79 |
| April | 70 | 21 | 1.91 | 29.65 | 28.41 |
| May | 75 | 34 | 4.53 | 29.61 | 28.60 |
| June | 93 | 31 | 2.30 | 29.91 | 28.80 |
| July | 91 | 49 | 1.01 | 29.65 | 29.15 |
| August | 81 | 43 | 3.68 | 29.91 | 28.80 |
| September | 77 | 35 | 4.69 | 29.71 | 28.60 |
| October | 69 | 26 | 4.81 | 29.61 | 28.20 |
| November | 58 | 21 | 2.46 | 29.69 | 28.70 |
| December | 49 | 2 | 2.92 | 29.75 | 28.45 |
| Rainfall for the year | | | 34.99 | | |

The above table is an extract from our daily register of the year just closed, which has been remarkable for extreme heat and cold, and the long continuance of both, as well as the unusually small quantity of rain, for this district, compared with former years. Although the very low night temperature makes cultivation very difficult here, yet crops of all kinds were better matured than usual. Since December 1 the thermometer at night has only risen four nights above freezing-point; and as I am now writing the frost is intense, with a piercing cold east wind. William Shand, Lowther, January 9.

The Weather.—*Mid-Lothian.*—The severe weather still prevails in this locality, and there is no appearance of its abating. We had 16° of frost this morning, and it has been freezing keen all day. The snow is nearly gone here, but it lies deep a few miles farther inland. So far there appears to be little injury done by the frost. Crops are standing it better than usual, and our loss amongst Broccoli, Celery, Lettuce, &c., is still very small. All through the storm we have been cutting Snow's Broccoli, in fine condition, at the rate of about a dozen daily, and we have plenty still of a nice size to last us another month, should the storm unfortunately continue so long. The Broccoli were laid over with their heads to the north, and the stems covered with earth early in November, but they have had no other protection. Indoors the storm tells a different tale. Early forcing has been the most uphill job that I ever remember. All sorts of fruit, French Beans, Cucumbers, and plants have been much more difficult than usual to force, and "early" crops will be much behind in coming in this season. The want of sun and light has been quite as great a drawback as the want of heat. A.

—*Staffordshire.*—It was snowing here all day on Saturday, the 18th, and the ground is covered to a depth of 9 inches. The thermometer this morning, on a south wall, registered 21° of frost, and on a north wall 24°, the wind being N.E., and the barometer going down a little as I write (7.30 P.M.). How will the roots of early unprotected Vines stand this treatment? E. Gilman, Ingestre.

—*Inverary.*—December 19, 7°; 20, 12°; 21, 19°; 22, 2°; 23, 17°; 24, 26°; 25, 15°; 26, 22°; 27, 18°; 28, 7°. With the 29th came a rapid thaw, which has cleared the snow well off the hills, and broken up the ice on the river, which was 9 inches thick on an average, and frozen so hard that it might have scored stones, the waterfall even beautifully draped with icicles, picturesquely arranged, and reflecting the sun's rays in various colours. The water-ouzel was busy looking after its prey under the shelving rocks; under the spreading branches of the Silver and Spruce Firs and Cedars blackbirds and thrushes found protection and food, owing to the branches opposing radiation—a circumstance this, the importance of which must not be overlooked in treating of a climate like this or any other well-wooded country. John Caie, Inverary.

—*North Notts.*—Snow fell again here on the 18th, and covered the ground to the depth of 3 inches. Since that date keen frost has again prevailed, for this morning (the 20th) 14° of frost was registered here. On the 11th and 12th the frost was likewise very keen, and on the 13th a rapid thaw set in, with rain. The 14th and the 15th were very mild, with sun. Frost again returned on the 16th, which still continues. The effects of this state and variability of the temperature on the early Broccoli, Cabbages, and other vegetables are now apparent where not protected, and I am afraid they will be found to be in a rotten state, from the odour they at present give out. In the extensive ranges of forcing-houses here, six saddle boilers have been in use, and that efficiently during this severe winter. Although they have been seventeen

years at work we have never had an accident with them, except the repairing of some loose rivets, for the boilers are made of the best Low Moor iron. Had we depended on the tubular one-boiler system for these years I am afraid some expensive breakdowns would have occurred, and that we should have suffered the loss of many plants besides. *William Tillery.*

Giant Zittau Onion.—This is a handsome late-keeping variety, and I would strongly recommend it to any one seeking a sound keeping Onion. I have seen it firm and good in the month of July, in a cool airy room, after being stored from nine to ten months. I believe the entire stock of seed of this Onion is in the hands of the Messrs. Veitch. *J. R.*

The Sarsen Stones at Reading.—The version of the supposed origin of these famous blocks at Whiteknights, given by Mr. Dyer, does not appear to afford general satisfaction. I learn from Mr. Lees that many gentlemen well versed in geology, who have from time to time visited these stones, have affirmed my original statement that these were the drifted products of the Welsh hills. One fact is worthy of attention—Mr. Dyer states that stones of this character are broken up for the purpose of making roads. Mr. Lees states that the huge fellows under comment are practically unbreakable, as he has tried with all his force and the blows of a sledge-hammer to break them and has failed. Accepting this as correct, it either shows that, if from the Marlborough Downs strata, they are very diverse from the ordinary blocks found there, as mentioned by Mr. Dyer, or else that they are the product of another stratum and region. That they were taken to Reading from Marlborough is an undoubted fact, and have no connection with other stones of a different kind in Surrey, as hinted by another correspondent. The subject is not one of any horticultural interest, except so far as relates to their present garden use, but there is an intimate connection between geology and horticulture, and therefore space devoted to the discussion of this interesting topic will not be wasted. Assuming that after all these stones are natives of the Wiltshire downs, their denudation from the tertiary beds is, as you have suggested, wonderful, still it lacks the atmosphere of romance that attached to the earlier and perchance improbable story. *A. D.*

The Rainfall at Perry Hall, Birmingham, for 1878.—I enclose you an account of the rainfall here, showing the quantity that fell last year in this part of the country:—January, 1.85; February, 1.09; March, 1.06; April, 1.96; May, 6.01; June, 2.98; July, 0.58; August, 6.67; September, 2.65; October, 3.72; November, 3.31; December, 2.07; total, 33.95 inches. *Chas. Clissold.*

Foreign Correspondence.

DRURY, NEAR AUCKLAND, NEW ZEALAND: Oct. 30, 1878.—Is *Marattia fraxinea* known amongst Fern lovers of Europe? It is a most curious plant. I came across a large specimen some time back, with fronds from 4 to 5 feet in height, and all round in a circle were lying what appeared to be lumps of scoria, but on closer inspection I found them to be growing plants, i.e., the base of the leaf-stalk with a bud growing from the top side of it, after the manner of the young plants on the fronds of *Asplenium bulbiferum*. As they lay some distance from the old plant, they must have been forced away into this magic circle. I was in the bush, a good distance from home, looking for strayed cattle, and unfortunately I cannot find the plants again: another person who was with me thinks he can. I do not know whether the fronds bear spores. I have searched several times for more plants on purpose to examine them more closely, but have not found any. This is said to be the Kai-kai (food) of the Maories, and not the Bracken Fern, as many people supposed, and I have no doubt that if cooked the huge lumps of vegetable matter would be very nice. The reason the plant is so scarce is through the natives searching hillside and gully for it as food, and never making any provision for its increase in times long past. Another reason for its scarceness is, that it likes good sound loam amongst forest trees, which class of land is best for the English grasses; the forest is consequently burnt, clearing off all vegetation and only leaving those plants that grow in the swamps where the fire does not run. I shall be pleased to read in the *Gardeners' Chronicle* any information on this subject.

Phormium tenax is used for nearly every purpose in tying amongst the back-settlers—bands of every

description, tying up sticks, pig's legs, making whips, halters for horses, packing hampers, &c.; it is always ready, growing on hillside and gully—torn into strips and made into kits (or flag baskets), filled with Peaches, and sold for 1s. each. A bronzed variety is the most tough, while the variegated varieties are ornamental as well as useful for hay-trussing. The stalk is first split down the middle, the sharp edges are then torn off, the butt-end of one and the top-end of the other piece are tied together, a knot is then tied in the other butt-end, and a slit made to act as a noose—the band is complete. For all sorts of temporary ties it is first-rate, for permanency there is nothing like tarred cord. A good root planted in the garden, in nurseries or private places, often saves a walk to the packing-shed, prevents cuttings getting mixed, &c.

In your remarks (p. 79) on New Zealand plants, I see no mention of the beautiful Kowhai (*Sophora*), with its beautiful orange-yellow blossoms; it blooms in early spring, before the leaves appear. I have seen trees, the trunk 1 foot in diameter, and heads in proportion, all ablaze with these *Clianthus*-like flowers. The foliage is a light green, appearing directly after it has bloomed. It delights in a sandy bank alongside of inland streams; seeds very freely, in pods 4 to 6 inches long, the pod appearing as though it had been tied between every seed, causing it to swell out just where the seed is. I have seen several letters in the *Gardeners' Chronicle* lately on shading for Orchids, &c. Here, in their native habitats they get shade nearly always; they may get bright sun for ten minutes or so in the middle of day. Were I asked to describe the light in the New Zealand bush, I should say for mid-day sunshine through a wet towel. Tree ferns also 20 to 40 feet in height get the sun about mid-day—not generally morning nor evening; but one might say every Tree Fern gets a peep for a few minutes some time during the day. When the bush is removed from about the Tree Ferns and tall Palms, they soon lose their beauty and become stunted. *J. Mayo, Nurseryman.*

Florists' Flowers.

CHRYSANTHEMUMS.—A good deal has been written about the Chrysanthemum, and all the practical information that cultivators require has been recently given. The subject will, moreover, be treated upon frequently in "Notes on Florists' Flowers" during the summer. Still, as you remark, a list of the best sorts would be useful; and further, very few cultivators seem to know the different sections, and much confusion is caused at exhibitions on this account.

Section I., Incurved, as cut blooms for exhibition.—The best varieties are Abbé Passaglia, Alfred Salter, Antonelli, Aureum multiflorum, Barbara, Beauty of Stoke, Bella Donna, Beverley, Cherub, Donald Beaton, Dr. Brock, Empress of India, Eve, Emily Dale, Formosum (white and yellow varieties), George Glenny, General Slade, Golden Beverley, Golden Empress, Golden Dr. Brock, Golden Eagle, Golden John Salter, Golden Queen, Hero of Stoke Newington, Isabella Bott, Jardin des Plantes, John Salter, Lady Slade, Lady Hardinge, Lady Talfourd, Le Grand, Little Harry, Miss Mary Morgan, Mr. Gladstone, Mrs. Geo. Rundle, Mrs. Dixon, Mrs. Heale, Prince Alfred, Prince of Wales, Princess Beatrice, Princess of Teck, Princess of Wales, Queen of England, Rev. J. Dix, Themis, Venus, Virgin Queen, White Globe, White Eve, White Venus. There are fifty varieties in this selection, but I grow every one of them, and all intending exhibitors in the class for twenty-four varieties must also grow them, as some sorts which stand in the first rank one season are very inferior the next. A few of them are always to be found in the winning stands. A list of the varieties best adapted for pot culture are Aureum multiflorum, Dr. Sharpe, Empress of India, Eve, George Glenny, Lady Slade, Lady Hardinge, Mrs. George Rundle, Prince of Wales, Venus, White Eve, White Venus, and Mrs. Dixon. The two varieties usually catalogued amongst the large-flowered sorts, Julia Lagravère and Progne, cannot be exhibited as such, as they are hybrids.

Section II. Large-flowered Anemone Chrysanthemums.—These are very distinct, and a few of them are very beautiful:—Acquisition, Empress, Fleur de Marie, Gluck, Lady Margaret, Louis Bonamy, Madame Godereau, Miss Margaret, Mrs. Pethers, Prince of Anemones, Princess Louise, King of Anemones, Georges Sand, and Sunflower.

Section III. Japanese.—The best of the very early flowering sorts are Elaine, Fair Maid of Guernsey,

and James Salter. The following comprise the best of the later-flowering sorts:—Ethel, Sarnia, R. T. Biggs, Fulgore, Fulton (Peter the Great and Red Gauntlet are of recent introduction), Bismarck, Bronze Dragon, Dr. Masters, Gloire de Toulouse, Grandiflora (fine yellow, very late), Hero of Magdala, Jane Salter, Meteor, Meg Merrilees, Oracle, Purpureum album, Red Dragon, The Cossack, The Daimio, The Sultan, and The Mikado.

Section IV. Anemone-flowered Pompons.—Antonius, Astrea, Astarte, Calliope, Firefly, Jean Hachette, Madame Chalonge, Madame Montels, Marie Stuart, Miss Nightingale, Dick Turpin, Mrs. Astie, Mr. Wyness, Perle, Sidonie, and Zobeide.

Section V. Pompons.—Andromeda, Aurore Boreale, Bob, Brilliant, Cedo Nulli, Brown Cedo Nulli, Lilac Cedo Nulli, Golden Cedo Nulli, Golden Aurore, Mdle. Marthe, St. Michael, Mustapha and Solomon. Trevenna and its varieties, though usually placed amongst Pompons, are hybrids, and ought not to be exhibited as such in a collection.

Our collection at Loxford still numbers over 130 distinct varieties after rejecting several this year, and we shall add a few new ones, which will bring it up to over 140 again. The above lists are given after very careful consideration and probably that containing the incurved varieties may be useful to the Liverpool growers. My own impression is that the climate both of Liverpool and of Manchester is better adapted for the cultivation of the Chrysanthemum than that of London. Cultural ability and skill in dressing being equal, they will probably beat us of the sunny South. I think Mr. Laing, of Stanstead Park Nurseries, could tell us whether the climate of the "east neuk of Fife," is not better adapted to produce good blooms than that of Forest Hill; at any rate he has not been able to grow such blooms at Stanstead as he did at Dysart. Growers ought also to know that the old stools of such sorts as Mrs. Geo. Rundle, Prince of Wales, Venus, White Venus, &c., produce by far the best specimen plants. All the exhibitors at Stratford used to grow them in that way, and I have never seen such well-grown plants as those Mr. Donald, o Knott's Green, Leyton, used to exhibit there. The best specimen of Mrs. Rundle ever seen was a plant on one stem three years old: it had several hundreds of flowers, each large enough and good enough to place in a stand of twelve blooms. *J. Douglas.*

Obituary.

It is with sincere regret that we have to record the death on December 24 last of **WILLIAM ESSINGTON ESSINGTON, Esq.**, of Ribbesford House, Bewdley, after a lingering illness. By his decease horticulture has lost an ardent supporter, and the district one of its most highly esteemed residents—an upright, genial, and kind-hearted gentleman, who never wearied in discussing gardening matters with his friends and neighbours, nor in imparting information concerning plants and their culture, of which he had a thorough knowledge. He was, in fact, one of the truest lovers and patrons of horticulture. His grounds showed evidence of refined taste and practical discrimination, and plants of all kinds were collected and cultivated by him, including all the better kinds of herbaceous plants; florists' flowers also received their share of care and attention. It may be noted that Mr. Essington was amongst the first who encouraged the taste for planting the Clematis in masses, the gorgeous effect of which has rendered them so popular. Moreover, fruits of all kinds were specially cared for and studied by him. In these he took great delight, having acquired a thorough knowledge of them, growing all the most approved varieties, and raising many seedlings. Of Pears specially he has been fortunate in raising some superior varieties, amongst others the Autumn Josephine, mentioned in Hogg's *Fruit Manual* as a valuable native acquisition, and there are several others of which great hopes that they will prove superior are entertained. We must, however, wait for a genial season to prove their merits. Mr. Essington, we repeat, was one of the truest patrons of horticulture, and in him the science has lost a gifted member, and gardeners a genuine and valued friend. *W.*

— On the morning of January 2 there died, at Langtons, Brentwood, at the age of 66, Mr. **ANDREW DAWSON**, a man who was widely known in the localities in which he resided—quiet, unostentatious,

able, and thoroughly reliable in every aspect of his disinterested life, which was also one of devotion to the welfare of his fellow creatures in every way in his power. Those who knew him best mourn the loss of a highminded, conscientious man, working in a quiet unpretentious way, but always executing some worthy work, a very little of which found its way into contemporary horticultural records. Mr. Dawson was a native of Scotland, and early in life embraced the gardening profession by being bound apprentice to Mr. Murdoch, at Huntley Lodge, Aberdeenshire, the seat of the then Duke of Gordon. Unfortunately but few details of his career are left on record; but, in addition to gardening, he made himself master of the details of practical forestry and farming, and general estate work, the knowledge of which proved of great advantage to him in after life. After leaving Huntley Lodge he was working in Yorkshire and Hertfordshire, probably in the position of under-gardener. Some little time previous to 1840 he engaged himself as gardener to a gentleman of the name of Clarkson, at Stamford Hill, who was a keen horticulturist; and while in this position Mr. Dawson was a prominent and successful exhibitor of florists' flowers, being encouraged thereto by his employer—Gloxinias, Achimenes, Fuchsias; also fruits, &c. In 1846 Mr. Dawson went to Huntsmore Park, near Uxbridge, the residence of the late Christopher Tower, Esq., in the capacity of gardener and land steward; and while there he originated and carried out great improvements, laying out new ground, extending the park, and executing other extensive works on the estate. In 1853 he was appointed gardener and bailiff to Walter Long, Esq., M.P., at Rood Ashton, near Trowbridge. The duties of these offices were of a very responsible character, and in the discharge of these he was highly successful. While at Rood Ashton he made many friendships, and in the town of Trowbridge he was well known and highly respected. On the death of Mr. Long, fifteen years afterwards, Mr. Tower, his former employer, invited him to undertake the stewardship of his estates at Brentwood, and of these he had the entire supervision up to the time of his death, which took place after a short illness. He may be said to have died in harness, for he was active in the discharge of his duties almost to the last. Probably no man in the district had a higher reputation for integrity of character and a thorough knowledge of his professional duties. He was instrumental in working out great improvements in the farms and farm-buildings, rebuilding some of the latter and renovating others. He had great consideration for the welfare of the tenants, and a constant regard for the comfort of the labourers and poor on the estates. In all things the interest of his employer was his constant study. Mr. Dawson was at one time a contributor to the *Scottish Gardener*, and latterly an occasional writer for the *Gardener*, and sometimes to other gardening periodicals. His old love for gardening remained with him to the last, and every year in the month of August he went to Trowbridge as one of the judges of fruit at the horticultural show there. He was an active member of the committee of the Brentwood Horticultural Society, and amateur gardeners were wont to resort to, and write to him for advice which was never withheld. His death was most peaceful; his life closed quietly as shuts the eye of day, or as a wave dies away along the shore. His funeral was attended by Mr. C. Tower, who placed a wreath of Camellias on his coffin. A number of the principal tradesmen of Brentwood followed, and all the workmen on the estate, by whom he was much beloved. R. D.

Reports of Societies.

Manchester Royal Botanical and Horticultural. Jan. 20.—The fifty-first annual meeting of the members of this Society was held at the old Town Hall, King Street, Dr. J. Watts presiding. The Chairman, in moving the adoption of the report and statement of accounts (which were taken as read), said that so far as the objects of the Society were concerned, he thought they had never passed a year when they had done more to promote floriculture and horticulture than in the past, and he was sure the Council had never been more strenuous in its exertions in this respect. Turning to the financial aspect of the question, they were brought at once to a disappointment by finding that the receipts at the gates in Whit-week were nearly £500 less than in the previous year. He had looked through the items to see if a loss could be avoided in future, and was obliged to admit that they

were dependent on the weather for success or failure of the Whitsuntide show. Last year the weather was unfavourable, and the consequence was, a considerable falling off in the receipts. The receipts amounted to £1309, and the expenditure to £1405, so that instead of a profit of from £300 to £400, which they had been accustomed to get from the exhibition, there was a loss. In 1877 the receipts at the gates were £1559, against £1091 last year; altogether, with the sale of refreshments, tickets by seedsmen, and ground rent for implements, the receipts this year were £1309 3s. 10d. against nearly £1800 for the previous year. The promenade concerts had cost £112 and yielded £79, whereas up to the last two years they had made a profit. This year the floral meetings had resulted in a gain of £68, the expenditure being £55 16s. and the receipts £123 13s. 6d. The Tulip show was always a loss, though a small one, the cost being 17 guineas and the receipts being £3 11s. 6d. It was hoped that the cottagers' show would become a paying exhibition, if it did not make a profit. Last year the outlay was £105, and the receipts amounted to £72 16s. 6d., being an improvement on the figures for the preceding year. On all the exhibitions they had a nett gain of £104, that coming practically out of the Rose show. The Society had ceased to make a profit with the Saturday promenades since the opening of Manley Hall Gardens, and looking to past years it seemed that the opening of these gardens had cost the Society upon the whole £400 or £500 a year on account of its attractions in Whit-week and on Saturdays. Assuming, therefore, that competition to cease, and they had ordinarily favourable weather at Whitsuntide, they would get back to their old position, and make from £400 to £500 a year profit. In conclusion, he informed the meeting that Lord Egerton of Tatton and Sir Humphrey de Trafford had consented to become patrons of the Society, and that the Earl of Derby had intimated his willingness to accept the office of President if elected.

ROYAL HORTICULTURAL SOCIETY.

THE following are the names and addresses of the gentlemen appointed to serve on the three committees for the present year:—

SCIENTIFIC COMMITTEE.—Chairman: Sir J. D. Hooker, K.C.S.I., C.B., M.D., Royal Gardens, Kew. Vice-Chairmen.—The Rev. M. J. Berkeley, M.A., F.L.S., Sibbertoft, Market Harborough; Arthur Grote, F.L.S., 23, Cork Street, Burlington Gardens, W.; Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W. Secretary.—Samuel Jennings, F.L.S., 58, Granville Park, Blackheath, S.E. Baker, J. G., F.R.S., Royal Herbarium, Kew. Bennett, Alfred W., M.A., B.Sc., F.L.S., 6, Park Village East, N.W. Blenkins, George E., 9, Warwick Square, S.W. Boscawen, Hon. and Rev. J. Townsend, Lamorran, Probus, Cornwall. Clarke, Col. R. Trevor, Welton Place, Daventry. Cooke, M. C., Ph.D., 2, Grosvenor Villas, Junction Road, N. Crewe, Rev. H. Harpur, Drayton Beauchamp Rectory, Tring. Darwin, Charles, M.A., F.R.S., Down, Beckenham, Kent. Denny, John, M.D., Stoke Newington, N. Dyer, W. T. Thiselton, M.A., B.Sc., F.L.S., Royal Gardens, Kew. Edgeworth, M. P., F.L.S., 6, Norham Gardens, Oxford. Gilbert, J. H., Ph.D., F.R.S., Harpenden, St. Albans. Hemsley, W. B., A.L.S., 2, Woodland Cottages, Turnham Green. Henslow, Rev. G., 6, Tichfield Terrace, Regent's Park. Hiern, W. P., M.A., F.L.S., Castle House, Barnstable. Hogg, Robert, LL.D., F.L.S., 99, St. George's Road, Pimlico, S.W. McLachlan, R., F.R.S., Limes Grove, Lewisham. Moore, Thomas, F.L.S., Botanic Gardens, Chelsea, S.W. Renny, J., 47, Bedford Gardens, Kensington, S.W. Saunders, W. Wilson, V.P.L.S., F.R.S., Raystead, Worthing. Scofield, W. J., M.R.C.S., 13, South Hill Park Gardens, Hampstead, N.W. Smith, Worthington G., F.L.S., 15, Mildmay Grove, N. Voelcker, A., Ph.D., F.R.S., 11, Salisbury Square, E.C. Webb, Sydney, Redstone Manor House, Redhill. Wilson, Geo. F., F.R.S., Heatherbank, Weybridge Heath.

FRUIT COMMITTEE.—Chairman: Henry Webb, Redstone Manor House, Redhill. Vice-Chairmen.—John E. Lane, Great Berkhamstead; John Lee, Royal Vineyard Nursery, Hammer-smith, W.; Rev. George Kemp, 41, Weymouth Street, Portland Place, W. Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Badger, E. W., Mostyn Villa, Moseley, Birmingham. Barr, Peter, 12, King Street, Covent Garden, W.C. Beale, E. J., F.L.S., Stoneydeep House, Teddington Grove, S.W. Berkeley, Rev. M. J., F.L.S., Sibbertoft, Market Harborough. Crowley, Philip, Waddon House, Croydon. Haycock, Charles, The Gardens, Barham Court, Maidstone. Hogg, Robert, LL.D., F.L.S., 99, St. George's Road, Pimlico, S.W. Jones, H. F. Killick, Lewis A., Mount Pleasant, Maidstone. McKinlay, Peter, Woodbine House, Beckenham. Miles, G. T., The Gardens, Wycombe Abbey, High Wycombe. Nutting, W. J., jun., 60, Barbican, E.C. Paul, William, Waltham Cross, N. Perkins, Thomas, Warren House Gardens, Stanmore, N.W. Record, Thomas. Sage, George, The Gardens, Ashridge Park, Berkhamstead. Smith, J., The Gardens, Mentmore, Leighton Buzzard. Smith, W. Baxter, 3, Broadlands, South Norwood. Stevens, Zadok, The Gardens, Trentham Hall, Stoke-on-Trent. Veitch, Peter, Royal Exotic Nursery, Chelsea, S.W. Weir, Harrison, Weirleigh, Brenchley, Staplehurst. West, James Firth, Lynmouth Lodge, Reigate. Wildsmith, W., The Gardens, Heckfield Place, Winchfield. Wood, Charles, 92, Fenteman Road, Clapham. Woodbridge, John, The Gardens, Syon House, Brentford, W.

FLORAL COMMITTEE.—Chairman: John Denny, M.D., Stoke Newington, N. Vice-Chairmen.—Geo. F. Wilson, F.R.S., Heatherbank, Weybridge Heath; Charles Noble, Bagshot, Surrey; James McIntosh, Duneevan, Weybridge. Secretary.—Archibald F. Barron, Royal Horticultural Society, Chiswick, W. Baines, Thomas, Avenue Road, Southgate, N. Browne, William, Regent's Park, N.W. Bull, William, F.L.S., &c., King's Road, Chelsea, S.W. Cannell, Henry, Swanley. Crewe, Rev. H. Harpur, Drayton Beauchamp Rectory, Tring. Cutbush, James, Highgate, N. Denning, William, The Gardens, Londesborough Lodge, Norbiton, Surrey. D'Ombain, Rev. H. Honeywood, Westwell Vicarage, Ashford, Kent. Douglas, J., The Gardens, Loxford Hall, Ilford, E. Elwes, H. J., Preston, Cirencester. Foster, E. B., Clewer Manor, Windsor. Fraser, John, Lea Bridge Road Nursery, Leyton. Green, Charles, The Gardens, Pendell Court, Bletchingley. James, J., The Redlees Gardens, Isleworth. Kellock, W. B., F.L.S., Stamford Hill, N. Kinghorn, F. R., Sheen Nursery, Richmond, Surrey. Laing, John, Stanstead Park Nursery, Forest Hill, S.E. Lee, Charles, Royal Vineyard Nursery, Hammersmith. Llewellyn, J. T. D., Ynisgerwn, Neath, Glamorgan-shire. Little, Henry, Hillingdon Place, Hillingdon, near Uxbridge. Masters, Maxwell T., M.D., F.R.S., Mount Avenue, Ealing, W. McIntyre, A., Victoria Park, Hackney, E. Moore, Thos., F.L.S., Botanic Gardens, Chelsea, S.W. Ollerhead, J., The Gardens, Wimbledon House, Wimbledon, S.W. Osborn, Robt., The Nurseries, Fulham, S.W. Parker, Robert, Exotic Nursery, Tooting, S.W. Paul, George, Cheshunt, Herts. Roger, Alexander, Era House, Surrey Lane, Battersea, S.W. Smith, F. T., The Nurseries, Dulwich, S.E. Smith, G., New Villa, Hedge Lane, Edmonton. Smith, Geo., Tollington Nursery, Hornsey Road, N. Turner, Harry, Royal Nursery, Slough. Veitch, Arthur, Royal Exotic Nursery, King's Road, Chelsea, S.W. Warner, Robert, F.L.S., Broomfield, Chelmsford. Williams, Henry, Victoria Nursery, Upper Holloway, N. Wills, John, Onslow Crescent, Onslow Square, S.W.

Variorum.

AN EXHIBITION IN INDIA.—We have been favoured with a programme of a proposed exhibition, which serves to show how agriculture and horticulture are progressing under the auspices of enlightened native rulers:—

"Nawab Ahsunollah begs to inform the public that, in addition to the Mela which he holds on January 1, at the Shah Bag, in honour of the assumption of the title of Empress by Her Most Gracious Majesty the Empress of India, he also intends to hold an Agricultural Exhibition this time, with a view to encourage the tenants of his estates and those of the other zemindars of this district in improving the breed of their cattle and the productions of their lands, and their implements of agriculture, husbandry, &c. Nawab Ahsunollah, therefore, begs to invite the public to come to the exhibition and compete for the prizes, a list of which is given below; he

also solicits the favour of the Government officers and the zemindars of this district to help and assist him with their valuable advice and co-operation in this useful undertaking, for which he shall always remain grateful to them."

We cite a few of the classes, as showing what are the staple products of agricultural and garden industry (omitting the classes for live stock, poultry, &c.).

Class 2. Grain, being the produce of the exhibitor's own lands, to be exhibited in samples of not less than 10 seers.—Best 'table Rice, 16 rs.; best common Rice, 8 rs.; best Indian Corn, 4 rs.

Class 3. Pulse, being the produce as before.—Best Gram, 10 rs.; best Peas, 5 rs.; best Urur, 5 rs.; best collection of Dals, five or more sorts, in samples of not less than 2 seers of each kind, 8 rs.

Class 4. Tubers, being the produce as before, to be exhibited in quantities of 1 maund.—Best Potatos, 5 rs.; best Sweet Potatos, 5 rs.; best Turmeric, 4 rs.; best Ginger, 4 rs.; best Arrowroot, 5 rs.; best Potatos imported, 5 rs.

Class 5. Fibres, being the produce as before, to be exhibited in quantities of 5 seers each.—Best Jute, 20 rs.; best Flax, 5 rs.; best Sunn, 5 rs.; best Aloe fibre, 5 rs.

Class 6. Cotton, wool, being the produce of the exhibitor's own land and live stock, to weigh not less than 10 seers each.—Best Cotton grown in the district from foreign seed, 15 rs.; best country Cotton, 10 rs.

Class 7. Dyes, in samples of 5 seers each.—Best safflower, being the produce of any district, 6 rs.; best lac dye, 8 rs.

Class 8. Oil seed, being the produce of the exhibitor's own land, sample not less than 5 seers.—Best Linseed; 4 rs.; best Mustard seed, 4 rs.; best Till seed, 4 rs.; best Castor seed, 4 rs.; best Sirgoojah, 6 rs.

Class 9. Tobacco, being the produce of the exhibitor's own land, samples in 5 seers.—Best Tobacco in leaf, 5 rs.

Class 10. Sugar-cane and raw sugar.—For best two canes, ordinary country, 5 rs.; for best goor, 10 seers, 5 rs.

Class 12. Garden produce.—Best collection of vegetables, 10 rs.; best collection exhibited by any ryot, being *bonâ fide* the produce of his own land, 5 rs.; best collection of fruits, 10 rs.; best collection of flowers, 10 rs.

Special prizes are offered for the tenants of the Nawab's estate.

SEEDS.—A correspondent of the *New York Tribune* states that it is the practice of the Connecticut State Board of Agriculture to take up at each of its annual meetings some one subject and discuss it as fully as circumstances permit. Last year, in Norwalk, December 11–13, the special theme was seed. Professor W. H. BREWER, of Yale College, read a paper on causes which affect their vitality. The only evidence of life a seed has is that it will grow; it may die, and no process known may discover the fact, or warm it into life again. The first cause that affects vitality is time. The British Association in 1840 appointed a committee to investigate this subject. They made fifteen reports in as many years; their experiments covered over 354 species; no seed over forty-two years old sprouted; eleven kinds sprouted that were from fifteen to nineteen years old, and less than forty that were over twelve years old. Of seeds four years old 42 per cent. grew. Of eighty-four kinds three years old seventy-eight grew. The way in which seeds are cured has much to do with their vitality. Dry seeds have been subjected to a great degree of cold artificially without losing their vitality. Hybrids are notoriously unproductive, while cross-fertilisation has a different effect. To have good seeds they should be well dried, put in small packages, and kept in a dry place. Mr. J. J. H. GREGORY lectured on the Culture of Vegetable Seeds. Including herbs there are about seventy species of seeds grown in the United States; of these about 400 varieties are found in the catalogues of dealers; of these species less than twenty enter into the general consumption; about one-half of this number are imported. Some vegetables are American exclusively, and in no country are they raised in such abundance. The best varieties of Potatos are grown just north of the Apple zone—in Vermont and Northern New York. The statistics of seed growing are hard to get at. In New York about 3000 acres are devoted to raising seed Peas, and 250 acres to small seeds. In New Jersey and Pennsylvania about 1000 acres more, with the same in Massachusetts, Rhode Island and Connecticut—the three latter exclusively to the smaller seeds. Professor BREWER lectured also on "Varieties of Cultivated Plants; how to make them and how to improve them." He explained the difference between species and varieties; the causes which in Nature produce varieties; the influence brought to bear on the living plant; how the seed contains all the processes and possibilities of the plant, and whatever modifications are produced are transmitted by heredity; also the influence of seed in forming new varieties, and how new varieties may be produced. Professor D. C. EATON in a lecture on hybrids and hybridism, said that some of the finest results in Nature are produced by this means. Mr. J. H. BOWDITCH explained how plants are propagated, but did not take the ground that farmers can best raise their own supply. Dr. E. LEWIS STURTEVANT

gave a lecture on "Seed Breeding." He had an experimental plot on which manure had been applied at the rate of 42 cords [a cord is equivalent to 128 cubic feet] per acre. Three plots of corn, of sixteen hills each, were planted on this—the hills 4 feet each, with three seeds per hill. Plot No. 1 was not hoed, No. 2 well hoed, No. 3 root-pruned four times. The result was that No. 1 gave two ears as good as planted, No. 2 five ears, and No. 3 twenty-six ears. The experiments also indicated that the influence of selection had much to do in the result of a crop: the lower ear of corn on the stalk is the best for seed.

THE RICE WEEVIL AS A CORN DESTROYER.—It appears from a recent communication to an American paper, the *Prairie Farmer*, by Professor CYRUS THOMAS, State Entomologist of Illinois, that the Rice-weevil (*Sitophilus oryzae*) has been unusually destructive to stored grain in South Illinois the present winter. It has, however, says Professor C. V. RILEY, in the *New York Tribune*, developed an additional trait, in being equally destructive to Indian Corn in cribs, ears of corn thoroughly ruined by it having been recently sent from Springfield. This insect is closely allied to the common grain weevil, *Sitophilus granaria*, but is distinguished by having four paler or reddish marks upon the wing-covers. As its name indicates, it is most frequently found in Rice, though often in Barley. The principal remedies against the ravages of these insects are stated by the Professor to be sulphur fumes, kiln-drying, and the sprinkling of air-slaked lime on the grain. Of these the last is the only one practicable for cribbed corn.

SUGAR-CANE DISEASE IN BRITISH HONDURAS.—The *Planters' Gazette* announces the reappearance in British Honduras, after a lapse of some years, of a disease which attacks the Sugar-cane. It is stated to first appear in the form of a white froth above the roots, and that on opening up the roots the same kind of froth is seen amidst a quantity of moisture, and this in dry weather, and under a tropical sun. Maggots are bred in this froth, which develop into flies. These flies, when moving about the leaves of the cane exude moisture from their bodies, leaving stains as they progress, and where such is the case the leaves wither. At a previous visitation of this disease the loss to the crops amounted in some instances to more than 50 per cent. It is said that no remedy or preventive measures are known in Honduras, but it is hoped that by publicity being given to the fact of this scourge, some information as to its true nature and probable prevention may be forthcoming.

THE KAIETEUR FALL, BRITISH GUIANA.

MR. E. F. IM THURN, of the British Guiana Museum, has published an account of a trip to the Kaieteur Waterfall, first discovered by a Mr. Brown, who described it as one of the most magnificent falls in the world. The object of Mr. Im Thurn's expedition was to ascertain whether it was really so grand as Mr. Brown pictures it. The total height of the actual fall is 741 feet, and the width at times of high-water 370 feet, while at low-water it decreases to rather less than half that width. Compared with the two greatest falls in the world (Niagara and the Great Yosemite Valley Fall in California), Mr. Im Thurn says the Kaieteur is but small, but he thinks for the beauty of the surrounding scenery nothing can surpass the Kaieteur. It is, in fact, he continues, the marvellous surroundings which should make the Kaieteur one of the wonders of the world. They first approached the fall from below through a ravine, the whole floor of which, as well as the hillside for some distance up, "is covered, apparently to the depth of several hundred feet, by a litter of huge boulders, varying in size from that of a large house to a few feet square, and piled in the wildest confusion." The vegetation is rich, varied, and magnificent, and as a collecting place for a naturalist Mr. Im Thurn asserts no better spot could be found. Their visit to the top of the fall we give almost in the words of the author of the narrative. After spending twenty-four hours at the foot of the fall they returned by an easier route to Tukine, and thence to the top of the fall. The way lay along a beaten Indian track, which is only difficult because, in parts, very steep. After two hours' climb through the forest they came out on to the savannah from which the Kaieteur falls.

"No more strange place than this was ever imagined. The ground is formed by an entirely bare layer of hard conglomerate rock. No soil exists except in the cracks and fissures. In these small deposits of earth, innumerable Agaves, which form the most prominent feature in the scene, have taken root. Thickets of splendid flowered *Sobralia*, *Orchids* as tall as a man, and many

other rare and quaint plants grow among the Agave groups, each of which is laced together by a large Fern (*Pteris*), almost exactly like the delicately beautiful and graceful English bracken. . . . Crossing the savannah, we soon reached the Kaieteur cliff. Lying at full length on the ground, head over the edge of the cliff, I gazed down. Then, and only then, the splendid, and in the most solemn sense of the word awful beauty of the Kaieteur burst upon me. Seven hundred and fifty feet below, encircled in black boulders, lay a great pool, into which the column of white waters, graceful as a ceaseless flight of innumerable rockets, thundered from my side. Behind the fall, through the thinnest part of the veil of foam and mist, the great black cavern made the white of the water look yet more white. My first sensations were of a terrible and undefined fear. Those who visit the fall will understand this. Then, when some of the men hurled down a big Agave plant, the act seemed to cause me an unbearable pain: I had as soon have hurled myself over as have allowed a repetition of the act just then. Gradually, however, these painful feelings gave way to others of intense wondering delight; and the whole scene—the gigantic weird fall, the dark slippery places below the grass-covered rocks at the gate of the amphitheatre, and beyond that the bright thickly wooded valley with its winding river, were revealed to me, never again to be forgotten. The reward for the journey was complete."

The Agaves of the savannah interested Mr. Im Thurn very much. He describes the base of each leaf of the rosette as being so curved in its edges against the leaf immediately within it, as to form a reservoir capable of containing from half-a-pint to a pint of water which is replenished nightly by the copious dews. He was also found a *Drosera* growing very abundantly among the loose stones overlying the rocks in the very driest parts of the savannah, and covered with entrapped insects.



STATE OF THE WEATHER AT BLACKHEATH, LONDON FOR THE WEEK ENDING WEDNESDAY, Jan. 22, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|---------------------------------|--------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 48 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degree of Humidity. Sat. = 100. | | |
| Jan. 16. | 29.81 | +0.08 | 38.6 | 28.4 | 10.2 | 33.2 | -3.5 | 30.3 | 89 | S.E. | 0.00 |
| 17. | 30.03 | +0.30 | 34.0 | 29.1 | 5.8 | 32.2 | -4.6 | 31.3 | 97 | E.N.E. | 0.00 |
| 18. | 29.88 | +0.14 | 34.0 | 30.6 | 3.4 | 32.4 | -4.5 | 30.6 | 93 | N.E. | 0.56 |
| 19. | 30.16 | +0.42 | 35.0 | 29.0 | 6.0 | 31.7 | -5.3 | 29.4 | 91 | E.N.E. | 0.00 |
| 20. | 29.98 | +0.24 | 30.4 | 26.0 | 4.4 | 28.5 | -8.7 | 25.2 | 87 | E.S.E. | 0.00 |
| 21. | 29.77 | +0.02 | 30.3 | 23.4 | 6.9 | 26.9 | -10.4 | 23.1 | 86 | E.S.E. | 0.00 |
| 22. | 29.84 | +0.09 | 31.1 | 26.3 | 4.8 | 28.4 | -9.0 | 24.6 | 85 | E.N.E. | 0.00 |
| Mean | 29.92 | +0.18 | 33.5 | 27.5 | 6.0 | 30.5 | -6.6 | 27.8 | 90 | E. | sum 0.56 |

- Jan. 16.—A fine day, partially cloudy. Cold. Hoar frost in morning.
— 17.—Very dark and thick fog till 3 P.M., clearer after. A dull cold day. Hoar frost.
— 18.—A miserable day. Heavy fall of snow and sleet. Sloppy under foot.
— 19.—Fine, but very cloudy till evening, then cloudless. Cold. Sharp frost at night.
— 20.—Fine, but dull and cloudy. Very cold.
— 21.—Overcast and dull throughout. Raw cold. Very slight snow at intervals.
— 22.—Overcast and dull till 4 P.M., fine and bright after. Cloudless at night. Bitterly cold. Wind brisk.

LONDON: *Barometer*.—During the week ending Saturday, January 18, in the vicinity of London the reading of the barometer at the level of the sea increased from 29.75 inches at the beginning of the week to 30.22 inches by the evening of the 12th, decreased to 30.09 inches by the morning of the 13th, increased to 30.20 inches by the evening of the same day, decreased to 29.68 inches by the morning of the 15th, increased to 30.26 inches by noon on the 17th, decreased to 29.98 inches by noon on the 18th, and increased to 30.13 inches by the end of the week.

The mean reading for the week at sea level was 30.03 inches, being 0.12 inch above that of the preceding week, and 0.12 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 46½° on the 14th, 45½° on the 13th, and 45° on the 15th, to 34° on the 18th, and 34½° on the 12th; the mean value for the week was 40°. The lowest temperatures of the air observed by night varied from 20° on the 12th, and 28½° on the 16th, to 35½° on the 15th, and 34½° on the 14th; the mean for the week was 30°. The mean daily range of temperature in the week was 10°, the greatest range in the day was 14½° on the 12th, and the least 3½° on the 18th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—12th, 26°.4, —10°; 13th, 39°.7, + 3°.3; 14th, 41°.5, + 5°; 15th, 39°.8, + 3°.3; 16th, 33°.2, —3°.5; 17th, 32°.2, —4°.6; 18th, 32°.4, —4°.5. The mean temperature of the air for the week was 35°, being 1°.6 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 66° on the 15th, 57° on the 16th, and 54½° on the 12th; on the 17th the reading did not rise above 40°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 19° on the 12th and 26° on the 16th and 17th; the mean of the seven lowest readings was 27½°.

Wind.—The direction of the wind was variable, and its strength gentle. The weather during the week was dull and changeable. A dense fog prevailed on the 17th, and heavy snow fell on the 18th. On the 12th the Thames at high water was almost blocked with ice, but the thaw which set in at midnight on the 12th, and lasted till the 15th, rapidly cleared the river of the accumulated ice.

Rain fell on the 12th, 13th, 14th, and 15th, and snow fell on the 18th; the amount of rain and melted snow measured was 0.86 inch.

ENGLAND: Temperature.—During the week ending Saturday, January 18, the highest temperatures of the air observed by day were 53° at Truro, 50½° at Plymouth, and 49° at Bristol; the highest temperature of the air at Norwich and Hull was 43°, and at Brighton was 45°; the mean value from all places was 46½°. The lowest temperatures of the air observed by night were 11½° at Bristol, 15½° at Wolverhampton and Nottingham, 16° at Truro, 17½° at Plymouth, 19° at both Cambridge and Norwich, and 19½° at Leicester; the lowest temperature of the air at Sunderland was 30°, and at Hull was 26°; the mean value from all places was 20½°. The extreme range of temperature in the week was the greatest at Bristol, 37½°, and the least at Sunderland, 15°; the mean range of temperature from all stations was 26°.

The mean of the seven high day temperatures was the highest at Truro, 50½°, Plymouth 46°, and Bristol 44½°, and the lowest at Wolverhampton, 38°, and Norwich, 38½°; the mean from all stations was 41½°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 25½°, Bristol 26½°, Nottingham 27°, and Leicester 28½°; and he highest at Truro, 36½°, and Sunderland, 33½°; the general mean from all places was 30½°. The mean daily range of temperature in the week was the least at Sunderland, 7½°, and the greatest at Bristol, 18½°; the mean daily range from all places was 11°.

The mean temperature of the air for the week from all stations was 35½°, being 8½° lower than the value for the corresponding week in 1878. The mean temperature for the week was highest at Truro, 43½°, Plymouth 39½°, and Sunderland 37½°; and the lowest at Wolverhampton, 31½°, Nottingham 33°, Leicester 33½°, and Cambridge 33½°.

Rain or snow fell on four or five days in the week generally; the amounts measured varied from 2.02 inches at Truro, 1.98 inch at Plymouth, 1.44 inch at Wolverhampton, and 1.35 inch at Liverpool, to 0.31 inch at Norwich, and 0.58 inch at Nottingham; the average amount over the country was 1.07 inch.

The weather during the week was dull, gloomy, and cold, with fog, and frequent snow and rain.

SCOTLAND: Temperature.—During the week ending January 19 the highest temperatures of the air observed by day varied from 48° at Glasgow and 47° at Leith, to 40° at Dundee and 40½° at Aberdeen; the mean from all stations was 44½°. The lowest temperatures of the air observed by night varied from 7° at Perth, 12° at Paisley, 14° at Dundee, and 16½° at Edinburgh and Leith, to 25° at Aberdeen and 21½° at Glasgow; the mean from all places was 16½°. The mean range of temperature in the week from all stations was 27½°.

The mean temperature of the air for the week from all places was 33½°, being 9½° lower than the value for the corresponding week in 1878. The highest were 36° at Glasgow and 35½° at Leith; and the lowest were 28½° at Perth, and 33° at Dundee.

Rain.—The amounts of rain or melted snow

measured during the week varied from 1½ inch at Glasgow and Perth to three-tenths of an inch at Paisley; the average amount over the country was 1 inch.

DUBLIN.—The highest temperature of the air was 54½°, the lowest was 26½°, the range 28°, the mean 41°, and the amount of rain or melted snow was 0.40 inch.

JAMES GLAISHER.



Law Notes.

IMPORTANT TO FRUIT IMPORTERS.—At the Westminster County Court last week the case of Davidson v. Gray, Barrow & Co. was heard before Mr. Judge Russell, in which the plaintiff, a shipowner, sued the defendants, fruit importers, of Pudding Lane, City, to recover the sum of £51. The case was remitted from the High Court of Justice, and on the present occasion Mr. Bicknell appeared as counsel for the plaintiff, and Mr. Lloyd, barrister, for the defence.

From the Counsel's opening statement it appeared that the action was brought to recover on an agreed contract to convey 750 bags of nuts from Tarragona to London in good and sound condition, at the rate of £15 a ton. The nuts were delivered in due course, but the defendant objected to pay the plaintiff's claim, and had entered a set-off in his defence that the nuts were slack in their bags, and otherwise damaged in transit, in consequence of which he had sustained a loss amounting to £1 17s. 6d. The plaintiff did not appear in person.

It was urged on the part of the defence that the nuts had been considerably damaged on the voyage, that some of the bags were patched and rotten, and that they were consequently deficient in weight. He had paid into Court what he considered due, and disputed further liability. In cross-examination, defendant admitted receiving two sacks of sweepings from the hold of the vessel, and that the bills of lading were signed as "weight unknown."

At this stage of the case the learned counsel for the defendant urged that the action had been improperly brought.

His Honour said as the action was one of considerable importance to fruit importers throughout the kingdom, and considering the absence of all witnesses in support of the plaintiff's case, he (the learned Judge) would read over the evidence, and give judgment on a future day.

Enquiries.

He that questioneth much shall learn much.—BACON.

BONES AS MANURE.—Where are bones first mentioned as dung for the ground? Is there anything earlier than Jeremiah viii., 1, 2? *J. M. R.*

LLAVEA CORDIFOLIA.—Messrs. W. & J. Birkenhead, Fern Nursery, Sale, near Manchester, would be glad to know where they could obtain a plant of this Fern, either by purchase or exchange.

Answers to Correspondents.

DICHOGAMOUS; *H. G.* Where the stamens are developed before the pistil, or the pistil before the stamens, the term dichogamous is used. In such flowers the pistil must be fertilised by pollen from some other flower. In "cleistogamous" flowers the petals or sepals do not open to admit insects, and in consequence the pollen fertilises the pistil of the same flower.

EXAMINATION FOR HONOURS; *H. G.* We presume you allude to the examinations at the University of London. If so you should apply to the Registrar of the University, Burlington Gardens, W.

FOWL'S DUNG; *S., Rotterdam.* The dung of the domestic fowl is a valuable fertiliser, but it is almost as strong as the best guano, and requires to be used with care. For the fruit trees we should advise you to use it as a top-dressing, well mixed with soil; and for the vegetable crops in the form of a well-diluted liquid. If applied according to the safe rule of "weak and often," good results will follow its use, but you must avoid overdoing it.

FRANCE; *Etranger.* Situations in France are most generally obtained through private influence, or by the friendly aid of some nurseryman. Failing these you might try an advertisement in these columns, or in the *Revue Horticole*, in which case you should address M. A. Pelletier, 26, Rue Jacob, Paris.

LILY OF THE VALLEY; *Market Gardener.* The question is a legal one, which we cannot pretend to advise you upon. Your best plan is to consult a respectable solicitor, who would probably advise you to resist payment, and commence an action against the vendor for the loss you have incurred by reason of the roots turning out worthless.

NAMES OF PLANTS; *J. N., Inverness.* Myrsiphyllum asparagoides, as near as we can tell without flowers.—*Reader.* 1, Niphobolus Lingua; 2, not recognised, send a better frond; 3, Adiantum hispidulum; 4, Polystichum capense; 5, Lastrea glabella; 6, Lastrea acuminata; 7, Cibotium Schiedeii.—*W. S.* Centropogon Lucyanus, a garden hybrid.

POMEGRANATE; *J. B.* Punica Granatum is easily propagated by cuttings or layers, both of which root freely. We will answer your other question next week.

ROMAN HYACINTHS; *W. B. & Co.* We can offer no explanation. It is quite clear, on cutting through the bulbs, that no flower-spike has been formed.

WAGES AND FEES; *X. Y. Z.* 1, No; if, as we understand, the wages are paid weekly. 2, No; but it would be for instruction given.

CATALOGUES RECEIVED.—A. M. C. Jongkindt Coninck (Dedemsvaart, Holland), List of Spiræa palmata elegans.—James Yates (Underbank, Stockport, and 34, Hop Exchange, Borough, London, S.E.), Trade Catalogue of Garden and Flower Seeds.—Thomas Kennedy & Co. (Dumfries), Catalogue of Select Vegetable and Flower Seeds.—Messrs. James Cocker & Sons (82, Union Street, Aberdeen), Descriptive Catalogue of Select Vegetable and Flower Seeds.—Messrs. Kerr & Fotheringham (Dumfries), General Catalogue of Flower and Vegetable Seeds, &c.—Messrs. W. Smith & Son (18, Market Street, Aberdeen), Descriptive Spring Catalogue.—J. T. Lyles (15, Petty Cury, Cambridge), Descriptive Catalogue of Kitchen Garden, Agricultural, and Flower Seeds.—Messrs. John Perkins & Son (52, Market Square, Southampton), General Catalogue of Vegetable and Flower Seeds.—Messrs. Little & Ballantyne (Carlisle), General Illustrated Descriptive Catalogue.—Major F. F. Hallett (The Manor House, Brighton), List of Pedigree Cereals.—Messrs. Dick Radclyffe & Co. (129, High Holborn, London, W.C.), General Seed List.—Messrs. Thomas Perkins & Sons (34, The Drapery, Northampton), Descriptive Catalogue of Fruit Trees, Roses, Ornamental Trees and Shrubs, Forest Trees, &c.; also Catalogue of Vegetable and Flower Seeds.—George Cooling (Broad Street, Bath), Catalogue of Vegetable and Flower Seeds, Gladioli, &c.—Messrs. M. Saunders & Sons (Friars' Walk Nurseries, Cork), a Descriptive Catalogue of Roses, Coniferae, Shrubs, and Forest Trees, Rhododendrons, Fruit Trees, Gladioli, Stove and Greenhouse Plants, &c.—Messrs. W. P. Laird & Sinclair (Dundee), Catalogue of Choice Vegetable, Flower, and Farm Seeds, Ornamental Trees and Shrubs, &c.

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COMMUNICATIONS RECEIVED:—E. Holmes.—R. Nisbet.—J. D.—W. P.—W. C. G. Carstensen.—O. Orpet.—G. Ellis.—Dr. P.—G. D.—W. B. H.—J. R.—R. F.—T. T.—D. B.—J. M.—A. D.—M. D.—W. U.—A. O. W.—H. Field.—G. S. (next week).—W. M.—J. H. K., Haarlem (best thank).—F. v. M.—K. K., Berlin (with many thanks).—E. A.—E. T.—A. W.—J. H. B.—V. E. B.—T. P.

Markets.

COVENT GARDEN, January 23.

Business is at a complete standstill, sales being only occasionally effected. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|----------------------------------|
| Arum Lily, or Rich- | Euonymus, var., doz. 6 0-18 0 |
| ardia æthiopi., doz. 18 0-24 0 | Ferns, in var., p. doz. 4 0-18 0 |
| Azaleas, per dozen.. 24 0-60 0 | Ficus elastica, each 2 6-15 0 |
| Begonias, per doz. .. 6 0-12 0 | Foliage plants, vari- |
| Bouvardias, per doz. 18 0-24 0 | ous, each .. 2 0-10 6 |
| Camellias, per dozen 18 0-60 0 | Mignonette, per doz. 6 0-9 0 |
| Cinerarias, per doz. 12 0-18 0 | Myrtles, per doz. .. 6 0-12 0 |
| Cyclamens, per doz. 12 0-30 0 | Palms in variety, |
| Cyperus, per dozen 6 0-12 0 | each .. 2 6-21 0 |
| Dracena terminalis 30 0-60 0 | Pelargoniums, scar- |
| —viridis, per doz. 18 0-24 0 | lets, zonal, doz. .. 6 0-12 0 |
| Epiphyllum, per doz. 18 0-60 0 | Primulas, per dozen 6 0-12 0 |
| Erica Caffra, p. doz. 6 0-9 0 | Solanums, per doz. 6 0-18 0 |
| —gracilis, p. dozen 9 0-12 0 | Tulips, per dozen .. 8 0-12 0 |
| —hyemalis, p. doz. 12 0-42 0 | |

CUT FLOWERS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|---------------------------------|
| Abutilon, 12 blooms 0 6-1 0 | Lily of Val., 12 sprays 2 0-6 0 |
| Arum Lilies, 12 blms. 6 0-18 0 | Mignonette, 12 bun. 12 0-18 0 |
| Azaleas, 12 sprays .. 1 0-3 0 | Narcissus, paper- |
| Bouvardias, per bun. 1 0-4 0 | white, 12 sprays .. 2 0-6 0 |
| Camellias, per dozen 3 0-12 0 | Pelargoniums, 12 spr. 2 0-4 0 |
| Carnations, per dozen 1 6-4 0 | —zonal, 12 sprays 1 0-2 0 |
| Cyclamen, 12 blooms 0 6-1 6 | Primula, double, per |
| Deutzia, 12 bunches 6 0-12 0 | bunch .. 1 0-2 0 |
| Epiphyllum, 12 blms. 1 0-3 0 | —single, 12 bunch. 6 0-12 0 |
| Eucharis, per doz. .. 6 0-18 0 | Roses (Indoor), doz. 3 0-12 0 |
| Euphorbia, 12 sprays 3 0-6 0 | Tropeolum, 12 bun. 2 0-6 0 |
| Gardenias, 12 blms. 12 0-24 0 | Tuberose, per dozen 3 0-6 0 |
| Heliotropes, 12 sp. .. 0 6-1 0 | Tulips, 12 blooms .. 1 0-3 0 |
| Hyacinths, 12 spks. 4 0-12 0 | Violets, 12 bunches 4 0-9 0 |
| —Roman, 12 spks. 2 0-4 0 | |

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 4 0-8 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 3 0-8 0 | Pine-apples, per lb. | 1 0-2 6 |
| Lemons, per 100 | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0-.. |
| — Globe, doz. | 2 0-4 0 | Lettuces, Cabbage, | |
| — Jerusalem, bush | 4 0-.. | per doz. | 1 6-.. |
| Asparagus, Fr. sprue, | | Mint, green, bunch. | 1 6-.. |
| per bundle | 1 6-.. | Onions, young, bun. | 0 4-0 6 |
| — Fr. giant, p. bun. | 30 0-.. | Parsley, per bunch. | 0 4-.. |
| Beans, French, p. 100 | 2 0-.. | Peas, per quart | 12 0-.. |
| Beet, per doz. | 1 0-2 0 | Potatoes, new, basket | 1 0-.. |
| Brus. sprouts, bush. | 10 0-.. | Radishes, per bunch | 0 1-0 3 |
| Cabbages, per doz. | 1 0-2 0 | — Spanish, doz. | 1 0-.. |
| Carrots, per bunch | 0 4-0 6 | — New Jersey, doz. | 2 0-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Rhubarb, doz. | 10 0-.. |
| Celery, per bundle | 1 6-2 0 | Shallots, per lb. | 0 6-.. |
| Chilis, per 100 | 2 0-.. | Seakale, per punnet | 2 6-.. |
| Cucumbers, each | 1 0-2 0 | Spinach, per bushel | 4 0-5 0 |
| Endive, Batav. dozen | 1 6-.. | Sweet Potatoes, per lb. | 0 6-.. |
| Garlic, per lb. | 0 6-.. | Tomatoes, per dozen | 2 6-3 0 |
| Herbs, per bunch | 0 2-0 4 | Turnips, p. 12 bunch. | 3 0-6 0 |

The Potato market is quiet, and without alteration in prices:—
Regents, 100s. to 130s.; Early Rose, 110s. to 125s. per ton.

SEEDS.

LONDON: Jan. 22.—The markets this week have been fairly attended, and there has been a quiet steady demand for farm seeds. An increased spirit of inquiry is now shown by country dealers, and the low level of value characterising all varieties naturally attracts attention. Choice new American Clover can be bought on Mark Lane at 41s. per cwt. As regards home-grown seed, prices are irregular; large purple seed being scarce commands comparatively high rates, but good useful English red can be obtained at from £48 to £54 per ton. Fine Trefoil is held at about 22s. 6d. per cwt. Perhaps the cheapest article on the market this year is Alsike, handsome parcels of which are offering at from 60s. to 64s. per 112 lb. White Clover is also most moderate in price; new foreign Italian is quoted at from 16s. 6d. to 17s. 6d. per cwt. For Mustard and Rape seed the sale is slow. Best Canary seed is held at from 48s. to 50s.; Hemp, 29s. to 32s. per quarter. Blue Peas, owing to the severe weather and the dearth of vegetables, are in improved request at full rates. Haricot Beans find buyers at from 60s. to 64s. per quarter; split Egyptian Lentils, 13s. 6d., and whole German ditto, 9s. 6d.; white runner Beans, 11s., all per bushel. Sicilian Linseed sells at 60s. per quarter. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.

At Mark Lane on Monday, the supply of English Wheat on offer was short, the superior qualities were held for previous rates; the demand, however, was very poor, and the tone of business heavy. Foreign Wheat met with few buyers, and prices had rather a downward tendency. Holders did not, however, attempt to force the market. Good malting barley was firm; but there was a dull sale for other kinds. Malt remained steady. Oats were a slow sale and quotations were not very well supported. Maize was quiet. Beans and Peas were unaltered. Flour went off somewhat flatly.—There was not much business doing on Wednesday, and no change was reported in prices. English Wheat was in short supply, and prices were fairly supported; foreign was steady, but slow. Barley was in limited request, but good malting qualities were very firm. Oats were dull, and rather flat. Maize was unchanged. Beans and Peas were the same in price, and there was no variation in flour. Average prices of corn for the week ending Jan. 18:—Wheat, 38s. 11d.; Barley, 36s. 11d.; Oats, 19s. 8d. For the corresponding period last year:—Wheat, 52s. 1d.; Barley, 44s. 8d.; Oats, 23s. 9d.

HAY.

The Whitechapel market report for Tuesday states that with a moderate supply trade was very slow, and prices as follows:—Prime Clover, 100s. to 108s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 37s. per load.—On Thursday there was a large supply of fodder on offer. Trade was dull, and prices for Clover and straw were lower. Quotations:—Prime Clover, 95s. to 105s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 36s. per load.—Cumberland Market quotations:—Superior meadow hay, 84s. to 92s.; inferior, 63s. to 72s.; superior Clover, 108s. to 114s.; inferior, 75s. to 92s.; and straw, 38s. to 42s. per load.

POTATOS.

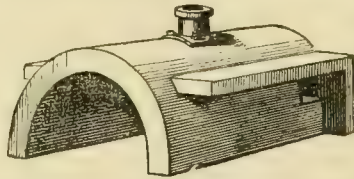
The Borough and Spitalfields markets reports note that supplies have been very moderate, and the trade quiet. Good Potatoes are steady. Victorias, 120s. to 150s.; flukes, 120s. to 140s.; Regents, 100s. to 130s.; Champions, 80s. to 100s. per ton.—Potatoes continue to arrive in small quantities, receipts last week from the whole Continent amounting to only about 5248 bags.

COALS.

The state of the weather is exercising the usual influence on the coal market. On Monday there was an advance of 6d. per ton coupled with a brisk demand for house coal, and business on Wednesday was of the same description, with a further advance of 6d. on best kinds. Quotations:—Beaside West Hartley, 14s. 9d.; Carr's Hartley, 14s. 6d.; Walls End—Easington, 18s. 9d.; Haswell, 21s.; Hetton, 21s.; Hetton Lyons, 18s. 9d.; Lambton, 20s. 6d.; Wear, 19s. 3d.; Tunstall, 18s. 9d.

Silver Medal, 1874.

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First-class Certificate, 1867; Highly Commended, 1873; and First-class Certificate, 1875.



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"I have no doubt the Best Boiler, that will burn any kind of fuel, is the Terminal Saddle."—*Journal of Horticulture*, p. 327.

"For moderate cost and real efficiency the Terminal Saddle is one of the very best."—*The Garden*, p. 95.

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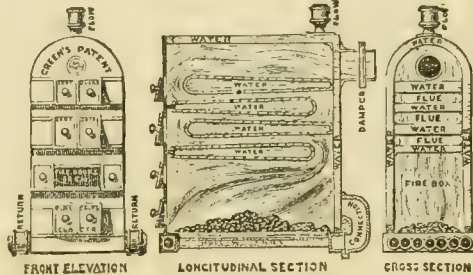
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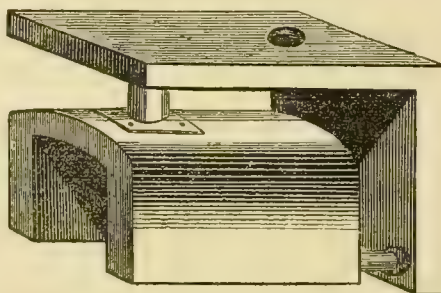
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| Sizes. | | | To heat of | Price. | |
|--------|--------|--------|-------------|--------|-------|
| High. | Wide. | Long. | 4-in. Pipe. | £ | s. d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 | 0 0 |
| 20 " | 18 " | 24 " | 400 | 8 | 0 0 |
| 20 " | 18 " | 30 " | 500 | 9 | 0 0 |
| 24 " | 24 " | 24 " | 700 | 12 | 0 0 |
| 24 " | 24 " | 30 " | 850 | 14 | 0 0 |
| 24 " | 24 " | 36 " | 1000 | 16 | 0 0 |
| 24 " | 24 " | 48 " | 1400 | 20 | 0 0 |
| 28 " | 28 " | 60 " | 1800 | 25 | 0 0 |

Larger sizes if required.

From Mr. CHARLES YOUNG, Nurseries, Batham Hill, S.W.,
May 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

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"And will, in our opinion, supersede any other similar system before the public."—*Building News*.

"It seems to meet the end in view more nearly than anything we have seen yet."—*The Field*.

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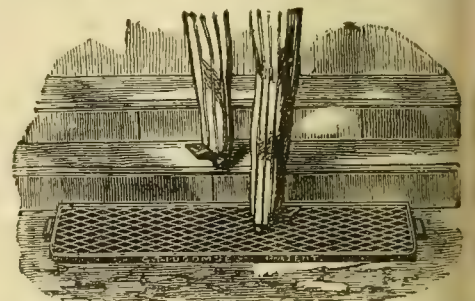
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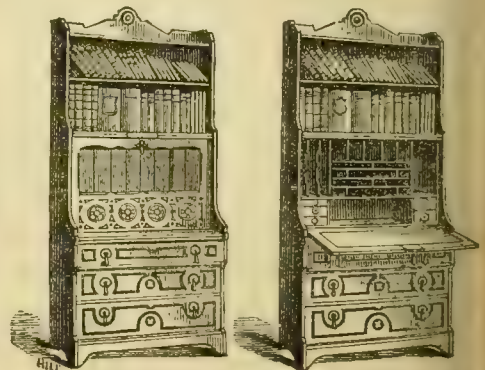
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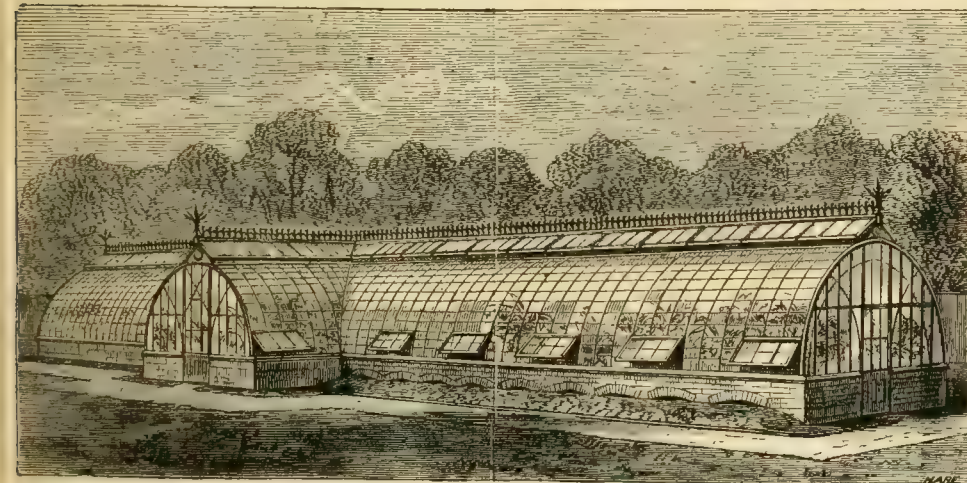
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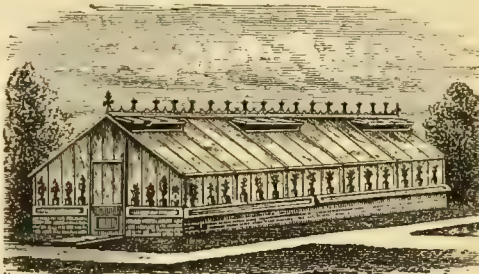
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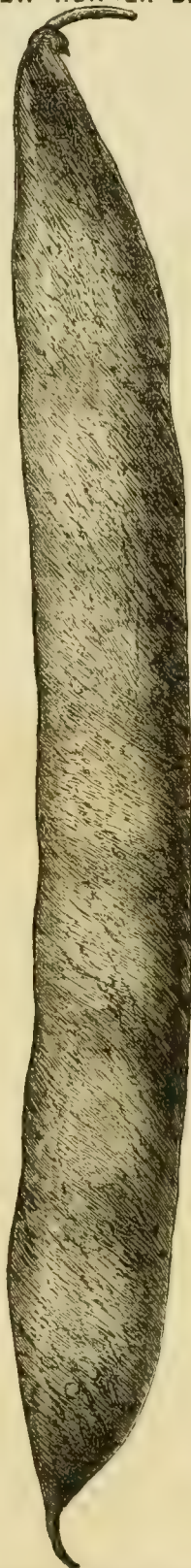
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Lilies, Gladioli, Spiræas, Lily of the Valley,
FRENCH ROSES, &c.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, February 5, at half-past 12 o'clock precisely, a quantity of **CHOICE LILIES** and other **BULBS**, including good flowering bulbs of *Lilium neilgherrense*. The white flowers of this magnificent Lily are deliciously fragrant and of great substance; it bears several flowers on a stem, each flower nearly a foot long. Also good flowering bulbs of *Lilium neilgherrense tubiflorum*. This variety has the tube much narrower up to the mouth, where it reflexes suddenly, so as to display more of inner surface; figured in Wight's *Icones Plantarum Indis Orientalis*. The rare *Lilium columbianum*, L. Brownii, L. parvum, L. Krameri, the beautiful L. speciosum Krætzeri, the new L. Batemannæ, and some good bulbs of the rare and handsome *Criminum australe* and C. americanum, &c.; 6000 fine bulbs of *Lilium auratum*, 1000 fine roots of double Italian **TUBEROSES**, a quantity of fine roots of **GALANTHUS IMPERIALIS**, 500 **LILIAM KRAMERI**, 440 Dwarf **ROSES** from France, **SPIRÆAS**, **LILY of the VALLEY**, **GLADIOLI**, &c.

On view morning of Sale, and Catalogues had.

Very Extensive Importation of Orchids from New GRENADA, including 500 **CATTLEYA MENDELII**.

MR. J. C. STEVENS has been instructed by Mr. F. Sander to **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **FRIDAY**, February 7, at half-past 12 o'clock precisely, a splendid consignment of **CATTLEYA MENDELII**, collected by Mr. C. Falkenberg, some of them of enormous size; also a very large lot of **ODONTOGLOSSUM PHALÆNOPSIS**, O. TRIUMPHANS, ADA AURANTIACA, ODONTOGLOSSUM ROSELI, together with a consignment of O. ROSSI MAJUS and other cool **ORCHIDS**.

On view morning of Sale, and Catalogues had.

Alocasia Lowii.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **FRIDAY**, February 7, a consignment of Roots from Borneo, in good plump condition. This well-known **AROID** is one of the most handsome and decorative of exhibition plants.

On view morning of Sale, and Catalogues had.

New Holland Dwarf Pitcher Plant.
CEPHALOTUS FOLLICULARIS.

One of the most interesting and pretty of the so-called Carnivorous Plants.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **FRIDAY**, February 7, a consignment of **ROOTS**, in splendid growing condition, just arrived from King George's Sound. This beautiful little **PITCHER PLANT** succeeds well grown in an ordinary greenhouse.

On view morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **SATURDAY**, February 8, at half-past 12 o'clock precisely, **FRUIT TREES**, **ROSES**, **Hardy and Ornamental TREES and SHRUBS**, **HERBACEOUS PLANTS**, **GLADIOLI**, **LILiums**, **SPIRÆAS**, **ANEMONES**, **RANUNCULI**, **LILY of the VALLEY**, &c.

On view morning of Sale, and Catalogues had.

Cranston's Nurseries, King's Acre, Hereford.
GREAT SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will **SELL** by **AUCTION**, on the Premises, as above, on **TUESDAY**, February 4, and two following days, at 12 o'clock punctually each day, by order of Messrs. Cranston & Co., several Acres of first-class **NURSERY STOCK**, all in the finest condition for removal, including 16,000 standard, pyramid, and dwarf-trained Fruit Trees, 5000 Maiden Pears, 6000 Gooseberries and Currants, several thousands of standard and dwarf H.P. Roses, several thousands of *Maréchal Niel*, 10,000 dwarf Tea-scented Roses, magnificent specimen Conifers and Evergreens, from 6 to 10 feet, well furnished and thoroughly transplanted; 10,000 bushy Laurels, 3 to 4 feet; 5000 English Yews, 3 to 4 feet; 2000 Ponticum Rhododendrons, 50,000 Manetti Rose Stocks, fit for working; 60,000 transplanted Larch, 1½ to 2 feet; 20,000 Spruce Firs, 1½ to 2 feet; 50,000 strong transplanted Hawthorn Quirk, &c., together with a selection of Greenhouse Plants.

The Stock may be viewed. Catalogues had at the Nurseries, at the Seed Warehouse, Broad Street, Hereford, and of the Auctioneers, 98, Gracechurch Street, London, E.C.

Wickham, Newbury.

IMPORTANT SALE of VALUABLE PLANTS, &c., by order of the Executors of the late Rev. W. Nicholson.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to **SELL** by **AUCTION** on the Premises, The Rectory, Wickham, Newbury, Berks, three miles from Kintbury Station, on **FRIDAY**, Feb. 7, at 11 to 12 o'clock precisely, the whole of the choice **GREENHOUSE PLANTS**, comprising 100 specimen Camellias, beautifully furnished plants, in tubs and pots, varying in height from 4 to 12 feet, the whole being set with bloom-buds and in the most perfect health, several fine specimens of the best double white variety being amongst the number; also some magnificent Orange Trees in tubs, 40 large Callas, a quantity of large Greenhouse Climbers, and numerous other plants, also some elegant Terra-Cotta VASES, handsomely designed **FOUNTAIN** in Terra-Cotta, three life-sized **FIGURES** in Iron of Animals, **IRON GATES**, Glazed **SASHES**, 10,000 Maw's **TILES**, and numerous other effects.

May be viewed the day prior to the sale. Catalogues may be had of Mr. JARRATT, on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Lilies from Japan, &c., for Unreserved Sale.

CONSIGNMENTS of 5000 *Lilium auratum*, 1000 L. Krameri, 500 L. tigrinum jucundum, 300 L. Thunbergianum staminosum, L. speciosum, album and rubrum, L. elegans Batemannæ; there will also be included a fine assortment of choice ENGLISH GROWN LILIES, hardy ORCHIDS, BULBOUS and BORDER PLANTS, together with a collection of established ORCHIDS.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above at the Mart, Tokenhouse Yard, E.C., on **MONDAY**, February 10, at half-past 11 o'clock precisely.

Full particulars next week.

Taunton, Somerset.

CLEARANCE SALE—Land Sold for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Hocken to **SELL** by **AUCTION**, without reserve, on the Premises, The Nurseries, Taunton, on **THURSDAY** and **FRIDAY**, February 13 and 14, at 12 o'clock precisely each day, the whole of the **NURSERY STOCK**, consisting of specimen Conifers and Evergreens from 4 to 12 feet; 1500 Gold, Silver, and Fancy Hollies, 5000 dwarf-trained and pyramid fruit-trees, half an acre of Stools, thousands of Ornamental Trees and Shrubs, 30,000 Larch, a choice assortment of Stove and Greenhouse plants, together with the erections of eight Greenhouses and Pits, Hot-water Piping, Boilers, Frames, Utensils in Trade, and numerous effects.

On view. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

In Liquidation—R. Wm. Rollisson & Sons.

PRELIMINARY NOTICE of an Important UNRESERVED SALE of the SECOND PORTION of this EXTENSIVE STOCK, comprising the remaining Established Orchids, amongst which will be found a fine lot of beautiful healthy specimens, many of them of the newest and most handsome species known; also several magnificent Tree Ferns, with fine heads, thousands of rare Palms and Ferns, choice Stove and Greenhouse Plants, Cape Heaths, together with an assortment of Evergreen Conifers, Standard-trained Fruit Trees, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to **SELL** the above on **MONDAY**, February 24, and four following days.

Further particulars will appear next week.

N.B.—The **FREEHOLD ESTATE of 5 Acres**, with the whole of the Glass and other Erections, to be **SOLD or LET**. Particulars and terms may be had of the Auctioneers, 98, Gracechurch Street, E.C.

Baker Street Nurseries, Enfield, N.

IMPORTANT CLEARANCE SALE of a large quantity of thriving NURSERY STOCK, comprising Araucarias, Wellingtonias, Yews, Cupressus, Thujas, Thujopsis, Junipers, Variegated Holly, Aucubas, Laurels, Standard Roses, 1500 Limes, quantity of Standard Fruit Trees, &c.

MR. GEORGE COWLES will **SELL** the above by **AUCTION** (entirely without reserve), on the premises of the Old Nursery, Baker Street, Enfield, on **WEDNESDAY**, February 5, at 11 to 12 o'clock precisely, by order of J. B. Butterfield.

Now on view. Catalogues on the Premises, and of the Auctioneer, Edmonton.

In re William Skirving, Deceased.

To NURSERYMEN, GENTLEMEN, LOCAL BOARDS, PLANTERS of PUBLIC PARKS, CEMETERIES, and PRIVATE GARDENS, &c.

MESSRS. BRANCH AND LEETE will **SELL** by **AUCTION**, on **MONDAY**, February 17, and several following days, at 12 o'clock each day, at the extensive Nurseries in Walton, near Liverpool, the whole of the important and well-grown **NURSERY STOCK**, consisting of Forest and Ornamental Trees, Fruit Trees, Evergreen and Deciduous Shrubs, Quicks, Stove and Greenhouse Plants, Vines, Herbaceous Plants, &c. A few of the leading items are Elms, Birch, Scarlet and Common Horse Chestnut, Limes, Mountain Ash, Poplars, Willows, Laburnums ranging up to 15 feet high, strong oval-leaved Privet, fine trained Plums, Cherries, Apples, Pears, &c. Of Hollies the stock is very extensive, the variety great and of all sizes up to 15 feet; Rhododendrons, Irish and Golden Yews, Cupressus, &c.

The stock can be inspected any day prior to the Sale. Noblemen, Gentlemen, and others laying out fresh grounds or re-arranging those at present existing will find this an opportunity very rarely to be met with; and the high standing enjoyed by the late William Skirving, Esq., is a sufficient guarantee for the great excellence of the stock.

Catalogues will be ready in due course. Any information required can be obtained from J. W. DAVIDSON, Esq., Accountant, 10, Cook Street; or at the Offices of Messrs. BRANCH AND LEETE, Hanover Street, Liverpool.

Camberwell (4575).—Through Death of Owner.

FOR SALE, a SMALL NURSERY, near Two Stations, 3½ miles from the City. Half an acre of ground, with Cottage and three houses. Thirty-two years' Lease, at a peppercorn rental. Price low. Apply to **PROTHEROE AND MORRIS**, 98, Gracechurch Street, E.C.

S.W. District (4567).

FOR SALE, TWO DWELLING HOUSES, with Greenhouses, Pits, Show-house, and Seed Shop, capable of great improvement. Estimated annual rental, £108. Ground rent, £39. Price for 21 years' Lease, £800. Particulars of

PROTHEROE AND MORRIS, as above

Surrey (4560), 3 miles from London Bridge.

FOR SALE, a small FLORIST'S BUSINESS. Rental nominal. Price for Stock, six modern Greenhouses, 21 years' Lease, &c., only £400. Good cause for disposal. Details and orders to view of **PROTHEROE AND MORRIS**, as above.

To Nurserymen and Others.

TO BE SOLD or LET, a NURSERY of 16 acres, containing some of the best Land in the county for Growing Rhododendrons and Conifers. Close to a Railway Station, and only 30 miles from London. Apply to **J. MILLER**, Auctioneer, 37 and 38 Market Place, Reading.

To Seedsmen and Florists.

TO LET, a newly opened BUSINESS, a first-rate chance for a practical man. Price for fixtures, alterations, and an arrangement for seven years' lease (low rental), £100, and Stock at Invoice Prices. Possession at once. Apply to **G. FREELAND**, Tonbridge.

Weston-super-Mare.—Somerset.

TO BE LET, with Immediate Possession, the undermentioned extensive and valuable **VINERIES, FORCING-HOUSES, and GARDEN.**

Mr. NORTON has received instructions from the executors of the late Mr. George James **TO LET** all those valuable **VINERIES and HOTHOUSES** with large **GARDEN** adjoining, known as the "Weston Nurseries," and which have been for many years in the occupation of the late Mr. James, who has carried on there a lucrative business as Nurseryman. The Stock therein to be taken at a valuation. For rent and further particulars apply to

Mr. NORTON, Auctioneer and Estate Agent, West Street, and 1, South Terrace; or to Messrs. W. H. AND H. F. DAVIES, Solicitors, Weston-super-Mare.

To Nurserymen and Florists.

THE CROWN ESTATE PAVING COMMISSIONERS hereby give notice of their readiness to receive **TENDERS** from Persons willing to enter into a **CONTRACT for KEEPING in ORDER PARK SQUARE and PARK CRESCENT GARDENS**, the Gardens attached to the various terraces in the Regent's Park, and the Gardens attached to Carlton House Terrace, for a period of Three Years from March 1 next.

Specifications, with Forms of Tender, can be obtained upon application, between the hours of 11 and 1, at the Lodge in Park Square West, Regent's Park.

Sealed Tenders, addressed to the "Crown Estate Paving Commissioners," and marked "Tender for Gardens," are to be delivered at No. 1, Whitehall Place, S.W., at or before 1 o'clock on Wednesday, February 12, 1879.

FRAS. ADAMS, Clerk to the Commissioners.

1, Whitehall Place, January 27, 1879.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at 98, Gracechurch Street, E.C.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH and CO. (established 1822), Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the world.

CATALOGUES.—His Excellency Pierre Wolkenstein will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to

S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

HOOPER'S ROUND WHITE POTATO. Price 35s. per bushel, 10s. 6d. per peck. **HOOPER AND CO.**, Covent Garden, London, W.C.

HOOPER'S ROUND WHITE will please alike Gardener and Farmer.

HOOPER'S ROUND WHITE is handsome, prolific, and of UNEQUALLED QUALITY FOR TABLE. No coarseness, no earthiness, no disease.

New Catalogues.

ANOTHER DELUGE of MERETRIOUS SEED CATALOGUES reminds us of Carlyle's "Hatter of the Strand," who "instead of MAKING better hats, as he was appointed by the universe to do, turned his whole industry to PERSUADE us that he had done such."—*Past and Present*, Book III.

For new Lists of Choice Vegetable and Flower Seeds, &c., also of Trees and Shrubs, Conifers, &c., send to

W. P. LAIRD AND SINCLAIR, Seed Merchants and Nurserymen, Dundee, N.B.

Excellence and Economy combined is our motto.

CEDRUS DEODARA SEED.—Just arrived from India in splendid condition. Sample and price on application to **HENRY CLARKE and SONS**, Seed Merchants, 39, King Street, Covent Garden, W.C.

CELOSIA PYRAMIDALIS PLUMOSA AUREA and RUBRA, saved from an extra choice strain. Per packet, 2s. 6d. and 5s. each.

EAST LOTHIAN INTERMEDIATE STOCK, in four colours, warranted true. Per packet 1s., 2s. 6d. and 5s. each. Trade Price on application.

IRELAND and THOMSON, 20, Waterloo Place, Edinburgh.

EXHIBITION VEGETABLES and FLOWERS.—All who desire to win Prizes should send at once for CARTER'S STERLING NOVELTIES. It is a short Catalogue, profusely illustrated, and contains the best New Vegetables and Flowers of the year.

Gratis and post-free on application to The Queen's Seedsmen, High Holborn, London, W.C.

Genuine Seeds.

JOHN LAING and CO.'S Annual CATALOGUE of Kitchen Garden, Flower and Farm Seeds and Implements, will be sent free to all applicants.

Orders above 20s. carriage paid. Stanstead Park, Forest Hill, London, S.E.

ASTERS, STOCKS, BALSAMS, &c.—Get your supply of the above direct by post from the best growers in Germany, and save from 20 to 30 per cent. on prices usually charged.

For particulars and Priced LIST (gratis and post-free), **DURANT and SONS**, North Tawton, Devonshire.

To the Trade.

SEED POTATOS.—Our **SPECIAL LIST**, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application.

H. AND F. SHARPE, Seed Growers, Wisbech.

To the Trade.

NEW POTATO, "PRIDE of ONTARIO." H. AND F. SHARPE are now sending out the above most prolific and handsome shaped new Potato. Full description and price may be had on application. Seed Growing Establishment, Wisbech.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to **J. GEO. HILL**, The Royal Nurseries, Merriott, Somerset.

Three Really Good Things.

CUCUMBER.—New Improved Telegraph, 12 seeds, 1s. per packet. **GOURD.**—Petition or Mammoth, 1s. per packet. **CELERY.**—Dixon's XL red, 1s. per packet. 1 packet of each for 30 stamps, post-free. **JOHN E. DIXON**, Seedsman, Gainsborough.

To the Trade.

SEED POTATOS. H. AND F. SHARPE will be pleased to make special offers of all the leading varieties of **SEED POTATOS** they have grown this season. The prices will be found very advantageous to purchasers. Seed Growing Establishment, Wisbech.

Early Peas for Marketing.
THE BEST EARLY PEA IS
SUTTON'S IMPROVED EARLY CHAMPION.—Extensively used by the principal Pea Growers. Ten days earlier than Daniel O'Rourke; very prolific, good quality. Also:—
Sutton's Racehorse
Prizetaker
Champion of England
Veitch's Perfection
Invicta
First and Best
Fortyfold
Advancer.

Price per bushel and quarter on application.
SUTTON AND SONS, The Queen's Seedsmen, Reading.

Choice Herbaceous Calceolarias.
1s. 6d., 2s., and 3s. per dozen, post-free.

W. M. POTTEN'S CATALOGUE of good Seeds at moderate prices. Post-free to all applicants.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

L. PAILLET, NURSEYMAN, Chateaux les
Roses, Fruit Trees, maiden or trained; Ornamental Trees and Shrubs, Tree and sinensis Pæonies; Magnolia Lenné, oxoniensis and others; Camellias, Rhododendrons, Azaleas, Clematises, Conifers, Bamboos, Yuccas, tuberous Begonias, Viola Belle de Chateaux and others; Trees for Avenues, such as Acers, Platanus, Horse Chestnut, FRUIT TREE STOCKS, FOREST TREES, and others of every description grown in large quantities; Manetti, De la Grifferaie and Brier Rose Stocks.
Send for Trade List and Catalogues to L. P., as above; or to his Agents in London, Messrs. R. SILBERRAD AND SON, 15, Harp Lane, Great Tower Street, E.C.

STOTT'S MONARCH RHUBARB.—
"Shirley Hibberd says that any one who wants a Rhubarb that makes leaves as big as a dining-table, or stems as thick as a Cedar tree, that rises as high as a tall human dwarf, should order STOTT'S MONARCH at once. After being at sea for three years as to the whereabouts of this wonderful Rhubarb, he has at last discovered that it is to be obtained of Stuart, Mein & Allan, Kelso."—*Canadian Weekly Globe*. See also *Gardeners' Chronicle* of January 11.
Price 1s. 6d. each.

STUART, MEIN AND ALLAN, Nurserymen and Seedsmen, Kelso.

To the Trade.
SPECIAL PRICES ON APPLICATION
GEORGE COOPER, SEED MERCHANT,
Hertford, begs to offer the following, of the choicest stocks:

| | |
|-------------------------------|---------------------------|
| BEEF, Red, Cooper's Excelsior | ONION, White Spanish |
| BROCCOLI, Hill's June | " White Globe |
| CUCUMBER, Improved Telegraph | " Bedfordshire Champion |
| PARSLEY, Curled, [Matchless] | CELERY, Cooper's Improved |
| SWEDS, Cooper's Improved | White |
| TURNIP, Improved Aberdeen | BROMPTON STOCK, |
| Green-top Yellow | Giant Scarlet |
| | CYCLAMEN PERSICUM, |
| | from large flowers. |

Australian Plants and Seeds.
EUCALYPTUS GLOBULUS, PALMS,
CYCADS, FERNS, and all kinds of PLANTS and SEEDS indigenous to Australia, Fiji, &c., supplied on the most reasonable terms. Priced CATALOGUES and Special Quotations on application.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling
Nursery, Sydney, New South Wales. (Established 1827.)
Agents: Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C.

The Best Green-Fleshed Melon of the Year.
DELL'S HYBRID.—The only green-fleshed Melon deemed worthy this year of the Royal Horticultural Society's First-Class Certificate. Smooth, deep yellow, netted skin, small stalk, pale green flesh.
"All that we have tasted were delicious."—*Gardeners' Chronicle*.

Price 2s. 6d. per packet of six seeds, post-free.
See **STERLING NOVELTIES**, a short Catalogue profusely illustrated with the best New Things of the Year, gratis and post-free, from
CARTERS, The Queen's Seedsmen, High Holborn, London.

To the Trade.—Vines—Vines—Vines.
W. G. CALDWELL AND SONS have still extra strong fruiting Black Hamburg VINES to offer, excellent stuff, at 5s. 6d. each. Also **AZALEA AMENA CALDWELLII**, well set with buds, 18s. and 24s. per dozen.
APPLES, Standard, 40s. per 100.
Pyramid, 60s. per 100, in all leading varieties.
General CATALOGUE of Fruit Trees, Conifers, Roses, &c., post-free on application.
The Nurseries, Knutsford, Cheshire.

Established Upwards of a Century.
DICKSONS AND CO., NURSEYMAN,
SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, beg to call the attention of those about to plant to their extensive Stock of FOREST TREES, SHRUBS for Game Coverts, FRUIT TREES, &c., which have been grown in exposed situations.

D. & Co. are now sending out their Bedding VIOLAS and PANSIES (of which they hold the largest stock in the country), Early and Late PHLOXES, &c.
Descriptive CATALOGUES free on application.

Notice.—Roses, Roses, &c.
TO THE TRADE AND OTHERS.
ROSES.—A quantity of good Standard and Half-Standard, clean and well-grown, with good stems and heads. Maiden CHERRIES in quantity, and many thousands of 2-yr. old ASPARAGUS.
CATALOGUES on application.
MOWER AND CO., Nurserymen and Seedsmen, Sible
Heddingham.

TO THE TRADE
RHODODENDRONS, Hybrids, with bloom-buds.
VEWS, Common, 3 to 4 feet.
ALDERS, 2 to 3 feet, and 3 to 5 feet,
BIRCH, 2 to 3 feet, and 3 to 5 feet.
BEECH, 3 to 4 feet.
CHESTNUTS, Horse, 3 to 12 feet.
LARCH, Firs, 1½ to 2 feet.
HAZEL, 2 to 3 feet, and 3 to 4 feet.
MANETTI STOCKS, very good and cheap.
ARBOR-VITÆ, Chinese for stock.
DEUTZIA GRACILIS.
SWEET BRIER, 2 feet.

WILLIAM FLETCHER, The Nurseries, Ottershaw,
Chertsey.

KING NOBLE.

THE FINEST FIRST EARLY POTATO.

"I obtained a splendid crop of KING NOBLE POTATOS, which are excellent for table. I think highly of it, and intend planting it next season."—**W. ALLAN, Gardener**
to Lord Suffield, Gunton Park, Oct. 11, 1878.

THE MOST PROLIFIC FIRST EARLY POTATO.

"KING NOBLE is a most abundant cropper, and the tubers are of good quality."—**JAMES PINK, Gardener**
to Lord Sondes, Lees Court, Oct. 9, 1878.

THE HANDSOMEST FIRST EARLY POTATO.

"Your Potato, KING NOBLE, which you sent me for trial, proved a very excellent sample, both in regard to its even, handsome, round shape, and cropping qualities."—**WM. EARLEY, Editor of "Villa Gardener," "Horticultural Record," &c., Oct. 7, 1878.**

KING NOBLE comes into use at the same time as the true Old Ash-leaf, is of fine flavour, and cooks remarkably well. The tubers are medium sized, smooth, handsome, and shallow-eyed, and are produced in great abundance. KING NOBLE is of dwarf, compact habit (1 foot), and will be found most valuable for early frame work and market purposes.

KING NOBLE.

PRICE:

4s. per Peck of 14 lb.
14s. per Bushel of 56 lb.

CAN BE OBTAINED ONLY OF

DANIELS BROS.

Seedsmen to Her Majesty the Queen,
and His Royal Highness the Prince of Wales,

NORWICH.

Roses, Fruit Trees, &c.
WILLIAM FLETCHER'S CATALOGUE
for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, at 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.
ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

TREES for AVENUE PLANTING.—
Elms, Poplars, Beech, Oaks, Evergreen Oaks, Horse Chestnut, Limes, &c., at very low rates for cash.
J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

JAMES FARRAR AND CO. beg to announce the publication of their Wholesale CATALOGUE of SEEDS for the present season, which will be forwarded post-free on application.
Seed Warehouse, 86, Golden Lane, Barbican, London, E.C.

CHRISTMAS QUINCEY,
POTATO GROWER, &c., Peterborough, will have pleasure in forwarding his WHOLESALE LIST, free, on receipt of Trade Card. It contains over Forty of the best English and American varieties, carefully selected, true to name, and the greater part Seed size—the whole of which he can confidently recommend. Prices low.—Peterborough, Jan. 8, 1879.

Now Ready.
EWING AND COMPANY'S LIST of New Roses for 1879 is a most select one of the best New English and French varieties. Gratis and post-free to applicants.
EWING AND CO., Eaton, near Norwich.

The Best Cauliflower.
CARTER'S MONT BLANC.—
Snow-white head, very compact and firm.
From Mr. S. HAINES, Gr. to the Right Hon. Lord Radnor.
"Carter's Mont Blanc is a splendid white Cauliflower, keeping in condition a long time."
Price 1s. 6d. and 2s. 6d. per packet, post-free.
See **STERLING NOVELTIES**, a short Catalogue profusely illustrated with the best New Things of the Year, gratis and post-free, from
CARTERS, The Queen's Seedsmen, High Holborn, London.

Seeds of Superior Quality.
W. M. CUTBUSH AND SON
beg to announce that their illustrated CATALOGUE of Select Vegetable, Flower Seeds, &c., is now ready, and will be forwarded post-free on application.
Highgate Nurseries, London, N., and Barnet, Herts.

BLACK NAPLES CURRANTS.—
Extra strong fruiting Trees, 12s. per 100, for cash with order.
J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

To the Trade.
OSBORN AND SONS can still supply a quantity of Dwarf Maiden PEACHES, NECTARINES and APRICOTS, and a few Standards.
Also the following FRUIT TREE STOCKS:—Common and Brussels Plum, Pear, Crab, Paradise, Quince, and a few Cherry and Brompton Plum.
Prices on application.
The Fulham Nurseries, London, S.W.

Vines—Vines—Vines.

B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year.
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To the Trade.—Immense quantities of extra fine SEEDLINGS and TRANSPLANTED PLANTS.—Quicks, Scotch Firs, Alders, Fruit Trees, Shrubs, &c. For Descriptive CATALOGUE, apply to **LEVAVASSEUR AND SON, Nurserymen, Ussy, Calvados, France**; or to their Agents, Messrs. R. SILBERRAD AND SON, 15, Harp Lane, Great Tower Street, London, E.C.

FOREST TREES.—Alder, Beech, Birch, Chestnut, Elm, Spruce, Silver and Scotch Firs, Hazel, Hornbeam, Oaks, Thorns, and Yews, at very low prices for well-grown stuff.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Season 1879.
VEGETABLE and FLOWER SEEDS
of Superior Quality. Carriage Free.
Priced Descriptive CATALOGUE, containing select Lists of these, also Potatoes for planting, Hybrid Gladioli, and other Garden Requisites, is now published, and will be sent post-free on application.
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Seed Merchants and Nurserymen, 12, Old Millgate, Manchester.

The Best Frame Cucumbers.
CARTER'S MODEL.—
"The model of what a Cucumber should be—handsome, productive, delicious."—Mr. G. GOODACRE, Gr. to the Right Hon. the Earl of Harrington.
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EAST LOTHIAN STOCK
(True).
SCARLET, very fine, 6d. and 1s. per packet.
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Per peck, 6s.

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SAMUEL AND JAMES SMITH (late J. SMITH, Sen.), Tansley Nurseries, Matlock, Derby, beg to offer at prices, viz:—

At per 1000.

ASH, Mountain, 2 to 3 feet, 17s.; 3 to 4 feet, 25s.; 4 to 5 feet, 30s.; 6 to 8 feet, 80s.; 8 to 10 feet, 100s.

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CHESTNUT, Spanish, 1 to 1½ foot, 18s.; 1½ to 2 feet, 30s.

FIK, SPRUCE, 9 to 12 inches, 10s.; 1 to 1½ foot, 14s.; 2-yr., 15s.

PINUS MARITIMA, 9 to 12 inches, 10s.; 2-yr., 3s.

LIMES, 4 to 5 feet, 80s.

POPLAR, Italian, 3 to 4 feet, 25s.; 2-yr., 10s.; Ontario, 2 to 3 feet, 20s.; 4 to 6 feet, 50s.; 2-yr., 10s.; Silver, 3 to 4 feet, 40s.

PRIVET, Evergreen, 2-yr., 7s. Yellow berried, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.

SNOWBERRY, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.; 2-yr., 7s.

SYCAMORE, 1½ to 2 feet, 15s.; 2 to 3 feet, 20s.

WILLOW, Bitter, 2 to 3 feet, 20s.; 2-yr., 10s.; Huntingdon, 3 to 4 feet, 25s.; 2-yr., 10s.

BROOM, 1-yr., 3s.; 2-yr., 4s.; Spanish, 2-yr., 6s.

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LONICERA LEDEBOURII, 1½ to 2 feet, 8s.; 2 to 3 feet, 20s.; elegantissima, 1 to 1½ foot, 15s.

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At per 100.

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CRYPTOMERIA ELEGANS, 1 to 1½ foot, 15s.; 1½ to 2 feet, 30s.; 2 to 3 feet, 50s.

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LABURNUM, 10 to 12 feet, 30s.

LAUREL, Caucasian, 1½ to 2 feet, 20s.

OAK, Fulham, 6 to 8 feet, 30s.; Scarlet, 6 to 8 feet, 50s.

PINUS CEMBRA, 4 to 6 feet, 40s.

POPLAR, Silver, 6 to 8 feet, 15s.

SYCAMORE, 8 to 10 feet, 20s.

RHODODENDRON, ferrugineum, 12s.; hirsutum, 10s.

THUOPSIS BOREALIS, 1 to 1½ foot, 40s.; 1½ to 2 feet, 50s.

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HARDY HERBACEOUS PLANTS in collection of 100 distinct varieties, 25s.; 200 varieties, 60s.; &c.

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—Imported Bulbs are now arriving, and orders are solicited. This lovely Lily is quite hardy, and should be generally grown. Before ordering send for Lily List, where all particulars are given.

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All orders to be accompanied by a remittance. Lily and Orchid LIST sent on application to

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Superbly Illuminated.

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| ADA aurantiaca | newly imported 5 0 |
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The best and hardest in cultivation.

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March 11, 1878.

"Your Leicester Red has given great satisfaction, the heads being both crisp, solid, and fine flavoured, the same as I received in your printed packets the first year, and quite distinct from what I received from London, but that was not in your printed packet, only the name written on. I shall for the future grow no other."

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One Penny Each.

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The finest scarlet Gladiolus in cultivation, also FLORIBUNDUS, nearly pure white, fine sound Flowering Bulbs, any quantity, from 1 to 10,000, at the above price. A few thousand Smaller Bulbs, mixed, at 5s. per 100. Also HOLLYHOCKS, fine seedling plants, at 3d. each, 2s. 6d. per dozen, £1 per 100. Double DAISES, Red, White, and Hen-and-Chickens, 5s. per 100; Double dark Crimson, 6s. per 100.

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Loughborough.

Economy in the Garden.

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JAMES CARTER AND CO. being *bona fide* growers of the seeds they offer, are enabled to place PUBLIC INSTITUTIONS, HOTEL-KEEPERS, &c., on the most liberal terms. State quantities and sorts required to

CARTERS, The Queen's Seedsmen, High Holborn, London.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf ROSES, FRUIT TREES of all sizes, Scarlet and other RHODODENDRONS well set with buds, CONIFERÆ and EVERGREENS, and DECIDUOUS TREES for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

Green and Variegated Ivies of Sorts,

Large and small-leaved, in eight kinds.

ROBERT PARKER, having a surplus stock of fine Plants in pots of the above-named, will be pleased to dispose of them in quantities, at very low prices. Names, sizes, and prices, per dozen, 100 or 1000, will be given on application.

Exotic Nursery, Tooting, Surrey, S.W.

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STOCK, East Lothian, very select strains.

"Crimson, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.

"Purple, Scarlet, White, and White Wallflower-leaved, per packet, 6d., 1s., and 2s. 6d.

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"Fancy, from a first-rate collection of named flowers: per packet, 1s. and 2s. 6d.

Above free by post.

TODD AND CO., Seedsmen and Florists, Maitland Street, Edinburgh.

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MESSRS. JOHN STANDISH AND CO.

beg to call the attention of those engaged in planting to their extensive and well-grown stock of EVERGREEN and DECIDUOUS PLANTS, FOREST TREES, &c. All are without exception well rooted and in fine condition for removal. The following list comprises a few of those Trees, of which they grow immense quantities:—

FOREST TREES.

Acacia, 3 to 4 and 10 feet.

Birch, 3 to 4 feet and 10 to 15 feet.

Chestnut, 2 to 4 feet.

Pinus Laricio, 1 to 2 feet.

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Scotch Fir, 1 to 1½ foot.

Spruce, 1½ to 2½ feet.

Weymouth, 3 to 4 feet.

RHODODENDRON, fine named varieties.

"seedling, 2 to 4 feet, fine.

"ponticum, 12 to 18 inches, very bushy.

YEW, English, 2, 3 and 4 feet.

"Irish, 3, 4 and 5 feet.

BOX, 2 to 2½ feet.

AUCUBAS, green and variegated.

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"Aquifolium.

CLEMATIS, IVIES, and other CLIMBING PLANTS, and a vast variety of EVERGREEN and DECIDUOUS SHRUBS. Also

FRUIT TREES.—Pyramid Apples, Pears, Plums; Trained Apples, Apricots, Cherries, Nectarines, Pears, Peaches and Plums.

Samples and quotations on application.

Royal Nurseries, Ascot, Berks.

A New and Brilliant Primula.

CARTER'S VESUVIUS.—Brilliant scarlet.

"For which a world-wide popularity may be safely predicted."—*Gardeners' Magazine*.

Price 2s. 6d. per packet, post-free.

See STERLING NOVELTIES, a short Catalogue profusely illustrated with the best New Things of the Year, gratis and post-free, from

CARTERS, The Queen's Seedsmen, High Holborn, London.

VERY EXTENSIVE IMPORTATION of ORCHIDS from NEW GRENADA

INCLUDING

500 CATTLEYA MENDELII.

MR. J. C. STEVENS has been instructed by Mr. F. SANDER to

SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C.,

on FRIDAY, February 7, at half-past 12 o'clock precisely, a splendid consignment of

CATTLEYA MENDELII, collected by Mr. C. Falkenberg, some of them of enormous size.

Also a very large lot of ODONTOGLOSSUM PHALAENOPSIS, O. TRIUMPHANS, ADA

AURANTIACA, and ODONTOGLOSSUM ROEZLI, together with a consignment of

ODONTOGLOSSUM ROSSI MAJUS, and other COOL ORCHIDS.

On view morning of Sale, and Catalogues had.

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CANNELL FOR FLOWERS.

It is more and more important that every one should be made aware of the fact that H. C.'s HOME FOR FLOWERS is the only Establishment exclusively devoted to Florists' Flowers; it is therefore of the highest advantage to all requiring the best strain of FLOWER SEEDS (certain to germinate) to procure them direct from those who grow them and have the nearest perfection varieties, and devote the greatest amount of interest, time, attention, and have the Choicest Stock, and, what is of more consequence, made all the most popular flowers their life's study, pride, and delight.

TESTIMONIALS.

From A. J. ROLLO, Esq., *Holly Bank, Simla, India.*

"I have seen the plants from your seeds, and also your plants sent out to people in this country, and they are excellent. I have every confidence you will send me good things."

Mr. W. WEDD, *Mount Gambier, South Australia, October 2, 1878.*

"DEAR SIR,—I have to thank you for sending my parcel of Seeds, which arrived in first-rate condition within three months of date of order; this, considering the distance, is extraordinary dispatch, and enabled me to get a sowing in good time. As a proof of their good quality they are already above ground."

From Mr. SAM. BARKER, *Saltacre.*

"DEAR SIR,—The Seeds I have had from you have turned out first-class. Every seed has germinated."

From Mr. A. H. DUKE, *Sunny Bank, Powers Court Road, Buckland, Hants.*

"DEAR SIR,—The Petunia Seed which I had from you has turned out much beyond my expectations. They were the largest and most striking I had ever seen."

"SIR,—Your Calceolaria Seed has turned out so well that I must have more of your seed soon. Yours truly, EDWARD EADE."

"Green Bank, Pendleton."

"DEAR SIR,—I am glad to say that your Primulas have been highly praised. Yours truly, JAMES LOWE."

"Milton Villa, Gibbon Road, Kingston-on-Thames."

"SIR,—The Calceolarias, Primulas, &c., I had from you last year were everything I could wish. I am, Sir, faithfully yours, P. F. SUTTON."

From Mrs. FANNY BUNBURY, *Lisbryan, Shrivane, Ireland, May 14, 1878.*

"DEAR SIR,—I am this day sending you seven distinct varieties of Pansies, the seed of which has been got from you, and I would be glad to have your opinion of the flowers. My husband has been getting flowers and seeds from you for some years, and we have always found much satisfaction in anything we got."

From Mrs. LITTLE, *The Hale, Sleaford, Lincolnshire.*

"SIR,—The Petunias are very fine indeed."

From Miss G. BARRON, *Newton House, Waterford, Ireland.*

"The Seeds were excellent, and the Petunias and Verbenas, both in flower, are particularly good."

From Mr. ROBT. GIRLING, *Union House, Gressenhall, East Dereham, July 2, 1878.*

"DEAR SIR,—I am glad to say that the Petunia seed I had of you last year rewarded me by having the best bed of Petunias in the county of Norfolk, and much admired by all that saw them. Some of the flowers 4 inches across, most beautifully blotched and marked. They will recommend themselves."

From Mr. E. COVENEY, *Gardener, Kenfield Hall, Petham, Canterbury.*

"SIR,—The Seeds that I had from you in the early part of spring have turned out well. The Petunias are grand in colours."

From E. HARVEY, *West Shepton, Shepton Mallet, Somerset, April 15, 1878.*

"SIR,—Your Gold Bronze Geranium Seed has turned out some beautiful plants."

From Mr. H. DOBBS, *Middleton Cottage, Newnham, Cambridge, March 4, 1878.*

"I had a display of the best Petunias from seed I had of you last year I ever saw. They were much admired."

From Mr. GEORGE COOK, *Gardener, Sandy Rectory, Bedfordshire, June 7, 1878.*

"DEAR SIR,—Last year you kindly sent me some Primula seed. It proved the best Primulas that I ever saw."

From WM. MORTIMORE, *The Gardens, Broomford Manor, Exborne, N. Devon, August 26, 1878.*

"DEAR SIR,—It may be as pleasing for you to know as it is for me to write that we have some most magnificent Petunias from the packet of seed supplied by you. The Lobelia is also good, and the Ageratums have made two beautiful beds; much admired by all the visitors to this place."

From Mr. I. BATE, *Bellbroughton, near Stourbridge.*

"The Primulas from Seed I had of you have borne excellent blooms, and I am highly satisfied."

From Mr. W. RASHIER, *Gardener, Ash Rectory, near Sevenoaks, Kent, August 26, 1878.*

"DEAR SIR,—I write to say that I have had a splendid show of Balsams from the seed you sent me. I have never had anything to equal them before. I am truly delighted and astonished with them. I shall recommend you."

From Mr. W. COCKS, Jun., *Frogmore Dairy, 5, West Hill, Wandsworth.*

"SIR,—I have been extremely pleased with the Petunia and Pansy seed you supplied me with, in fact the Petunias have been admired by every one. They have had hundreds of fine blooms, and of most beautiful colours."

From C. NOBLE, *The Old House, Sevenoaks, April 10, 1878.*

"DEAR SIR,—Please to send me one packet of your Marigold Seed. The Lobelia Seed I had from you is good. Many thanks for your Catalogue, which is the best Illustrated Guide I have seen."

From Mr. JOHN GILBERT, *Aberuchill, Comrie, Perthshire.*

"The Double Petunia Seed I had from you this spring has given me great satisfaction."

From Mr. G. H. STEELE, *New Brimington, May 28, 1878.*

"DEAR SIR,—All the seeds that I have had from you come up remarkably well, the Marigolds especially."

From Mr. D. FLOOD, *Copenhagen Road, New Brompton.*

"I wish to add my testimony to others of the excellency of your French Marigolds. I obtained First Prize at the New Brompton Gardeners' Society's Annual Show, and a friend of mine obtained the First Prize in Class B from seed purchased of you. I also took first in Class A for Dianthus (Indian Pink) and Balsams also from your seed. The French Marigolds were specially commented upon."

From E. RICHARDS, 75, *Severn Road, Canton, Cardiff, March 7, 1878.*

"SIR,—Much pleased with single Petunia of last year."

From Mr. F. WOOD, *Florist, 25, Garden Street, Derby, March 10, 1878.*

"SIR,—I was away from home when the seeds came, but I can tell you I never had a better lot in my life."

From Mr. C. BROWN, *South Field House, Louth.*

"DEAR SIR,—I never had better seed before; it has come up as thick as grass."

From L. HANLON, *Belfast, March 5, 1878.*

"Your most interesting Catalogue came to hand all safe. I am much pleased with the little plants I got from you last year, and have quite a lot of seedling Pelargoniums out of the packet of seed. When they flower I expect to see something good."

From Mrs. MACHANT, *Holbeck, near Mansfield, Notts.*

"Please send your Guide to me, as I am waiting to order my seeds from you as usual, the others having given such satisfaction last year, carrying off the head prizes wherever exhibited."

From J. WOOLRIGHT, *Liverpool, July 20, 1878.*

"Many gardeners who have been through my small house tell me 'they have seen none half as good as my Primulas,' the seeds of which came from you."

From H. HORNER, *Gardener, Flowergate, Whitby, August 27, 1878.*

"I have some splendid Cockscombs from the seed we got from you this year. I am certain of the first prize at our show on the 15th of next month."

From THOMAS WATERHOUSE, *Old Cemetery Lane, Gainsborough, Sept. 4, 1878.*

"DEAR SIR,—I may just add that the double Diadem Dianthus seed which got of you has turned out magnificent; the flowers have been so large and rich, and have been admired by many."

From E. W. SNOWDON, 5, *Chervaux Terrace, Farrow-on-Tyne, March 4.*

"DEAR SIR,—I am more than pleased with the Guide, and can say it is the best I have seen. The seeds to hand all right."

From D. MCGREGOR, *Anandale Gardens, Simla, E. Indies.*

"Your seeds have turned out the best of any I have ever received from England."

From Mr. H. HARRIS, *The Gardens, Denne Park, Horsham.*

"SIR,—I enclose P.O.O. for the beautiful little plants, which arrived in capital order. The flower seeds got from you in the spring have given great satisfaction, especially the Asters, Marigolds, and Zinnias."

From Mr. HENRY HICKMAN, 5, *Lamb Lane, Canterbury.*

"SIR,—The packet of Stock Seed you sent me turned out splendid, in fact I never saw better, and the admiration of every one."

From Mr. JOHN CAMPION, *Tharnford, Hinckley.*—"Calceolarias grand."

From H. REIDALL, Esq., *Cromwell Lodge, Church Street, Epsom.*

"The Calceolarias I had from you last year were splendid, and greatly admired."

From Mr. WILLIAM SPENCE, *East Linton, Prestonkirk, N.B.*

"DEAR SIR,—All the seeds and plants received from you last year gave the utmost satisfaction."

From Mr. WM. ROBINSON, *The Gardens, South Parade House, Doncaster, May 8, 1878.*

"SIR,—I have enclosed stamps for one of your packets of Primula sinensis fimbriata seed. I grew it last year, and was the best I ever saw, and was admired by every one. I had seed from other firms, and the poorest of yours surpassed the best of the others, and I have not failed to recommend you to my friends."

From Mr. A. GAULD, *Netherurd, Dolphinton, April 26, 1878.*

"DEAR SIR,—Seed (the Polyanthus) I got from you last season has turned out to be very fine, the largest and finest I have seen, and my master says he never saw the like of them."

From H. L'ESTRANGE EWEN, *Offard Darcy Rectory, August 26, 1878.*

"DEAR SIR,—I got a First Prize at St. Neots' Show, and also another for twelve Zinnias, from your seed. They are not only the best, but first by a long way, distancing several great gardeners here."

From G. T. DONNE, Esq., *Enmore House, Woodside, S.E.*

"DEAR SIR,—I have no doubt the seeds will prove as good as I have always found them."

From SAMUEL SKELTON, *Clergy Daughters' School, Casterton, Kirkby Lonsdale, Westmoreland, September 16, 1878.*

"DEAR SIR,—I gained the First Prize for French Marigolds from your seed at Kirkby Lonsdale Flower Show."

From Mr. J. P. JACOB, 273, *Camberwell Road, Surrey, May 16, 1878.*

"The Seeds you sent me last year turned out fine; the Balsams remarkably fine Carnation-striped."

From Mr. WILLIAM J. MILLER, *West Mill, Lasswade, Edinburgh.*

"SIR,—Send me as per list at your earliest convenience. I got some seedling Begonias from you some time ago, which have turned out splendidly, and was shown your strain of Primulas, &c., I have noted above, and the best I have seen round this district."

From HY. DIXON, *Arcade Chambers, Newport, Mon.*

"The Pansies I had from you last year were greatly admired."

From Mr. GEORGE OLIVER, *The Gardens, Hanbury Hall, Droitwich.*

"SIR,—The Calceolarias I had from you last year turned out first-class."

From Mr. J. H. HOWARD, 54, *Bath Road, Exeter, May 28, 1878.*

"DEAR SIR,—I was very much pleased with the seeds I had of you last year, especially the Petunias."

From R. CURTIS, *The London Joint Stock Bank, 5, Prince's Street, London, Jan. 14, 1878.*

"DEAR SIR,—I am glad to tell you that the Petunia seed I had of you last year turned out fine, and exceeded my expectations."

From "Gardeners' Magazine."—"We have just received from Mr. H. Cannell a boxful of Seedling Petunias and Fuchsias of the most sumptuous character. To describe them is simply impossible, and perhaps the best we can do is to recommend those who are interested in such things to run down to Swanley to see and judge for themselves. At all events, we place it on record that we have never seen a finer lot of Petunias and Fuchsias than we have now before us."

Extract from the "Garden."—"BEAUTIFUL PETUNIAS.—Mr. Cannell, of Swanley, has sent us a whole flower garden of Petunias of the most beautiful and varied colours. We fancied we had some knowledge of the way in which Petunias varied, but had no conception that the variation was so great until we received this batch. Words, however, fail to convey any adequate idea of their variety and beauty."

"Journal of Horticulture."—"Just on the eve of going to press we have received a box of blooms of Single Petunias from Mr. H. Cannell, Swanley, Kent, which for size, richness of colour, and purity of markings, surpass all that have previously come under our notice."

Extract from the "Gardeners' Chronicle."—"We have just received from Mr. H. Cannell, of Swanley, Kent, samples of Petunia flowers of a remarkably fine strain, selected from a bank of flowers occupying a house 100 feet long, which we have since seen. The flowers are generally very large, some beautifully striped in a great variety of patterns, some of the richest velvety crimson. One variety was specially noticeable and to us entirely novel and particularly fine."

FRENCH MARIGOLD, CANNELL'S NOTED STRAIN.

Some blooms of this were sent to the Editor of the *Gardeners' Magazine*, and the following is in reply:—"H. Cannell.—Your French Marigolds are really magnificent; we have not seen anything to equal them. The colour and marking is wonderfully bright and decisive, and the form can be summed up in the one word 'perfection.' A few stands of blooms like those before us would present a striking contrast to, and have a grand appearance amongst other cut flowers usually exhibited at this season of the year."

Extract from the "Journal of Horticulture."—"French Marigolds (H. Cannell). They are splendid. We never saw finer flowers, nor petals more regularly or brilliantly striped."

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It comes into use during May and June, is dwarf and compact,
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chester.
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Downie & Laird, Edinburgh.
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Howden & Co., Inverness.
Hogg & Robertson, Dublin.
Jefferies & Son, Cirencester.
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Shirley Hibberd says—"When I saw your dozen roots in the
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distinction, and was white as snow." See also *Gardeners'*
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Kelso, N.B.

A Superb Novelty.

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Grown for trial by us last season, under ordinary cultivation, with some 500 other kinds, it
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In October last cut blooms of the Crimson East Lothian Stock were sent for exhibition before the Floral Committee of the Royal Horticultural Society, but unfortunately were not delivered in time. Mr. Barron in informing us of this, says:—"They were, however, exhibited to the company, and very much admired; the colour was very brilliant." In September last cut spikes were sent to Messrs. E. G. Henderson & Son, Pine-apple Nursery, London, who say:—"It is certainly a very fine variety, being much brighter in colour than the ordinary scarlet."

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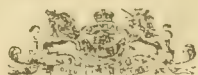
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fills the gap between late Broccolis and Cauliflowers. Perfectly distinct, very dwarf and compact, heads well protected, medium size, handsome, and of creamy-white colour.

Mr. H. GADD, Gr. to the Right Hon. Lord Middleton, says, on May 23: "I am still cutting your Queen Broccoli, in fine condition, which, to use the phrase, is shaking hands with the Cauliflower, which is now coming nicely."

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Dwarf, compact, very large, firm, beautifully white heads.

From Mr. JOHN CLARK, Gr. to the Most Noble the Marquis of Ripon:—"Your King is a very dwarf, good strain of Cauliflower, producing firm and beautifully white heads."

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SUTTON'S DUKE OF CONNAUGHT.

Remarkably handsome, and the finest white-spined variety known. Perfectly level, from 22 to 26 inches in length, very uniform, with a bright green skin, well covered with bloom, spine scarcely discernable, and the fruit very little ribbed, wonderfully small handle, and decidedly superior for exhibition.

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Height, 5 to 6 feet, producing pods each containing eight to ten peas, delicate flavour, beautiful colour.

"I was much pleased with your New Pea. It is a splendid bearer, and when cooked is very finely flavoured. I consider it a first-class variety."—Mr. WILLIAM PATERSON, Gr. to Her Majesty the Queen, Balmoral.

5s. per quart, 3s. per pint.

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The best second-early variety ever introduced, habit robust and distinct, a first-rate cropper, and flavour really excellent. Awarded First-class Certificate by the R.H.S.

Price 1s. 6d. per lb.; 7 lb., 9s.

SUTTON'S NEW GLOXINIA CRASSIFOLIA GIGANTEA

is acknowledged to be the finest.

From M. A. INGRAM, Gr. to the Duke of Northumberland:—"Your Gloxinia is the finest strain I have ever seen; strong robust habit, the leaves are so reflexed as to nearly cover the pots. The flowers are very large and beautiful in colour. Some of the drooping-flowered sorts have blooms over three inches in diameter. They make quite a show of themselves in a house."

5s. and 2s. 6d., per packet, post-free.

THE FINEST PRIMULA OF THE SEASON.

SUTTON'S RUBY KING.

New seed of this superb novelty, which is pronounced by the entire Horticultural Press to surpass all others, is now ready. Awarded a First-class Certificate and a large silver Banksian Medal by the R.H.S., January 14, 1879.

Price 5s. per packet, post-free.

£50 IN PRIZES,

Offered by SUTTON & SONS at the Royal Horticultural Society's Meetings during the year.

PARTICULARS ON APPLICATION.

THE QUEEN'S SEEDSMEN, READING.



SATURDAY, FEBRUARY 1, 1879.

BUTLER'S COURT.

CLOSE to the town of Beaconsfield, on the road to Penn, a half-obiterated carriage-road enters a domain which once belonged to Edmund Burke. The house, called Gregories, from a Mrs. Martha Gregory, improved and enlarged by Burke, and re-named Butler's Court, was for years his favourite home and the scene of his hospitality to unnumbered visitors. It was destroyed by fire after his death, and some grass-covered trenches now mark its site in a field which was once a park, and is now grass land attached to the adjoining farm. The present owner is Mr. Dupré.

Burke purchased his estate here of the family of the poet Waller, and obtained the means of doing so and his seat for Wendover through a gift of £20,000 from Lord Verney. The brilliant flashing of his eyes on the occasion of receiving this handsome gift has been described by one who was present and observed his delight. The bright eyes of genius are not often made to flash in this way, and perhaps the gift should have been refused, as Lord Verney was a politician and a partisan, but it was nobly used. One of Burke's first acts, when his means had been increased, was to send young Barry, the artist, to Rome. "Pursue your studies there and consider me your banker," said Burke to his young friend; and the grateful Barry lived to repay him in many ways better than by tendering coin, and Butler's Court was decorated with the tokens of his friendship. Burke's generosity with money was not of the calculating kind. He used to empty his purse of its silver in walking through the streets. But he practised a wise economy at Butler's Court which enabled him to be generous. He farmed three-fourths of his estate, and ate his own mutton both in Bucks and London. There are some gentlemen who fail as farmers and lose their rents the moment they take their land into their own hands. When the ordinary farmer fails to pay his rent it is usually considered a very serious matter—it is the first step towards bankruptcy and appearing in the *Gazette*; but proprietors are hardened, they think nothing of not paying themselves any rent; it is not usual, and not being the fashion, of course, they would rather not. Still there is nothing really wrong in a proprietor receiving rent as landlord from himself as tenant if he prefers it. Burke did so. It was a little contrary to the etiquette of those days, as of these, and people well knew he had started with only £20,000, and they condoned the offence and refrained from making it a precedent.

There is a secret of success in farming as in other prosperous undertakings, and it is this—you must understand your business. If you understand thoroughly and pursue diligently the business you have undertaken, rise before cock-crow in winter and at dawn in summer, and see that all the "hands" do their duty all day long, and do not stretch the dinner hour into an hour and a-half—then you will succeed; but if you do not it will be otherwise. There are other rules not worth naming in detail in this casual allusion to a most obscure topic, but in passing one may say, on this subject of success, that you should beware of wearing kid gloves on the home farm. Such luxuries demoralise the men. Beware, too, of sherry and of too protracted luncheons; and, above all, beware of a *siesta* in the middle of the day. As a practical farmer you must "look alive" and "brush about" all day long, and at 9 o'clock P.M., if you are tired, you may go to bed. You may retire at night when you please, but the rising early in the

morning is not optional. You must do it if you would make the home farm pay.

Edmund Burke as an agriculturist was admirable. He understood the business, used a spade himself, indulged no fancies, spoilt no bailiffs by capricious or too indulgent treatment, and took care to employ sturdy fellows of the right sort. His excellent man, Mr. Rolfe, began on an adjoining farm, a labourer's boy, at 4*d.* a day, and served the owner of Butler's Court progressively as woodman, hedger, ditcher, cowman, shepherd, ploughman, sower, reaper, mower, thresher, and factotum. This able and excellent man deserves no doubt some of the credit of his employer's successful farming. After Burke's death he engaged in business on his own account. It was on his valuation that the estate was sold to Mr. Dupré, and the fortune he acquired as a valuer and farmer enabled him at last to purchase Wattleton Farm, on which his father drove a team, and to erect thereon a handsome residence.

Edmund Burke seems to have imitated the successful landscape gardening of Edmund Waller, on the other side of the town, where the poet had resided, at the edge of a grove of his own planting. "Burke's Grove" sheltered his house, and still retains the traces of his taste. The little town was but a step across the park, and Burke could hear from his garden the merry music of children rushing out of school, and the same sounds that still make the medley of a not too busy street.

When Mr. Jesse visited this spot in 1847 he found the old gardener still living, and proud to gossip of the old days. He had followed his master's funeral fifty years ago that year, and four years before that he had followed the remains of his beloved son, Richard, whose death broke the statesman's heart. He gossiped mournfully to Mr. Jesse, talked of his master's charity to the poor, of his kindness to his dependents, and of the four black horses to his carriage, which were kept in health and good condition by sometimes working on the farm. One day Burke discovered some ragged boys pilfering wood, and brought the urchins home, to be whipped as they thought. They arrived at the awful Squire's door, ragged, pinched, and expecting to be whipped; they were taken into his warm kitchen, fed, and measured for some suits of clothes.

The great statesman and successful farmer, who himself attended to his breed of cattle, which stood high in public estimation, used to stroll about his park with a spud for extirpating Plantain and other intruding weeds, and where the grass seemed likely to be injured or rendered too rank by an excess of manure falling on one spot, the author of that noble essay on the Sublime used to adjust matters with his spud in the usual way. The house was always full of company. Windham, the Secretary for War, used to ride down from London on a white horse, which was stalled in a capital stable—the only part of the building which escaped the fire. Burke used formerly to say of his home, "Every care vanishes the moment I enter under its roof," but his happiness all vanished at the death of his son. He could not bear afterwards to look at the tower of the church across the park; he refused the title of Lord Burke of Beaconsfield, not caring to accept it when his hope was gone. There is a touching story of his meeting his son's horse, which had been turned into the park to end its days. Like any other horse that has been caressed and treated kindly, it walked up to its master and presently rested its head on his shoulder. There was nothing unusual in this, but the incident recalled the memory of the lost son, and the afflicted parent was completely overcome. He flung his arms about the horse's neck and burst into a paroxysm of grief.

In a farmhouse in a lane near Burke's Grove Mr. Jesse discovered a stout farmer, who more than half a century before had kicked off his clothes in his cradle one summer day, when Burke discovered him slumbering and nude. Some days later he brought Sir Joshua Reynolds—the clothes were again removed, and the child became the model of the "Infant Hercules Strangling Two Serpents."

"Beneath the Oaks of Beaconsfield," said Disraeli, "Burke poured forth those divine effusions that vindicated the social system and

reconciled the authority of law with the liberty of man." The social system having been overturned in France, Burke feared that the same disaster might disturb the peace of Beaconsfield, and he left instructions that his remains should be placed in a wooden coffin, and that the exact place of his burial should not be marked by an inscription lest his ashes should be scattered by revolutionists. The church is a large one with nave and aisles. A tablet on the wall records that "Near this place lies all that was mortal of the Right Honourable Edmund Burke, who died the 9th of July, 1797, aged 68 years." In the same grave were deposited the remains of his son, brother and widow. In 1862 a brass was inlaid upon the gravestone in the nave by the great-grand-nephew and representative of Burke and by Sir Bernard Burke, Ulster King of Arms, "to mark the grave of the greatest of their name."

New Garden Plants.

PIPTOSPATHA INSIGNIS, *N. E. Br.* (Fig. 20.)

This remarkable little Aroid is one of the discoveries of Mr. Burbidge in North Borneo, and which he has succeeded in introducing alive into Messrs. Veitch's establishment. It will no doubt prove an elegant and attractive addition to our stoves, the nodding spathes, white with a rose-coloured tip, offering a pleasing contrast to the dark green narrow lanceolate leaves. From a scientific point of view the plant is decidedly interesting; it belongs to the small group Schismatoglottidinae, of which there are one or two species of the genus Schismatoglottis already in cultivation. The group is confined to Malacca and the Malay Archipelago. The present plant will form a new genus, which, although unquestionably belonging to this group, differs from the other three genera composing it in wanting the spike of neuter organs which so conspicuously terminate the spadix in the hitherto described genera, so that that character will require modifying when the group is again worked up. I have also another Aroid collected by Mr. Burbidge belonging to this group which will I think form still another new genus, and in this also the terminal spike of neuter organs is absent: this latter plant I shall describe on a future occasion. The Schismatoglottidinae are remarkable for their deciduous spathes, which never seem to expand as in most other groups, but only open a very little way near the apex, forming a small hole for the entrance and exit of small insects, and then after fertilisation the upper part falls off in the form of a hood.

Perhaps the greatest peculiarities of the present plant reside in the anther, which affords another character whereby to distinguish it from its allies; in this the connective is twice as long as the anther cells, being produced beyond them in the form of a curved conical tip, and is itself distinctly two-celled, the cells or cavities being slightly stuffed, in all the other genera the anther-cells are as long or longer than the connective, and the latter is solid. The following is a description of the plant.

Acaulescent, dwarf and tufted, entirely glabrous. Petioles erect, sheathing at base, 1–2 inches long, $\frac{3}{4}$ line thick. Leaf-blade slightly spreading, linear-lanceolate, or narrow lanceolate, entire, gradually narrowing from one-third below the apex to an acuminate point, and from one-third above the base, narrowed into a cuneate acute base, $3\frac{1}{2}$ –5 $\frac{1}{2}$ inches long, 5–12 lines broad, coriaceous, dark green above, pale green beneath; midrib prominent and rounded on both sides, primary lateral veins four or five on each side of midrib (in the illustration the veins are too numerous, and should not have been shown on the upper side), hardly visible above, a little prominent beneath, very slightly curved, ascending, forming with the midrib a very acute angle. Scale-leaves reddish brown, linear acuminate, concave or subconvolute, 1–1 $\frac{1}{2}$ inch long. Scapes erect, recurving at the apex, shorter than the leaves, 3–4 inches long, terete, reddish. Inflorescence at first erect, afterwards nodding. Spathe convolute, ovate-fusiform acuminate, sometimes slightly twisted, more or less recurved at the apex, 1–1 $\frac{1}{2}$ inch long, about $\frac{3}{4}$ inch thick, white, very delicately tinted with pinkish colour, the apex entirely rose-pink. Spadix half as long as the spathe, sessile, continuous, the basal one-fifth covered with tabuliform neuter organs (abortive ovaries), above which to nearly half way up are the ovaries, the rest of the spadix being covered with anthers, two or three only of the apical ones being abortive. Ovary oblong, obtusely 3–4 angled, truncate, with a sessile stigma, smooth, the lower two-thirds dotted with minute red immersed glands, 1-celled, with 2–3 parietal placentas, which unite at the apex, and bear on their sides numerous ascending orthotropic ovules. Anthers sessile, laterally compressed, connective stout, twice as long as the anther-cells, being produced beyond them as a conical curved point, in cross-section showing two slightly stuffed

cavities (i.e., 2-celled); anther-cells one on each side of the connective, each 2-celled, but opening by one small horse-shoe-shaped terminal pore, the walls of the entire anther dotted with minute immersed red glands. *N. E. Brown, Herbarium, Kew.*

ODONTOGLOSSUM ROSSII, *Lindl.*

I was exceedingly surprised the other day when I received a raceme of this Orchid, with five flowers, each of which was as large as I had ever seen a single one before. It was a present from my zealous correspondent, Mr. Alfred Borwick, and had been grown by the very experienced orchidist, Mr. Walton. When I had expressed my thanks and my great pleasure, Mr. A. Borwick sent me a second box, containing six kinds of flowers, showing great variation as to the dimensions of the spots. It is only by Mr. Borwick's help that I have arrived at the solution of a very old riddle, viz., the old and the new *O. Rossii*. The oldest representation of the plant, given by good authority, Dr. Lindley, in the *Botanical Register*, shows the blades of the lip almost circular. What we have seen alive in Europe had, as far as I know it, an oblong one, and I was in the habit of naming the plant for my correspondents *Odontoglossum Rossii* II., as I had only once obtained a wild Mexican specimen of No. I., the oldest *Lindleyan Rossii*. Now I learn from Mr. A. Borwick's flowers that all kinds of lip occur even on the same peduncle, though the circular blade is no doubt an exception. We may, however, look to the colour for the distinction. The brown-spotted variety may be regarded as the type. The variety *rubescens*, Dr. Lindley's *Odontoglossum rubescens*, is a mere variety with reddish spots, that look unusually nice. Var. *cœrulescens*, *Odontoglossum rubescens*, of Ach. Richard and Galeotti, has a bluish ground colour in lieu of a white one, and is apparently very near the last. Var. *viridescens* is a variety with nice green blotches, of which I can only find a single record in my herbarium and notes. I had it once from my highly-valued friend Mr. Backhouse, who gave me so much information, as to the locality of rare plants.

Odontoglossum Dawsonianum, proposed by myself, is much smaller, and appears to have some good marks in the narrower petals and the cells. I had a very curious variety once from my invaluable correspondent, Mr. J. Day. It had sharp bristles at the top of the callus: I called it *C. aristatum*. I much regret that frequent absences from England prevented Mr. Day from informing me whether the surprising feature proved to be constant, or whether it was one of those ephemeral monsters which so often puzzle the orchidist.

As to *Odontoglossum Ehrenbergii*, this is the name often given in England to *Odontoglossum Dawsonianum*. Klotzsch's genuine plant is only known from Mr. Schmidt's drawing, published by the author: the callus is distinct from anything we have. I never could find the type in the Berlin herbarium; hence it is a half mythological creation, to be searched for once more in its native place. *H. G. Rehb. f.*

BEEES AS FERTILISING AGENTS.

OUR first Peach-house is in full bloom and flowering abundantly and strongly, notwithstanding the severe and dull weather we have had during the greater portion of the winter. To-day, January 20, has been truly a grand day for forcing, as we have had sunshine from sunrise to sunset. Strawberry blossom is coming away nicely, making its way up through a fine mass of healthy leafage, which in Strawberry plants—unlike the naked flowering of the Crocus or the Peach—forms the protective advance guard of the flower-spathe. To-day's sunshine also benefited much the spring batch of Cucumbers now coming into flower; also Melons, French Beans, Vines, forced flowers, &c.

In the early Peach-house, about a week ago, we moved in a hive of bees for the third season—the same one we had in last year, and which went the round of all four houses. The bees appear to quite delight and even luxuriate in the work they have to do; most mornings they are out and at work by 8.30, becoming more busy as the day advances, and especially so during sunshine. Few scenes in Nature at this time of the year can be much more interesting than the observance of a hive of bees at work on the blossoms in a good-sized Peach-house, passing industriously from flower to flower in "full hum," or as a fox-hunter might say, in "full cry" after the pollen; and to watch their return at the door of the hive with legs heavily laden with pellets of farina.

Since introducing bees to the Peach-houses it has been remarked to me that after some little experience I should be obliged to abandon the use of their

agency, the reasons given being those which I believe in the first instance emanated from Mr. Darwin. [Where?] and are—1st, purloining for their combs the wax which defends the prolific dust of the anthers from rain; 2dly, carrying off the dust itself as food for their young larvæ; and 3dly, devouring the honey of the nectaries, intended to nourish the vegetable organs of fructification. I am not going to follow up the defence of the three accusations further than is necessary to prove their fallacy, so far as the agency of bees is applied as a means to an end—namely, the fertilising of Peach or Nectarine blossoms,

could equal their work, or do it half so well; gratuitous labour such as this in these times is an object worthy of some consideration; besides, when bees can do the necessary operation with so much pleasure and advantage to themselves, it would be utter waste in the economy of labour to set a man so many hours daily to do work which is both naturally and legitimately the work of an insect; and it is a pity they should be deprived of the opportunity of economising the honied stores of the early blossoms, which are produced by the forcing of the houses at enormous cost.

as to the proper time to bring a hive into the house. There should be some of the blossoms fully open and ready for the bees at once to operate upon. On their coming in some erratic individuals—like many individual members even in the human family—are apt to “fly high” and endeavour to make their escape to the outer world through the glass, but after a little fruitless exertion they give up the attempt, finding out, no doubt, by the industrious hum of the bees steadily at work a little lower down, that this is not the great outside world after all they were wont to ramble in, but of itself a little tiny world within the other—a



FIG. 20.—PIPTOSPAITHA INSIGNIS: A NEW BORNEAN AROID. (SEE P. 135.)

to the subsequent setting, growth, swelling, and final ripening of the fruit. Suffice it to say that after close observation, extended over two years, no fear need be apprehended of harm coming to either blossom, fruit, or trees, through the depasturage of bees. Of this successful experiment probably Mr. Darwin may be pleased to hear, but at the same time I wish it to be understood that I did not set up this instance of indoor observation as an argument against his theory, applied to other plants under a thousand and one other circumstances. My argument goes only to show that bees may advantageously be employed as safe and clever fertilisers in the matter of early Peach-houses. Their agency saves an enormous amount of labour and anxiety—no amount of manual labour

It is not considered an unnatural thing to plant Peach trees in a glass erection, there to be grown and fruited; neither on the other hand need it be looked upon as being a very unnatural thing to place bees side by side with these trees, under the same and somewhat artificial, though happy circumstances. With the roots of Peach trees well at work, no great danger need be feared for the want of a “set.” Most gardeners have their own favourite way of fertilisation. My remarks on experiments with bees as a fructifying agent are made without prejudice to any *modus operandi* previously existing. I only advocate their agency because their work is done naturally, quickly, cheaply, and well.

I might perhaps be allowed to say a word or two

happy valley—like unto that of which we read, where lived for a time Rasselas, Prince of Abyssinia. When it is observed that all the blossoms in the house are open and that all have been operated upon—which upon examination is easily known, the hive should at once be moved to a fresh house, and so on to the next and next, until all have been gone through; thence to the outside world for the summer run. Care should be taken not to leave the hive in a house a moment longer than can be helped, after there is nothing to work upon, for then is the time, especially if the sun is hot, the bees become excited with the heat, and finding nothing to operate upon fly wildly against the glass, and many will die through sheer exhaustion long before sunset, when it is time for them to return to the hive. *Wm. Miller, Combe Abbey Gardens,*

HOME - PREPARED MANURE, FROM EITHER HOUSE REFUSE, OR REFUSE OF THE FARM.

(Concluded from p. 109.)

MODE OF PREPARATION OF THE MANURE.

"Wherever the dry-earth system is adopted the liquid refuse of the house or town must not be confounded either in its volume or value with the liquid sewage of the water system. The latter on the one hand charged with a large amount of solid matter of a very offensive nature, is on the other hand diluted with five or six times its volume of the water for flushing closets, drains, &c. On both accounts it is very difficult to deal with. On the latter account—its immense volume—the safe and in-offensive disposal of it and its utilisation are equally impossible. In the case of a town of 7000 inhabitants the sewage to be disposed of daily under the water system amounts to at least 210,000 gallons. Where the earth-closet is adopted, it is no more than 30,000 or 40,000 gallons. Under the former again, the liquid sewage of a family of from five to ten persons would be at the least 150 gallons or 300 gallons a day; while under the latter these amounts may be 30 and 60 gallons. But judging from experience, I should think, if kept free from the rainfall, it would seldom exceed 40 gallons a day.

"This last amount has for several years been disposed of on 14 perches of garden ground inoffensively, safely, and with vast increase of produce. Let account be taken of this and of the fact previously referred to, viz., that the result of this removal and disposal of 40 gallons of liquid daily, together with the mode of dealing with it, would be the very high manuring of a garden of $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{8}$ an acre, and the production at the same time of several tons of valuable manure, and that removal and disposal will be seen to be not only inexpensive but a source of profit. Speaking of it on a large scale, it might become a source of great wealth to the nation.

"The mode of preparing these slops and sink water, either to be a very powerful liquid manure for immediate use or to form by its admixture with earth from the closet or with unmixed earth or (for certain crops) with coal-ashes, an equally powerful solid manure, is such as I am about to describe.

"In my own case the liquid is conveyed from the bed-chamber and from the back kitchen by pipes and through a drain just beneath the surface of the ground to a tank in the garden. This plan is, of course, generally available only where there is sufficient fall from the two sources of supply to the tank. Wherever the ground is level, or where it rises from the dwelling-house to the garden, the liquid must be removed in a 12 or 18 gallon bucket on wheels.

"It should here be observed that the liquid so received either into the tank or bucket is generally already charged with a considerable amount of nitrogen, ammonia, and other matters which it holds in solution or suspension. I know a labourer who in his small allotment has generally had the best crops of Potatoes in the field, and who has never used any other manure for them than the slops of his house mixed with coal-ashes.

"The liquid refuse of a family of from five to ten persons on being received into the garden in either of the ways mentioned should the same day be poured into a tank or tub provided with the following soluble substances:—

"1. Four pounds, or if for continued use, 10 lb. or 20 lb., of very finely pulverised glass or burnt flint pulverised. It will be well to tie this in a very coarse cloth.

"2. Two pecks of fowls' dung or of crushed bones. The supply of these ingredients may, if the use be continued, be frequently renewed.

"3. If the soil be chalky or sandy, and there be in the neighbourhood Kimmeridge clay, let there be 10 lb. or 12 lb. of that substance placed at the bottom of the tank or tub. It is very friable, goes to pieces in water, and contains nitrogen and an abundance of shells.

"4. Add 12 lb. of common salt; this also to be renewed.

"5. Two good wheelbarrowsful of decaying leaves or weeds or any other vegetable matter. This also to be renewed.

"6. In some cases it may be well to substitute the same quantity of superphosphate for the bones, sometimes nitrate of soda.

"Experience will doubtless introduce many variations. The first five ingredients, however, will be of themselves sufficient to form, together with the sink water and slops and the earth or ashes, many tons of most powerful solid manure and many hogsheads of liquid manure of much the same power for daily use.

"It may be well to press the mass of vegetables, &c., together, and then to pour into the tub or tank the whole of the liquid refuse of the house for one or two days, according to the amount of supply or the size of the tub or tank. Let it stand then for two days at least, meantime let the liquid for each following day be poured on such parts or crops of the garden as may require it; and in this way continuously should any surplus be

used, first poured into the tub or tank, then an equal quantity taken out and applied to the soil or the crop.

"In a shed by the side of the tub or tank so prepared there should be two spaces a few inches deep in the floor, in which heaps would be formed, one of earth, either native or from the earth-closet, the other of sifted coal-ashes; each space might be equal in extent to that which a mason requires for mixing mortar; and when either heap is large enough a hollow should be formed in it, and the liquid from the tub should be poured into the hollow space, and the whole mass should be well mixed to the consistency of mortar. In this state it should be removed to a larger dry shed, and there thinly spread over the floor: it should occasionally be turned and beaten or rolled. The more complete the pulverisation as it dries, the more effective will be the manure.

"For some time I pursued the plan of pouring the earth into the prepared liquid; but the plan I here recommend of pouring the liquid on and into the earth or ashes is much more simple, and admitting, as it does, of a larger and more frequent supply or renewal of the various ingredients, it must be quite as effective in filling every particle of the ashes and the earth with large manurial power.

"Such, then, is the simple mode of manufacture of this manure, and such is its nature. The medium sought for the conveyance of certain nutritive substances, such as ammonia, nitrogen, phosphate, silicic acid, &c., to the soil or rather to the coming crop, so receives those substances into itself—they are so incorporated with it—that from every particle of the earth enveloped or impregnated with them the plant can derive nourishment.

"The only requisite now to render such a manure thoroughly efficacious is this. In a state and condition so carefully and minutely prepared it must be brought within reach of the plant at the right time. And the simple mode of effecting this is to drill in the manure either with the seed or beneath it, and to place a given quantity (say 1 oz. or $\frac{1}{2}$ oz.) in the hole in which a plant is to be set or the Potato placed.

"So great is the fertilising power of this manure that in the case of Wheat (and I think the same may be said of Oats and of Barley) the seed must be thinly sown, and the drills may safely be drawn 2 feet 6 inches apart, the width for the seed being 3 or 6 inches. From various observations and experiments in the course of many years, I should expect from an acre so manured and sown and kept clear of weeds from 6 to 8 qr. of Wheat. Nor is this to be wondered at if only it be considered that the manure in a thoroughly prepared state is ready for the rootlets of the plants as soon as they begin to act, and that it is always at hand throughout its growth.

"And this is not all that is to be expected from an acre of land, for through the aid of a manure so manageable there may be grown between the drills of Wheat a crop of Cabbages (the seed of which in the autumn might be drilled in, and the plants hoed as Turnips are hoed), or even Parsnips or Carrots.

"Further still, by alternating these crops Wheat may be grown on the same land every year without any impoverishment of the soil. And should the system be extended over the present Wheat area of Great Britain, Ireland, and the four-field and three-field* system be abolished—a system which allows of growing Wheat in the same ground only once in four years or once in three years—then our Wheat produce might soon be trebled, while from the intermediate green crops or root crops, together with the Wheat-straw properly used as fodder, one bullock or one cow might be fed on every acre of this same arable land.

"As to the labour and cost involved in carrying out such a system, let them be compared with that of the provision and carriage and distributing of ten waggon-loads of stable dung to an acre once in three years, and with the labour bestowed on the subsequent ploughing and cleaning the Clover-ground, and I feel confident that they will be found to be less on the new than on the old system. But if otherwise, the produce of the fields so largely increased would willingly admit of a large increase in the amount of labour. It would soon call for an improvement in the character of that labour; and thus possessing a higher value it would of necessity raise the character and condition of the agricultural labourer."

THE PRODUCE OF CEYLON. The value of land is said to be increasing greatly in Ceylon, owing to the introduction of new commercial plants—chiefly, it seems, those of Cinchona and Tea. Coffee, of course, is very largely grown, notwithstanding the ravages of the Hemileia. Cocoa, many of the spice-yielding plants, and ebony also occupy considerable attention. As a proof of the extent of the commercial traffic between Ceylon and this country it may be mentioned that in a single day in October last over 14,000 lb. of Cinchona bark was shipped from thence to England; and further, we are told, that hardly a vessel leaves Colombo or Galle without a consignment of Cinchona bark. It seems also that, on another day in the same month, tea to the extent of 13,760 lb. was sent from Ceylon to London, the same vessel bringing likewise 44,678 lb. of cinnamon.

DATURA ARBOREA.

I HAVE pleasure in sending you a photograph of *Datura (Brugmansia) arborea* growing against the wall of my house and which has been quite a success for some years, and never so much so as in the past autumn, when its large white flowers, with the delicate shading of light green colour, attracted much admiration, as seventy or eighty were in bloom at one time. The measured length of the flower was 10½ inches, the breadth about 5 inches.

The cost at which this has been obtained is small. It occurred to me some years since to utilise a warm south border by continuing a verandah (open elsewhere) and enclosing it entirely with glass, thus forming without artificial heat a sort of Madeira climate. The wall at the back of the picture (fig. 21) is that of my kitchen, and no doubt contributes to maintain the temperature, which I am obliged so far to depart from my original intention as to assist in sharp frosty nights by burning a paraffin lamp. The glass doors are taken away in summer. In winter the plant I have described is cut back to its strong leading stems, and many other plants of half hardy character find shelter in this simple conservatory.

Paxton in his *Botanical Dictionary* says of this plant that "it never thrives well but when planted out in a border, and must be plentifully watered, allowing plenty of room for the branches. Thus treated the numbers, size, and fine white colour of the flowers will be surprising." I have only to add that my plant is rooted in a border of good soil, and has the advantage of liquid manure supplied to it by my gardener in the flowering season. *John Eliot Howard, F.R.S., Lord's Meade, Tottenham.*

FORMING AN ARBORETUM.*

THE difficulties of making a proper plan for laying out the arboretum have always appeared very great to me. The site, while offering exceptional beauties, perhaps, for a public park, offers exceptional topographical difficulties for the object to which it is to be devoted, namely, a museum, in which as many living specimens as possible are to find their appropriate positions. In such a museum, everything should be subservient to the collections, and the ease with which these can be reached and studied; and none of those considerations of mere landscape effect, which properly govern the laying out of ordinary public parks, should be allowed to interfere with these essential requirements of a scientific garden, however desirable such effects undoubtedly are.

The possibility of making a plan which should place every plant in the best position attainable for it, preserving at the same time for the whole collection, as nearly as practicable, the fixed sequence of arrangement which alone makes large collections valuable for comparative study and possible to manage, was, then, the first thing to be considered. In connection with this, but subservient to it, it was necessary to devise a system of roads and walks which should make easily accessible to a large number of visitors every plant in the collection, and which, without interfering with the scientific necessities of arrangement, should open up and develop, as far as possible, the remarkable natural beauties of the ground.

In discussing these questions with Mr. Olmsted, during a visit which he paid to the arboretum, he volunteered to make a plan embracing his ideas of the best method of attaining these ends, which he agreed were essential. The benefit to the arboretum of Mr. Olmsted's generous offer can hardly be overestimated. The foremost of landscape architects, he brings to this undertaking the largest experience and the wisest judgment; and I shall be satisfied that the plan he finally offers will be the very best attainable under the circumstances.

That this offer might be accepted, the sum of two thousand dollars was necessary, with which to pay for a survey and topographical map of the ground, and for office and other incidental expenses.

The benefits which follow the rigid exclusion of all browsing animals from woodlands are now apparent in the arboretum, over large tracts of which numbers of young forest trees have sprung up spontaneously during the last few years. These have been carefully thinned during the year, the most valuable only being

* Extracted from a valuable report of Prof. C. S. Sargent on the Botanic Garden and Arboretum at Cambridge, Mass., U.S.

preserved. The older trees have also been thinned again wherever their vigour of growth, resulting from earlier thinnings, has rendered it necessary; and the woodlands are now in as satisfactory a condition as could be hoped for.

Letters are constantly addressed to me asking for information on various subjects connected with forestry. These questions very generally point to the importance of solving these two problems:—1. How

ing circumstances, by the railroad corporations, who alone of Western landowners are in a position to make experiments extensive enough to be conclusive, and who, as the largest owners of the soil, should be the most interested in demonstrating the capabilities of their lands to produce valuable forest products, of which they themselves must always be the largest consumers. To solve as far as possible these two problems, experiments have been undertaken during the

the climate of New England and the northern portions of Europe, have heretofore been practically unattainable by American or European planters.

Florists' Flowers.

SEASONABLE NOTES: AURICULAS.—The plants wake up into active growth this month if the weather is fine. Frosts sometimes continue to be severe all

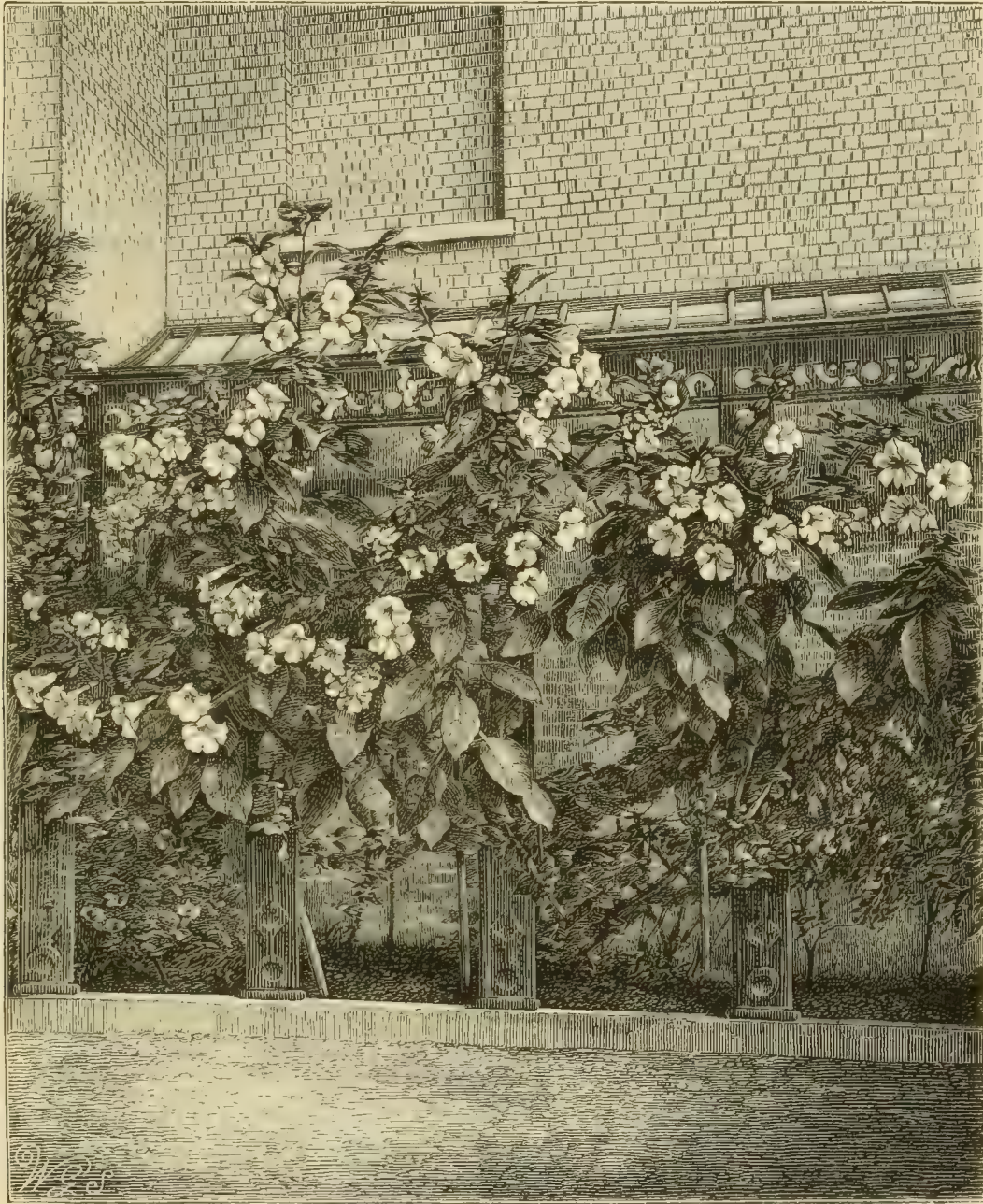


FIG. 21.—*DATURA (BRUGMANSIA) ARBorea*. (EE P. 140.)

shall the worn-out and exposed lands of the Atlantic seaboard be covered with trees again in the cheapest and quickest manner? 2 (and this is a far more important and difficult question to settle), How shall the treeless Western States, which are watered by the Missouri and its tributaries, be best rendered more habitable and productive through covering portions of them with forest growth, and especially what trees shall be selected for this purpose.

A solution of the first of these problems can well be reached by individual experiment and effort. The second will only be satisfactorily solved, under exist-

past year, in accordance with suggestions I have offered, in the East, by individual landowners interested in the subject, principally in Rhode Island; in the West, and on a large scale, by one of the railroad corporations of Kansas.

By the direct inspiration of the arboretum, nearly four hundred thousand (393,245) trees have been planted during the year in various parts of the country; and, through its correspondents in the Rocky Mountains, it has at last been possible to procure for cultivators in this country and Europe large quantities of the seeds of some of the peculiar trees of that region, which, although known to be extremely well suited to

through the month; in that case the plants will be quiescent. Top-dress about the middle of the month, but before doing so see that the roots are well saturated with water; also take the opportunity of the surface soil being removed to take off any offsets that are ready, and propagate them in the usual way.

CARNATIONS AND PICOTEEES.—These will require to be watered more frequently; indeed, the soil should not become dusty dry after this month comes in. If the season is early the plants must be in their blooming-pots by the end of the month; if it is a

late season the first week in March will be time enough. Cleanliness is still all-important—not a decaying leaf should be seen. Sparrows do much damage to the plants sometimes, for these troublesome birds attack the tender leaves in the centre of the plants; and it may be necessary to net the plants to keep them off. See also that the plants are quite free from greenfly.

DAHLIAS.—Continue to take cuttings from those roots placed into heat into January. It is not well to plunge the pots in a very high bottom-heat, nor should the temperature of the house where they are struck be more than 50° at night: it might rise in the day 5° or 10° higher than this. As soon as the cuttings are rooted take them out of the bottom-heat and place them on a shelf or stage near the glass, as a preparation for potting them into larger pots in the course of a week. The cuttings will not all strike roots at the same time; slender growths form roots in less than half the time those of a gross, succulent nature take. Gradually inure the plants to a free circulation of air, to obtain a stocky habit of growth.

HOLLYHOCKS.—Continue to take cuttings when strong enough, and they may either be struck, as recommended in January, or be root-grafted. This is done by simply tying the cutting on to a bit of root, but the edges of the scion and stock should fit exactly, and the cut portion be made quite smooth. Tie firmly with matting, and pot deep enough just to cover the union. Autumn-struck cuttings should be potted on; if these plants become pot-bound they will do no good, the spikes of bloom will be weak and be thrown up prematurely. The plants will do in cold frames, but better if they can be placed on shelves near the glass in a house from which the frost is just excluded. See that the plants do not suffer from want of water.

PANSIES.—Those intended to flower in pots any time in April should now be repotted into their blooming pots. The plants should be strong and have well filled the pots they are in with roots. If it is intended to bloom them in 8-inch pots they should now be in 6-inch. Keep the plants quite free from greenfly and look for slugs at night. Surface-dress the beds with rich soil; that formed of loam and rotted manure in equal parts answers well. If the growths are long enough, peg them down to the surface of the ground.

PHLOXES.—Those plants grown in pots under glass will have shoots 2 or 3 inches in length; thin them out, leaving three or five. The superfluous shoots should be potted singly into thumb-pots and be placed in a little bottom-heat; an ordinary hotbed answers well. The old plants may be put out in a bed, or be planted in the herbaceous borders.

PENTSTEMONS.—Those plants wintered in frames may now be planted out in beds if the weather is fine and the ground dry. If it is intended to grow any plants in pots they should also be repotted, and be kept quite clean and near the glass in a cold frame.

GLADIOLUS.—About the second week in the month look over the collection of roots, and all that are showing signs of growth, either by pushing out roots or growth, should be selected and planted in a sheltered place. If a dry sheltered position cannot be obtained for them, the roots may be potted singly in 4 or 5-inch pots, using fine soil. Place the pots in a cold frame, and it is better to plunge them in some dry material. The ground intended for the general collection should be lightly forked over at intervals of two or three weeks if it is dry on the surface.

RANUNCULUS.—From the beginning to the end of the month these should be planted. As the roots are very small it requires careful attention to the work to do it well. The crowns of the tubers should be just 1 inch below the surface of the ground. If the soil is light it is desirable to get some clayey loam, and to two parts of it add one of rotten stable manure, and cover the roots with this. The operation ought to be performed in fine dry weather.

CHRYSANTHEMUMS.—If the cuttings were not put in last month, it will answer well to do so this, but the work must not be delayed. Instructions have been given as to the best class of cuttings to take, and how to pot the old plants for specimens. It is best to dip the cuttings in a solution of soft-soap and tobacco-water, strong enough to kill greenfly. A genial sweet bottom-heat in a hotbed is the best place in which to place the cuttings at this time.

TULIPS.—It depends much upon the season what the treatment of these will be. In a mild winter all the plants are well above the ground by this time; and, should severe weather set in, it is as well to cover the beds. I have not found it necessary to do this in the South of England, but in the North the growers will not trust their choice plants out in a frosty night if the leaves are wet. They bend stout iron wires over the beds in the form of a semicircle; these are kept in their place by iron rods, in a horizontal direction. The protecting material consists of good mats or stout canvas. J. Douglas.

Notices of Books.

The Native Flowers and Ferns of the United States. By Thomas Meehan. Boston, U.S.: Prang & Co.

We have already alluded to this work, but the commencement of a second volume enables us once more to commend it to the notice of those of our readers interested in hardy American plants. The plates are artistic, but not exaggerated and botanically distorted, as artistic plates are wont to be; in fact, they are among the most satisfactory chromo-lithographic productions that we have seen. The letterpress is popular and pleasant reading, containing the kind of information desired by amateurs, with references to books where more technical information is to be found. We strongly commend the work to the notice of plant lovers.

Adam Spade, the Gardener. By Abel Doubleday. Hardwicke & Bogue.

This is a playful *jeu d'esprit* on the part of the veteran ex-curator of the Royal Gardens, Kew. It sets forth in punster's fashion the characteristics and habits of botanists and gardeners. A vein of satire, not ill-natured, runs all through the production, which may serve to amuse some of the fraternity.

—*Revue Mycologique.*—We have on our table the first number of a journal edited by M. Roumeguère, of Toulouse, and devoted to the publication of information relating to fungi of all kinds. It is intended as a guide for beginners, and to afford opportunity for experts to publish their discoveries. The Editor says he has no other ambition but to be useful, no other desire but to promote science, cause truth to shine, and neither to give offence to any person nor to overthrow anything. The first article is from the pen of M. Roumeguère himself, on the lichen theory of Schwendener, which he unhesitatingly condemns. Another treats on the culture of Agarics of various kinds in Japan. Other articles follow, being original and selected, as well as reviews of books. The number is of much interest, and we cordially hope the publication may meet with success.

Garden Operations.

KITCHEN GARDEN.

Until the weather becomes more propitious for out-of-door operations, many of these which should now be accomplished will have still further to be postponed. I fear the accumulation of deferred work this season will somewhat interfere with many arrangements which were made prior to this prolonged period of frost, a change is, however, evidently apparent to-day (January 27), and it will be wise to bring as quickly as possible to a close all such work as may be done now, so that when an opportunity is available for particular purposes, such as making sowings or plantings out-of-doors it may speedily be carried out. To avoid disappointment no further delay should take place in sending in the seed order to those from whom they are to be procured. Genuine seeds are indispensably necessary to avoid failures and a vexatious defeat of expectations, and for this end only reputable firms should be entrusted in making a selection. It will be wise to remember that tried and well-known sterling kinds of the different subjects are those which should at all times be relied on for the supply of edibles for general purposes; and that for the sake of experience in novelties, and the prospect of occasionally obtaining a good thing, these latter should be had and tried independently. Amongst those which I have noticed for exhibition purposes are Sutton's Snowball Turnip, the Stamfordian Tomato, Carter's Heartwell Cabbage, and Tender and True Cucumber. Prevailing circumstances have necessitated the covering up entirely for some time past, of subjects as Cauliflower and Lettuce plants in frames or hand-glasses. Under the influence of more favourable conditions let these plants be fully exposed, and if not already done let the sowings of Cauliflower, Cabbage, and Lettuce alluded to in last paper upon this subject be made at once; it will be necessary in the case of such plants to keep them as sturdy as possible, for this purpose they should be ventilated every day after vegetation has commenced.

In the forcing department attention will be needed to sustain successional supplies of the crops required. Sowings of French Beans may now be made in boxes, from which they can be transferred to pots or borders as soon as they have made rough leaves. With the

advantage of increased light these and similar subjects will now progress more speedily and satisfactorily. See that no lack of green meat is wanting, neither Tarragon nor Chicory for salading purposes, and maintain the requirements regularly as to Rhubarb, Asparagus, and Seakale, by introducing fresh roots as wanted. Very early Potatoes which are cultivated in pots or otherwise should be kept moderately moist during the growing period, and should be in near proximity to the glass in a place that will admit of being aired in some degree almost every day. G. T. Miles, Wycombe Abbey.

FRUIT HOUSES.

PINES.—The interval which has elapsed since the preceding Calendarial remarks were made upon this subject has been one which, owing to its severity, has necessitated the strictest watchfulness and attention. At a critical period like this the power of the heating appliances will have been severely tested, and according to the efficiency or inefficiency of these appliances so will the condition in the houses be materially affected—on the one hand, under the disadvantageous necessity of having to put the utmost pressure on the heating appliances, there would be highly heated pipes, with the concomitant circumstances arising therefrom in the way of excessive aridity and a parched state; and on the other the advantages which accrue from possessing an adequate capacity of heating power, with a sufficiency of pipes in the houses to meet any emergency whatever, and from which an abundance of heat can be obtained in a mollified and more congenial state. These are considerations of the highest importance in connection with horticultural practice, and at this seasonable opportunity I cannot refrain from drawing the attention of those concerned to the very practical hints and advice given in the editorial remarks of this journal for the week ending January 18 of the current year, upon the subject of heating power and its arrangements. So far as my experience goes, this is a subject with which many gardeners are not so well acquainted as they might be, and therefore the study of it cannot well be too strongly impressed on the minds of all young men, and especially those whose ambition leads them to make efforts to excel in their profession. In those houses where a considerable amount of heat is absolutely necessary, as, for instance, in fruiting compartments and others which contain plants on the point of entering the same state, the warming apparatus must of necessity be kept almost incessantly hot, and as a natural consequence a certain amount of aridity will ensue unless the ordinary means of sprinkling or syringing be vigorously enforced. See therefore that such daily attention be regularly given, and take advantage of opportune times—when the pipes are least hot—to well saturate the surroundings of these. In light structures and in lofty ones the plants will need to be syringed overhead much more frequently than in low and damp places. The necessity of this operation can be promptly ascertained by examining the base of the leaves—if the axils contain moisture none need be given in this way, until that which exists is nearly exhausted. As far as possible avoid wetting the fruit during the flowering process, as from this cause, especially at this season of the year, discoloration of the flesh of the fruit at the base of the flower often proceeds. At about this time the Queens and other varieties for the summer supply of fruit will be about emerging from the sockets of the plants. In order, therefore, to afford these every encouragement to throw themselves up well above the foliage full regard to matters of detail, as watering, bottom-heat, &c., should have prompt and regular attention, and a night temperature of 65° to 70°, and about 75° in the daytime should be kept up. Keep later successional plants and suckers likewise at about the same temperature as was before indicated. Take advantage of suitable opportunities to have materials in hand in readiness for making up exhausted beds, and for potting purposes. G. T. Miles, Wycombe Abbey.

ORCHARD-HOUSE.—It was stated two weeks ago that the trees in early forcing houses would be progressing well. Careful management was recommended, and certainly the weather has been such that if great care has not been taken in regulating the heat and ventilating the house carefully every day, the trees are not likely to go on well. Cultivators, too, are finding out that it is much better to have houses efficiently heated at first. A few pounds more expended in having a boiler rather larger than is required, and in placing a few extra lengths of hot-water pipes when the houses are erected, is money well spent; certainly the value of such has been well proved this winter, in other erections besides early orchard-houses. However, it is in such houses that the penny-wise and pound-foolish method of doing things has been carried out, more than it has in any other form of glass structure. The keen east winds we have had during the last week or two, with the thermometer ranging from 27° to about 35°, has necessitated as much firing as the frosts before

THE
Gardeners' Chronicle.

SATURDAY, FEBRUARY 1, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| TUESDAY, | Feb 4 | { Sale of Nursery Stock at Cranston's Nurseries, Hereford, by Protheroe & Morris. |
| WEDNESDAY, | Feb 5 | { Sale of French Roses, Japanese Lilies, Spiræas, Gladioli, &c., at Stevens' Rooms. |
| THURSDAY, | Feb 6 | { Meeting of the Linnean Society, at 8 P.M. |
| FRIDAY, | Feb 7 | { Sale of Greenhouse Plants, at Wickham, Newbury, by Protheroe & Morris. |
| SATURDAY, | Feb 8 | { Sale of Roses, Fruit Trees, Bulbs, &c., at Stevens' Rooms. |

GARDENERS have more or less completely under their command two great factors in plant growth, namely, heat and moisture. Light, however, an equally important matter, is much less under their control, more especially in forcing. At present, though they can diminish it, they have little power to increase it. It is not impossible that at some time or other the electric light may be turned to account in forcing operations, for the action of the light on plants is the same in kind, if not in degree, as that of the solar ray. This, however, seems a remote possibility—not so the measurement of the amount of light at our disposal. We have thermometers and hygrometers, which indicate the amount of heat and moisture of the atmosphere, and which are invaluable in our plant-houses, but a simple light-measurer is still a desideratum. There are such instruments, but at present, however useful for scientific purposes, they are not applicable for the rough-and-ready use of the garden. Our purpose now is to call attention to the INFLUENCE OF LIGHT ON THE RIPENING OF GRAPES—a subject discussed at great length in a learned paper by M. ALBERT LÉVY, in the current number of the *Annales Agronomiques*.

M. LÉVY rightly says that the ripening of the Grape presents much complexity, from the variety of the chemical and physiological processes concerned, and no clear explanation of it can be obtained without having simultaneous recourse to meteorology, chemistry, and vegetable physiology. M. LÉVY's main object in the paper before us is to ascertain what is the principal agent which determines the degree of acidity in ripe Grapes under equal conditions of soil, altitude, &c. It is known for certain that the acids increase absolutely and regularly up to a certain period, and then gradually decrease till maturation occurs. The amount of sugar also increases regularly, but slowly, till the period of maturation, when the increase becomes very rapid. As the Grapes ripen, the formation of sugar is checked before the diminution in the quantity of acids has arrived at its lowest point. The ripening process of Grapes is then attended with two concomitant phenomena, rapid and continued increase of sugar progressive diminution, both absolute and relative, of acids. There does not appear to be any definite correspondence between these phenomena, nor can it be asserted positively that the sugar is the direct product of the acids. In 1875, 1876, 1877 the proportions between the acid and the sugar were found to be most irregular, and with a view to aid in the unravelling of this problem M. LÉVY's observations have been published. First of all he discusses the influence of meteorological conditions on the product in the quantity and quality of the crop, and this leads us to the subject of the influence of light and the mode of measuring it to which we alluded in the commencement.

M. LÉVY has no difficulty in showing that there is no definite relation between the amount of heat, as expressed in the sum-total of heat received during the growing period, and the quantity or quality of the juice of the Grape. The records of maximum and minimum tempera-

tures, whether absolute or average, afford no clearer indications. The disproportion between the amount of sugar and of the acids in the Grape at the ripening period is not explained by the thermometric record. Moreover, the produce of the Vine is neither the greatest in quantity nor the best in flavour when the temperature is highest. Turning then to the rainfall, M. LÉVY shows that the indications afforded by the rain gauge, considered separately, are equally insufficient to account for the differences in the quality of the Grape. Atmospheric moisture, as measured by the hygrometer, affords no clearer indications.

There remains then to be considered the influence of light; and here we are met with the difficulty that meteorological observers at present can offer us only vague and at best approximate estimates. The expressions, "clear," "cloudy," "overcast," and the like, are much too vague, and too much dependent on personal observation, often defective, and almost useless for purposes of comparison. Nevertheless, by means of observations of this kind co-related with the indications of the thermometer for the same period, M. LÉVY is led to suspect the existence of a certain co-relation between the influence of certain meteorological agents and the preponderance of certain ingredients in the Grape. Is it not possible, he says, that the increase or diminution of the sugar may depend on the excess or defect of temperature while the corresponding variations in the amount of acidity depend on similar fluctuations in the amount of light? In discussing the probabilities of this suggestion M. LÉVY enters upon an examination of the physiology of the Vine in growth from the period when it begins to grow, and to bleed, till the consummation in the ripening of the fruit.

We may refer to these points hereafter. In the meantime we may give M. LÉVY's summary as follows:—There are in the growth of the Vine, as of other plants, two different periods and two distinct sets of phenomena—assimilation, which takes place in the leaves and which depends principally on the action of light, and maturation or the elaboration of the materials accumulated during the first stage. Heat and light are both required for this latter process, but to what extent and in what proportions we cannot say. For the cultivator the importance of assimilation resides principally in the fact that it determines the amount of the crop, while on the maturation depends its quality. The botanist's investigations end before those of the cultivator. To the botanist it matters little that the Grapes are sour or sweet—the Grapes are ripe in a botanical sense when the seed is formed and in a fit state to germinate. But for the cultivator the Grapes cannot be considered ripe until the constituents of the fruit have become so adjusted as to produce Grapes of the best quality for the table or for vintage purposes. Botanists and physiologists have, to some extent, ignored these latter class of changes, which nevertheless are all-important to the cultivator, and to them the attention of chemists and physicists should be drawn. Thus it has been shown that heat and moisture are incapable of accounting for the variations in the amount of sugar and acid which the same Vine will yield in different seasons. Light alone can give us the key to the solution of the problem. As heat acts by augmenting the sugar, so light may act by diminishing the acid. A light sunny spring, if the weather be sufficiently hot and dry, ensures the abundance of the crop for the season. A hot summer, if sufficiently light, consolidates the buds and tissues for next year's growth—ripens the wood, as we say. But the quality of the fruit as it hangs on the Vine depends on the combined action of heat and light during ripening, so that in proportion as the temperature is high at that period will be the amount of sugar, while in

proportion to the dryness and amount of light will be the rapid diminution of acid. Abundant crops succeed to dry, bright springs; sweet, highly-flavoured Grapes are the products of hot autumns, even if damp and cloudy, but we never obtain perfectly ripe Grapes—in the cultivator's sense—nor wine of the first quality in which the sugar and other elements are in well balanced proportions, except in seasons when the ripening takes place in a hot, bright autumn, when the sky is clear, the atmosphere translucent, permitting the solar rays to act on the Vines for as long a period as possible and with a maximum degree of intensity.

To determine with certainty the effect of light we stand in need, as we have said, of some instrument which will measure the amount of force which may be accumulated in the soil and in the plant through the medium of solar radiation. Such an instrument we have in our black-bulb thermometer, the indications of which, however, for reasons we need not here enter into, are not perfectly trustworthy. M. LÉVY describes a better form of apparatus, which he calls the Arago-Davy light-measurer, and which consists of two thermometers in juxtaposition, one with a plain, the other with a blackened bulb, and so placed that in darkness they register exactly alike, but directly they are exposed to light the temperature in the black bulb rises more than in the plain bulb.

The difference then between the two thermometers serves to express the amount of solar radiation. The advantage of the French instrument over the English black bulb is that in the former the two thermometers are in juxtaposition, and placed under identical conditions, while the records of the black bulb are compared with those of a thermometer placed at a distance in the shade—that is to say, under very different conditions from the other. The French instrument is used and recommended by M. MARIÉ-DAVY, the head of the observatory at Mont Souris—an observatory specially founded to investigate the influence of meteorological conditions on the life of plants and animals. It is intended to do for medicine, agriculture, and horticulture what other observatories do for the navigator and the astronomer. With the aid of the instrument we have mentioned M. LÉVY has set himself to work to accumulate facts bearing on the influence of light, especially on the ripening process of Grapes, and he has already obtained results which permit the suggestion as a reasonable hypothesis that the respiration of fruits, an oxidising process, or slow combustion, as a result of which the acids disappear, is specially favoured by the influence of light. Hence the diminished quantity of acid in the ripening of Grapes depends upon the amount of light which the Vines are exposed to at that period. To prove this experimentally and show its truth by means of figures is M. LÉVY's object, and we wish him all success.

— THE OLD CORK OAK AT FULHAM PALACE.

—The engraving on p. 145 (fig. 22) represents one of the oldest and finest Cork Oak trees in the country. The engraving was executed from a photograph taken for us by Mr. ARTHUR SMITH in the autumn of last year. The tree has passed its prime, having been planted at Fulham, probably by Bishop COMPTON, more than 200 years since. At breast height the tree girths about 10 feet. It is a fine specimen, but needs the support of Ivy-clad props. From the acorns numerous seedlings have been raised. The Cork Oak, *Q. Suber*, is a native of Southern Europe and Northern Africa. When the tree is about fifteen years old its bark is removed by incisions in such a manner that no injury is done to the tree. After eight or nine years the process can be repeated. The outermost layers form the "male cork," which is of little value, except in the form of "virgin cork." After their removal new corky layers are formed in the denuded bark, which constitute the female cork, or cork of commerce. The tree at Fulham stands in the angle between the palace and the newly-erected chapel, on the walls of which latter Ivies of various kinds are placed, some of which have made extraordinary growth, especially the Silver Ivy.

— THE ROMAN HYACINTH.—The early-blooming small-flowered Hyacinth, so useful for early forcing, has come into fashion of late years, and has not been cultivated here, at least on a large scale, till within the last dozen years or so. As some interest has been excited concerning the history of this plant we supply what information we have been able to glean on the subject, leaving, as will be seen, some gaps still to be filled up. Our first inquiry was of M. KRELAGE, of Haarlem, who tells us that to the best of his knowledge the Roman Hyacinth was in cultiva-

and smaller flowers, and these are produced later and later, the bulbs themselves becoming larger. In VILMORIN'S *Fleurs de Pleine terre* mention is made of "Paris Hyacinths," which it is stated only differ from Dutch Hyacinths, of which they are probably varieties, in being hardier, and having less dense spikes of bloom. Among these "Paris Hyacinths" two varieties are noted—one Blanc de Montagne, the *Hyacinthus albus* of JORDAN, the other "Romaine Blanche," the *Hyacinthus præcox* of JORDAN. The Paris gardeners plant the bulbs in small pots in

shores of the Mediterranean, but how it got its name of Roman is not so clear. It has nothing to do with *Hyacinthus* (or *Bellevallia*) *romanus*. Mr. BAKER (*Journ. Linn. Soc. London*, xi., 426) considers both these forms as varieties of *H. orientalis*, of which they are the Southern representatives.

— PYRUS MAULEI.—A correspondent, writing of this beautiful shrub, refers to a paragraph at p. 18 of our present volume relating to Colonel PRZE-WALSKY'S explorations in Central Asia, wherein it is



FIG. 22.—THE OLD OAK TREE AT FULHAM PALACE. (SEE P. 144.)

tion in Holland forty to fifty years ago as a curiosity rather than as an article of commerce. In Germany, on the other hand, there was a regular sale of the bulbs, though not to a large extent. M. KRELAGE, who in 1839 directed a branch establishment of his firm in Frankfort, used regularly to import from Holland several hundreds of bulbs, so as to supply flowers for Christmas. For this purpose they were grown three in a pot and forced. M. KRELAGE'S firm was the first, we believe, who dealt largely in Roman Hyacinths for foreign exportation. M. KRELAGE further tells us that the plant is probably a native of the South, perhaps Italy. If planted in the open ground in northern climes the bulbs gradually produce fewer

August and September, and begin to force them about the first fortnight in October, to have them in flower on the *fête* of St. Charles, November 4. In JORDAN and FOURREAUX'S splendid *Icones Plant. Europ.* may be found a good figure of the Roman Hyacinth, under the name of *Hyacinthus præcox*, with a botanical description and an indication of the native country, Liguria (Genoese Riviera). We do not find the plant mentioned, however, in any Flora of that region. *H. albus*, which is very nearly allied, is figured also, and is said to grow wild in the South of France, at Grasse. It would seem, then, that the Roman Hyacinth originated from one or the other of these two forms, growing wild along the

stated that Apples of a yellowish green colour and of an agreeably sweet acid taste were found in profusion. Our correspondent suggests that this Apple may have been the origin of *Pyrus Maulei*. Some intercourse may have taken place between Central Asia and Japan, and the "Apple" introduced from one to the other. We give the theory for what it is worth; in the meantime it is certain that these Russian discoveries are of the greatest interest geographically and botanically.

— FLOWER SHOW RULES AND REGULATIONS. —The time will soon arrive when the committees of the many horticultural societies throughout the country will be making their arrangements for the coming

season's exhibition campaign. And in the interest of all concerned it may not be out of place to urge upon those entrusted with the preparation of prize schedules the necessity that exists for making the rules which regulate the competition clear and definite. This is a condition not by any means always fulfilled, as is evident by the frequency with which queries are put to us as to the interpretation which the wording of some particular regulation admits of, and which is often as perplexing to those engaged in making the awards as to the exhibitors. Although we are quite ready to acknowledge the principle frequently inculcated in connection with legal matters, "that the spirit is preferable to the letter," yet in the case of such competitions as we are considering any deviation from the strict letter of the rules, no matter what were the intentions of those who framed them, cannot be made without doing an injustice to those exhibitors who act in perfect conformity with the rules as they exist. Bearing upon the subject of horticultural exhibitions, we may point to one matter in which the promoters frequently defeat the object they have in view, that of bringing together as extensive and imposing a display as possible, with which intention they offer prizes for collections of plants, flowers, fruits, and vegetables, with no limit attached to them except the minimum, that is, each exhibit must consist of not less than so many plants, dishes of fruit, dishes of vegetables, &c., but as many beyond the specified number as the individual exhibiting chooses. The frequent result of this is that many are deterred from entering the competition on account of their inability to judge what they may have to compete against—often, unless they happen to be of an exceptionally sanguine temperament, anticipating their opponents' productions to be collectively stronger than they turn out to be. Those who on this account do not put in their appearance frequently have the best grown examples, yet limited in number of varieties they cultivate, and do not care to run the risk of being beaten by quantity rather than quality. Another objection attached to unlimited competition, is that it is always liable to make the judging unsatisfactory both to the individuals officiating as well as to the exhibitors. Following the same principle, dishes of fruit of all the larger kinds, especially such as Peaches, Nectarines, Apricots, Plums, Pears and Apples, should consist of a fixed number. Where this has not been stated in the schedule we have seen, even in exhibitions of sufficient importance to warrant the supposition that nothing would have been left in a loose indefinite way, some of the collections with dishes of Peaches and Nectarines consisting of a couple of dozen each, which caused the work of judging to be much more difficult. In the case of groups wherein general suitability of the plants collectively for the purpose required and effective arrangement of the whole is more the test of merit than the quality of the individual specimens, the space covered should be strictly defined and adhered to, any extension beyond the limits disqualifying those infringing the regulations.

— **PRYAL'S GOLDEN CYPRESS.**—The Editor of the *Californian Horticulturist* states that during a visit to the nurseries of A. D. PRYAL, on the Temescal Creek, some four miles from Oakland, California, he saw the original tree of Pryal's Golden Cypress, which he describes as "a seedling of marked character from the well-known *C. pyramidalis*. The deep yellow blotches run into the branches, and even show on the cones. The compact growth and evenly distributed variegation make this a promising novelty."

— **MR. HILDEBRANDT**, the well-known traveller in Eastern Africa, after a brief stay in London, has left on his way to Madagascar, where he intends studying the natural history, &c., of the country. Few countries offer so inviting a field to the explorer and naturalist as Madagascar, but the difficulties travellers have to encounter are very great. Nevertheless we hope Mr. HILDEBRANDT will succeed in introducing into Europe some of the peculiar plants, as he has already from Eastern Africa. One of this most interesting introductions from the latter country is the *Dracena schizantha*, Baker. This is a gigantic species, nearly related to *D. Draco*, and found by HILDEBRANDT in great abundance. The *Deutsche Gartner Zeitung* for January 1, p. 9, contains a woodcut representation of a young plant, and a description of it by Dr. KARL KOCH. Persons wishing

to procure this or any other of HILDEBRANDT's introductions should communicate with Herrn REKTOR ROUSEL, 14, Nostizstrasse, Berlin, S.W. We may add that the *Ouvirandra Hildebrandtii*, mentioned more than once in these columns, and more fully noticed at p. 110 of the present volume, is not one of the lattice-leaved section. It is really an *Aponogeton*, and a typical *Ouvirandra* is an *Aponogeton* with lattice-like leaves.

— **PAPER FLOWERS.**—We are glad to see the German horticultural Press condemning the manufacture of the staring paper flowers, which have to some extent found their way into this country. Even for decorating on a large scale they are intolerable, and now that the art of drying flowers has been brought to such perfection they are unnecessary. Not much less odious than paper flowers are artificially dried natural flowers dyed some impossible colour. If we are not satisfied with Nature, let us make a purely conventional design, not try to improve Nature. We have perhaps as much in this country that is bad in design as any country could produce, particularly in wall papers, carpets and ladies' attire.

— **THE "BOTANISCHE ZEITUNG."**—We see that Professor A. DE BARY has undertaken the sole Editorship of the *Botanische Zeitung*, from the commencement of the present year. The principal articles in the number to hand are:—"On the Formation of Shoots on the Leaves of Isoetes," by K. GOEBEL; and "Observations on Entophytlal and Entozoical Vegetable Parasites," by P. F. REINSCH, with a double plate. This is a very interesting paper, so far as we have seen it, and we may perhaps find space for the substance of it when we have seen the remainder. Some of REINSCH's observations include some curious instances of one alga parasitical in the thallus of another, thus strengthening the alga-lichen theory of SWENDENER and others.

— **THE WINTER IN CALIFORNIA.**—We learn from the *Californian Horticulturist* that the second week in December was characterised by a cold spell of marked severity; and sad news is reported from every part of the State. Plants in their nature tender, which have stood several successive winters, have succumbed. In Alameda County Lime and Citron trees were killed nearly to the ground, Lemons suffered, and also irrigated Oranges, and Orange buds have been injured in Los Angeles County. In most cases, however, a covering of straw protected Fuchsias, Pelargoniums, and similar plants. The writer advises the use of wisps of straw tied around the trunk for trees, and the top to be covered with a cloth.

— **DR. REGEL.**—The *Deutsche Gartner Zeitung* for Jan. 1 contains a portrait of Dr. E. REGEL, together with an interesting sketch of his active and industrious career. Dr. REGEL is one of those who has passed through every stage of his profession, from a gardener's apprentice to the distinguished position he now occupies as Scientific Director of the Botanic Garden at St. Petersburg.

— **DR. PATERSON'S ORCHIDS.**—The following Orchids were in flower last month in Dr. PATERSON's collection at Bridge of Allan:—

| | |
|--------------------------------|---------------------------------|
| <i>Anacethochilus Dawsonii</i> | <i>Laelia superbiens</i> |
| <i>Angiæum sesquipedale</i> | <i>Limatodes rosea</i> |
| <i>Calanthe Veitchii</i> | <i>Lycaste Skinneri</i> |
| " <i>vestita rubra oculata</i> | <i>Maclevalia ignea</i> |
| <i>Cattleya fulbosa</i> | " <i>melanopus</i> |
| " <i>Symeii</i> | " <i>tovarensis</i> |
| " <i>Trianae</i> | <i>Maxillaria aurea flavo</i> |
| " <i>Warszewiczii</i> | " <i>picta</i> |
| <i>Cyclopogon cristata</i> | <i>Neottia picta maculata</i> |
| <i>Cypripedium barbatum</i> | <i>Odontoglossum Alexandræ</i> |
| " <i>mairei</i> | " <i>Batoniense</i> |
| " <i>Maulei</i> | " <i>majus</i> |
| " <i>parvum</i> | " <i>cordatum</i> |
| " <i>venustum</i> | " <i>Inslayi leopardinum</i> |
| " <i>villosum</i> | " <i>Lindleyanum</i> |
| <i>Dendrobium aureum</i> | " <i>roseum</i> |
| " <i>Wardianum</i> | " <i>Rossii majus</i> |
| <i>Epidendrum cinctum</i> | " <i>Uro-Skinneri</i> |
| " <i>exaltum</i> | <i>Pleione humilis</i> |
| " <i>fragrans</i> | <i>Saccolabium giganteum</i> |
| " <i>rhizophorum</i> | <i>Spheeranthus grandiflora</i> |
| <i>Laelia alba</i> | " <i>violacea</i> |
| " <i>aneips</i> | <i>Zygopetalum Mackayi</i> |
| " <i>Bakerii</i> | " <i>maxillare</i> |

— **LETTUCE DISEASE.**—Lettuces grown in frames are often affected with a mildew which ultimately destroys them. M. MAX CORNU, in a paper printed in the *Comptes Rendus* for December 16, 1878, and alluded to in the *Revue Mycologique*, recom-

mends growers to prevent the diffusion and local production of the parasite. If the parasite makes its appearance early, the culture of the Lettuce should be postponed; if late, then the crop should be gathered before the appearance of the parasite. Care should be taken to avoid sowing with the seed *débris* which may contain spores of the parasite. The seeds, too, should be gathered from healthy plants, and all diseased leaves removed. Alkaline sulphurets might be tried, but care should be taken, in opening the frames, that the wind does not disseminate the spores. Each suspected frame should be opened separately, while the others are closed. The site for the frames should be changed each year, and fresh soil made use of. Excellent advice; but only practicable, we fear, on a small scale. The mould is a species of *Peronospora* allied to that which produces the Potato disease.

— **ROYAL BOTANIC SOCIETY.**—At a meeting of this Society held last Saturday, Mr. GEORGE J. SYMONS, F.R.S., in the chair, the following letter from General PONSONBY was read:—

"Osborne, January 17.

"Sir, I have had the honour of laying before the QUEEN the address of condolence transmitted by you. Her Majesty, who sincerely appreciates this mark of sympathy, has commanded me to request that you will convey to his Serene Highness the Duke of TECK, and to the Vice-Presidents and members of the Council of the Royal Botanic Society, the QUEEN's heartfelt thanks for their kind and feeling expression of condolence with Her Majesty in her sorrow.—I have, &c.

(Signed), "HENRY F. PONSONBY.

"To W. SOWERBY, Esq."

Mr. SYMONS, in reviewing the meteorological register kept in the Society's gardens, remarked that the temperature of the Regent's Park was generally colder than that of the surrounding neighbourhood; but, although the temperature of the last eight or nine weeks had not been exceptionally low, the continuance of even a slight frost steadily for so long a period was remarkable, and not common in London and its vicinity.

— **DESTRUCTION OF YOUNG WOOD BY HARES.**—Mr. REID, of Wick, writing to *Land and Water*, states that during the late snowstorm much damage has been done to the young plantings along the Caithness and Sutherland Railway line. The mountain or varying hare (*Lepus variabilis*) came down from the hills in great numbers, and barked all the young trees along the line for a considerable distance, or at least as many of them as showed themselves above the snow. These trees were planted by order of the Duke of SUTHERLAND, and were thriving so well that it was believed that in the course of a few years longer they would be of considerable service in keeping off the snow-drift in that exposed district. It is much to be feared that many of the hitherto thriving plants will die in consequence of this rather unusual occurrence.

— **MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.**—We have received a copy of the schedule of prizes—as liberal and comprehensive as heretofore—for the Annual Grand National Horticultural Exhibition to be held in the gardens at Old Trafford from May 30 to June 6 inclusive.

— **THE MISTLETO AND MOUNTAIN ASH.**—In the gardens at Dangstein some young trees of the Mountain Ash present a very novel and striking appearance by the stems being covered with numerous plants of Mistleto in various stages of growth. This has been brought about by simply making slight incisions in the bark and inserting in each a matured fruit, previously crushing the skin so that the viscid matter may enable it to adhere more firmly to the bark. By this simple process young deciduous trees upon which this interesting parasite has a tendency to grow naturally when they have attained a large size may in a comparatively short time be covered with large pendent bushes, thus rendering them artificially evergreen during the time they would be otherwise bare.

— **DESTRUCTION OF AN ANCIENT OAK IN WINDSOR PARK.**—It is reported in the daily papers that an ancient Oak, affirmed to be the oldest (with the exception of that once known as Herne's Oak), and situated in the "Roundabout" in the Home

Park, between Windsor Castle and Frogmore House, was destroyed by fire on the evening of January 22. The accident is supposed to have been caused by the lighting of some straw in a hole near the trunk for the purpose of driving out a ferret. A young man named POWELL was injured by the fall of one of the branches.

— ORCHIDS IN BLOOM AT THE VICTORIA AND PARADISE NURSERIES.—There is now a fine show of Orchids in bloom in Mr. B. S. WILLIAMS' nurseries, comprising many fine specimens of the beautiful *Cœlogyne cristata*, measuring from 2 to 3 feet across, which, covered with their beautiful white flowers and intermixed with the graceful foliage, make a charming effect. The *Cœlogyne* is one of the finest of winter-flowering Orchids, and may be adapted to many purposes, such as bouquet-making, the decoration of apartments, &c. There is also a fine plant of the rare *Sophranites violacea* in flower. This species has mauve-coloured flowers, and makes a fine contrast to the scarlet variety, *Sophranites grandiflora*, growing beside it. These plants are easily cultivated and take up very little room, owing to the small size of the plants; they may therefore be grown by any one with a limited space at their disposal.

— THE ROYAL HORTICULTURAL SOCIETY.—The following correspondence, with reference to the death of the Princess ALICE, has been sent us for publication.

"Duffryn, Aberdare.

"To Her Most Gracious Majesty, The QUEEN.

"We, the President, Vice-Presidents, and Members of the Council of the Royal Horticultural Society, beg to approach your Majesty with the offering of our loyal and heartfelt sympathy in the painful bereavement recently suffered by your Majesty and the Royal Family by the death of your beloved daughter, the Princess ALICE, Grand Duchess of Hesse Darmstadt, who had endeared herself to all your Majesty's subjects by her noble qualities and genuine devotion to the good of all around her. We are deeply sensible how little words can do to lighten the bitterness of such a loss. But your Majesty's sorrow touches the heart of every one of your devoted subjects; and the Society we represent has received so many proofs of your Majesty's favour and interest that we cannot refrain from expressing our profound sympathy with an affliction which many circumstances have concurred to render especially poignant and trying.

"On behalf of the Council,

"January 22, 1879." (Signed) "ABERDARE.

"Osborne, Jan. 25, 1879.

"Dear Lord ABERDARE,—I am commanded by the QUEEN to request that you will return to the Vice-Presidents and Members of the Council of the Royal Horticultural Society, and to accept yourself, Her Majesty's sincere thanks for the kind and feeling expressions of sympathy with the QUEEN in her sorrow, contained in the address you have transmitted to Her Majesty.

"Yours very truly,

(Signed) "HENRY F. PON-ONBY."

— THE LONDON FARMERS' CLUB.—The London Farmers' Club has again changed its headquarters, and is now located at the Inns of Court Hotel, Holborn. From its programme for the current year we learn that on Monday next Mr. JAMES HOWARD, Clapham Park, Bedford, will give an address on "Club-houses for Villages." On March 3 Mr. W. SCOTSON, Aigburth, Liverpool, will read a paper on "The Present Prospects and Future Aspects of our Home Agriculture." On April 7 the subject will be "The Law of Distress for Rent as it Affects the Farmer," on which Professor WRIGHTSON will address the meeting. On May 5 Mr. F. STREET will treat of the "Management of Heavy Land." "The Future Aims of the Farming Interest" is the subject selected by Mr. J. G. EDWARDS, Broughton, Stockbridge, for November 3, and Mr. CLARE SEWELL READ, M.P., will draw attention to "The Working of the Education Acts in Rural Districts" on December 8. The meetings will now commence at 4 P.M. instead of 5.30 as heretofore, and the time of dining is fixed at 6 P.M.

— NATIONAL ROSE SOCIETY.—The meeting of the general committee of the Society was held at the rooms of the Horticultural Club on Wednesday last, R. G. N. BAKER, Esq., of Heavitree, Exeter, in the chair. There was a full attendance, and various parts of the country were represented. The schedules for the Crystal Palace and Manchester Exhibitions were finally arranged, some slight alterations having been

made. Messrs. T. FRANCIS RIVERS, J. BURNABY ATKINS, and ARTHUR G. SOAMES, were elected members of the executive committee. Drawings for a die for the Society's medal were submitted and approved; and it was considered that the best way of increasing the number of members would be to obtain the services of some more local secretaries. Birmingham was suggested as a desirable and probable place of meeting for the provincial show in 1880.

— HORTICULTURAL CLUB.—The following gentlemen have been elected members of the Horticultural Club:—J. T. D. LLEWELYN, Ynisgerwn Neath; J. T. STRANGE, Aldermaston, Reading; and SAMUEL M. ROBINS, Tyrwhitt Road, New Cross.

— BURTON-UPON-TRENT FLORAL AND HORTICULTURAL SOCIETY.—The exhibitions to be held this year in connection with this Society are fixed for June 25 and August 25.

— INSTITUTION OF SURVEYORS.—The next meeting will be held on Monday evening, February 3, when the adjourned discussion on Mr. HEDLEY's two papers will be resumed; and, should time permit, a paper will be read on "Contributive Value," by Mr. H. J. CASTLE, Sen. The chair to be taken at 8 o'clock.

— THE FROST IN THE WINTER OF 1739-40.—Mr. JUSTUS CORDEROY, of Blewberry, has favoured us with the following copy of a verse printed on the ice upon the Thames at Queenhithe, on January 28, 1740, taken from an old print in his possession:—

"Behold the Liquid THAMES now frozen o'er
That lately SHIPS of mighty Burden bore,
Here You may PRINT your name, who cannot Write
Cause numb'd with Cold: 'Tis done with great Delight,
And lay it by; That AGES yet to come,
May see what THINGS upon the ICE were done.

"Mrs M . . . S"

— THE WEATHER.—While we have been experiencing cold of unusual intensity, and still more unusual duration, it appears that in some parts of the United States, as in Manitoba, the winter has been unusually mild. In November last (a cold month with us) the average of the entire month was, according to a correspondent of *Nature*, 25°.73 higher than the average of the month for the past seven years. This is simply astounding. In Russia, too, we learn that the winter has been exceptionally mild. It becomes evident that weather charts embracing only a limited area of one continent are of little value in the endeavour to ascertain the laws of climate.—From the report issued by the Meteorological Office, for the week ending January 27, we learn that the weather was generally fine in Scotland and the North of England, and fine at some of the western stations on the 22d and 23d, but almost continuously overcast and gloomy in the southern and eastern districts. The temperature was several tenths below the mean in all districts, the deficit ranging from 8° in "England, N.E.," and "Ireland, S.," to 11° in "England, S.W." The maxima was frequently lower than 35° over England and Scotland, and sometimes down to 32°; and the minima was occasionally below 20° over England, Scotland, and the north of Ireland, the lowest reading of all (8°) being registered at Durham on the 27th. The thermometer exposed on grass was as low as 4° at Glenalmond (Scotland, E.) on the 25th. The rainfall was much less than the mean in all districts: none at all was reported from the Midland Counties and "England, N.W.," less than half a tenth of an inch in "England, E. and S.," Scotland, W.," and "Ireland, S.," and not more than one-tenth in any other district. The fall in all places was principally in the form of showers of sleet or snow. The wind was north-easterly over all the more southern districts, and moderate to fresh in force; south-easterly in the north at the commencement of the week, but south-westerly towards its close; the latter breezes strong in force in the Hebrides and Shetlands.

— GARDEN APPOINTMENTS.—Mr. J. WIGGINS, who was for a long number of years in the employ of the late Mr. BECK, of Isleworth, and since then has been foreman to Mr. LEVESLEY, of the same place, has now transferred his services to HENRY LITTLE, Esq., of Hillingdon, near Uxbridge, where he will have charge of that gentleman's fine collections of Amaryllis, Cyclamens, &c., and will have abundant opportunities to display his abilities as a grower of florists' flowers.

Home Correspondence.

The Culford Vine Sport.—When I sent for the inspection of the Editors of the *Gardeners' Chronicle* a few small shoulders from a bunch of Grapes, the produce of eyes sent me by Mr. Grieve, which eyes sprung from an eye of the rod that produced a bunch of Golden Champion a year previously, I accompanied them with a very hurriedly written note, wherein I used the expression "irrational" in regard to Grape culture. The term seemed to embody what I meant as well as any other, but as it seems to have hurt Mr. Fish's feelings, I beg to withdraw it, and to explain to him what I meant when I used it, and he can give my meaning a more euphonious designation if he pleases. I suppose that Mr. Fish is aware that many Grape growers syringe their Vines, bunches and all, in the afternoon when they shut up the house. In such cases they will find that the Golden Champion Grape will spot and decay. It is a large oval Grape with a tender skin, and a large section of each berry will be in contact with its neighbour. Where this contact exists water will be held for a long time between the sides of the berries by capillary attraction, and by persistence in such a course the fruit will rot; whereas in the case of perfectly round fruit with a tough skin, there are two reasons why this will not so readily take place. First the skin stands more moisture, and in the second it gets less, as the contact of the berries is but small. When a man with a knowledge of Vine culture sees this, and uses his reason (acts rationally), he discontinues the syringing; when he does not, he acts irrationally. Again, this same Vine is a vigorous, gross grower, and when planted in rich soil, and well watered, and especially if liquid manure be used, it sends up more sap than the berries can contain, and they split. The man who plants in a poorer border, and gives less moisture, and if needs be cuts off some part of the supply of sap from the bunch by cutting the shoot that bears it half through, acts, from my point of view, rationally. Still further to illustrate what I meant, I take a case from Mr. Fish's own experience. He had, or knew of Vines (for I quote from memory), the bunches on which when in bloom curled up, showing great signs of weakness. His remedy for this was to suspend a small stone from the point of every bunch. This, I think, was not such a remedy as a man with knowledge of his subject, and using his reason, should have adopted, and therefore I think it was irrational, and that it would have been rational to have discovered whether or not the wood had been from some cause imperfectly ripened, or the roots in a medium that did not suit them, and to have applied the remedy to what I consider was the cause of the evil, instead of dealing with the effect. I hope Mr. Fish will now understand what I meant by the word I used; and I think he will agree with me that it was in no way inappropriate. I notice that he himself uses the term "rational" in his article in a contemporary a fortnight ago, when on the subject of ventilating hothouses in winter, and of course those who differ with him in what he recommends will act irrationally from his point of view. Though in my own practice I have long discontinued syringing Grapes in any stage, I am not prepared to condemn it, seeing it is constantly recommended by clever writers. One in a contemporary a month ago recommended the syringing of Grapes in the morning! I am admonished by Mr. Fish that I ought to walk humbly, seeing I sent out the Golden Champion Grape Vine, and that so many have failed to grow it. My reply to this is that I fruited the Vine four years before I disposed of it, and that its fruit was admired by all who saw and tasted it. The late Mr. Thomas Osborn called on his usual business round, and like a number of other nurserymen, expressed his anxiety to purchase it. I wished this deferred for another year, as I had not then fruited it on its own roots, and with that understanding we parted. He called at Archerfield, where my brother had it in fruit on its own roots—in a Peach-house, if I remember aright—and was so delighted with it that he got a bunch from my brother, and brought it back to me, to show me that it was even finer than with me at Dalkeith. He sent this bunch on to his brother, and I engaged to let him have the Vine; and I am certain that all who had the pleasure of Mr. Thomas Osborn's acquaintance will bear me out when I say that I never met a more honourable, upright man, or one that would be less likely to palm off anything on the public that he did not think would do himself credit. From that day till this, I have never failed to grow fine fruit of this Grape; but because many have failed to grow it, am I to be charged by Mr. Fish and others with something little short of dishonesty? I have no hesitation in saying that, excepting Muscats, there are no such white Grapes as the Golden Champion and Duke of Buccleuch; and I have the courage of my opinion in this matter, as Mr. Fish will see if he will favour me with a visit next summer; and I can promise him a hearty welcome, notwithstanding that we differ on many subjects. He will then find a

house 200 feet long just planted with Golden Champion and Duke of Buccleuch, to be fruited for the London market in May and June, where every pound weight of the fruit will make twice the money any other white Grape will, except Muscats, and there is no better place to test the value of a Grape than Covent Garden Market. While on the subject of new Grapes, I may state that I have purchased every new Grape offered in my day, and have discarded all save two; yet I have not rushed into print to condemn them, for the reason that I may be to blame, and not the Grapes, I not having discovered the proper method of growing them. Mr. Fish may remember the fate of Lady Downe's till I discovered and made public the way to grow it. This ought to make us slow to condemn a new Grape. Mr. Fish implies that I considered that there were not as good judges of Grapes in England as in Scotland. Here he is entirely mistaken. If there is anything I detest more than another, it is that wretched provincialism that would arrogate to any section of the United Kingdom superior skill over another in such matters. I now take leave of this subject by saying, as I said before, that I never doubted Mr. Fish's honesty, or that of any one else who believed in the Culford Sport. I merely suggested that they were probably mistaken, as equally clever men had been before and since, about the identity of Grapes; as, for instance, in the case of the Grape I sent recently to the Editors of the *Gardeners' Chronicle*. I and many others thought the Grape Trebbiano—the Editors were of the same opinion; they, however, in their leader on the subject, say they sent berries of it to "a very competent authority," and he thought "it might be Tokay." Here Mr. Fish must observe how competent men differ. The Grape submitted to this authority was quite round; now the Grape I know as Tokay is very much the shape of the Muscat—oblong—therefore we cannot both be right. *W. Thomson, Tweed Vineyard, Jan. 24.* [The sample was very imperfect. Eds.]

History of the Schoolmaster Potato.—In the month of April, 1870, a packet of Potato seed was given to me by Mr. Edwin Bennett, of Enville Schools, who informed me that the seed had been sent him by a friend, and that it was of no use to him. I sowed the seed in the small Melon-house in the last week in the month, and when sufficiently large to handle the young plants were potted off in small pots, and grown on until the first week in June, when they were planted out opposite the old range of plant-houses, and although the season was an exceptionally dry one the produce was most satisfactory, and some of the tubers of a very large size. I selected about fifty of the best—that is to say, the most promising looking varieties—and again reduced their number before planting in the following spring. The second year they were planted in the old kitchen garden, and at taking-up time I invited my namesake to see them lifted. Amongst them was one with the most beautiful lake-coloured tubers I had ever seen, and this we agreed to call Schoolmaster at the time. More of the varieties were again discarded, and in the next spring the remainder were planted, this time just outside the wall of the new kitchen garden (called "the slip"), and when I left in July, just after the boiler trials at Aston, they were looking most promising. Leaving Enville while the tubers were in the ground I requested my successor, Mr. Green, as a favour to give the whole of these seedlings to my namesake, which he accordingly did. In the autumn of that year I happened to be one of the judges at the Worcestershire Agricultural Show held at Stourbridge, where twelve of these seedlings were exhibited by my namesake, and to these I awarded a Certificate of Merit. I also made an arrangement for Mr. Bennett to send me a few of each, for a trial, which he did—and these were grown by me at Hatfield, except a few which I distributed. Leaving Hatfield for Rabley in the month of June, I had again to leave the tubers in the ground, simply pulling up the labels with private marks, so that in due time they were all sent to table. Mr. Bennett just previous to the first great Potato show held at the Alexandra Palace wrote to inform me that he thought of exhibiting some of the best of the seedlings, and it happened that I was one of the judges in the very class which Schoolmaster was exhibited in, otherwise perhaps it would have remained hidden under a bushel, for my colleague Messrs. Sutton's representative, objected to the prize being awarded to it, and rightly so according to its appearance, but knowing it to be a first-class Potato, I stuck to it, and my colleague finally gave way. I strongly recommended it to Mr. Turner, who sent it out. You have now the whole history of this Potato, who raised it, and how by a fluke it came into commerce. The original lake-coloured Schoolmaster proved on further trial to be worthless, so Mr. Edwin Bennett christened the present one by that name, but he did not raise it. Perhaps the Messrs. Webb are not to blame for advertising the true stock, for I know that a doubtful stock of Schoolmaster has been sold by others. *Edward Bennett, Rabley and Holly Bank Nurseries, Herts.*

[We should add to this communication that we have received letters from Mr. Charles Padley, of Enville Hall, and Mr. Edwin Bennett, of Enville Schools, the former of whom on behalf of himself and the Earl of Stamford and Warrington, categorically denies the statements of "One who Worked in the Garden at Enville" (p. 114), and states the fact of the case to be "that the seed was obtained through hybridisation in 1869, and as Mr. Bennett had no heat at his disposal, he requested his namesake who came to Enville as his lordship's head gardener in the following year, to sow the seed for him in one of the houses. Beyond his kindly acceding to this request, Mr. Edward Bennett had nothing to do with raising the variety." Mr. Edwin Bennett does not enter into any details, simply stating his readiness to defend his claim, should Mr. Edward Bennett make a claim to raising it for himself; but as we know nothing of the merits of the case beyond the evidence before us, we must leave those concerned to settle the question among themselves. Eds.]

Culverwell's Telegraph and Carter's Telephone Peas.—Mr. Culverwell has made such a direct attack upon us in the columns of your journal of last week that we beg you will permit us the privilege of a reply. Mr. Culverwell appears to know very little about "hybridisation" when he states that because his Telegraph Pea was raised from one Pea it would be unlikely that we should select anything out from it; but any one who has had experience in the hybridisation of Peas knows full well that one pod of Peas, or the progeny of one Pea, will often produce types of marked variations. Now for the facts in reference to Carter's Telephone Pea. We sent out this new Pea for the first time this season, after it had received a First-class Certificate from the Royal Horticultural Society, and in announcing it we were not obliged to mention either Mr. Culverwell or his Telegraph Pea; but in introducing novelties to the public it is our practice to state their origin, and therefore we felt called upon to announce that although Telephone was a distinct Pea from Telegraph it was raised from it. When we bought Telegraph Pea from him three years ago it was a slightly indented Marrow. We sent it to our seed farm at St. Osyth to be grown, where it came under the observation of our manager, who we think by this time is tolerably well known to you as being an expert in his craft, and he noticed in the growth that there were a few plants that showed what he thought to be an improvement; these were carefully selected and have now developed into a distinct type of Pea. We have never sought to disparage either Mr. Culverwell or his Telegraph Pea; they are we believe both good of their kind—both the man and the Pea, therefore we cannot understand why he should wish to disparage either us or our Telephone Pea. We send you samples of Culverwell's Telegraph and Carter's Telephone, and you will no doubt observe that they are totally distinct. We do not feel called upon to reply to Mr. Culverwell's remarks about the price. The price of seeds being mainly dependent on season, produce, and demand, this is a question for the public, and if they do not think Culverwell's Telegraph or Carter's Telephone worth the money they will not buy them; but our experience is, however, of a contrary character. We send you two pages from our catalogue, to refute Mr. Culverwell's statement that we attempt to extinguish his Pea, and you will observe that it is displayed with all honour. *James Carter & Co.* [The samples received bear out Messrs. Carter's statement as to their being distinct, the seeds of Telephone being somewhat larger and much more wrinkled than Telegraph, besides being of a paler colour. Eds.]

—Mr. Culverwell is evidently under the impression that Messrs. Carter & Co. have renamed this Telegraph Pea. As a grower of the Telegraph Pea last season I cannot agree with Mr. C. as to its having wrinkled seed, if so I have been growing a wrong variety. The few seeds I have saved are more like those of Laxton's Supreme. With regard to the Telephone Pea all I can say to Messrs. Carter is that they have an extraordinary acquisition if they can assure me it will beat Telegraph. The seed of Telephone very much resembles that of Veitch's Perfection. I notice that Telephone has received a First-class Certificate from the Royal Horticultural Society (this alone should recommend it), but I cannot find that Telegraph has been recognised at these gardens. I am rather inquisitive in searching out the correctness of disputes similar to the one in question, so intend growing the two varieties side by side, and reporting an unprejudiced opinion as to their distinctive merits and general character. Perhaps some of my brother gardeners will do the same, and between us we would be in a position to clear up all existing doubts as to their being one and the same variety. *D. McDonald, Totteridge.*

—I had not my order for the above seeds been already executed, I should perhaps, after reading Mr. Culverwell's remarks, have been inclined to counter-order one or the other of the varieties. As it is, I cannot do so, but would say that, if Mr.

Culverwell's assertion that "there cannot be two sorts," or, in other words, that Carter's Telephone is one and the same thing as Culverwell's Telegraph, is true, the latter Pea, among other remarkable characteristics, possesses that of producing some seed nearly round and green, and others very wrinkled, and of much lighter colour. To prove this I enclose to the Editors a sample of each variety, and also some of Telegraph, saved by a private grower in 1877. The contrast in the seed is, I think, very marked; and if they are synonymous, how came the certificate of the Royal Horticultural Society to be awarded to Telephone? If Messrs. Carter wish to advance their Telephone to the detriment of Culverwell's Telegraph, would they offer prizes to be publicly competed for at South Kensington on June 24, for both of them, collectively with Little Wonder and Challenger? I should think not, if they do really believe in the reality of the superiority, or at all events distinctiveness of their variety, as by so doing they court exposure. As with other vegetables, so with Peas; and excellent as Culverwell's Telegraph is, it is possible, by careful selection, to still further improve it, which I understand Messrs. Carter claim to have done. *W. Jggulden, Orsett Hall.* [The samples are identical with those received from Messrs. Carter. We shall grow the whole of them, and test the matter for ourselves. Eds.]

Giant Zittau Onion.—While we can thoroughly endorse all that your correspondent "J. R." has said in favour of this Onion, we may mention that it is not a new variety, neither is the stock in the hands of any individual seed firm. We have known it for several years, and can supply the seed in any quantity. *John Laing & Co., Forest Hill.*

—Your correspondent, "J. R." is in error when he says "the entire stock of this Onion is in the hands of the Messrs. Veitch," no doubt unwittingly. We (let others speak for themselves) hold stock of it now, and did last year; it will be found offered, with a descriptive note, in our catalogues of 1878 and of the present year. While we are writing there is another Onion, the Trebons, also of Continental origin, we think highly deserving notice, and which we miss on looking over some of the "heavy" catalogues; but in these days, when it is so common to offer varieties as A.'s this, B.'s that, and C.'s the other thing, it may be appearing under some other *nom de plume*. Let seedsmen stick to the names under which varieties are originally sent out, and refrain from adding their own names, except where they can in reality lay claim to the parentage, and much confusion will be avoided. *W. P. Laird & Sinclair, Dundee, N.B.*

The Cow Tree.—With regard to the paragraph which is going the round of the newspapers respecting the Cow-tree, and which is noticed in your columns last week, it may be of interest to some to know that it is no new idea for every householder to have a Cow-tree in his garden for supplying milk to the family. About forty-eight years ago the experiment was actually tried so far, that at least 10000 so-called young Cow-trees were brought to this country from Venezuela by a Mr. Fanning, who expected to get a guinea a-piece for them, and that they would be eagerly purchased, and would grow in the open air in this country. They were deposited in Mr. Colville's nursery in the King's Road, Chelsea, then in high repute for rare plants. There being no demand for them, and the way they were packed in bringing them over to this country not being proper, they soon all died. I obtained one for Kew, and further to show the ignorance of the speculator, I found it was not the *Galactodendron utile* at all, but a plant of the *Sapota* family; and Mr. George Aldridge, who was a collector of Orchids in Venezuela for Mr. Knight, of King's Road, Chelsea (now Messrs. Veitch's), and had traversed the forests of Cow-trees, informed me that he never saw any young Cow-trees in the forests, but young plants of the tree Mr. Fanning took for the Cow-tree grew on the outskirts of the forest. I do not remember what Mr. Fanning was, but he was not a gardener. The above facts are recorded in my *Domestic Botany*, p. 225. *J. Smith, Ex-Curator, Royal Gardens, Kew.*

The Royal Horticultural Society's Committees.—Is the young rising generation wiser than the old passing one, or have the committees of the Royal Horticultural Society been converted into hereditary bodies? I observe in the list published the names of Harry Turner (*vice* C. Turner), Harry Williams (*vice* B. S. Williams), and Peter Veitch (*vice* H. J. Veitch). Do these young men supersede their elders because they are more able, or has the constitution of the committees become a hereditary one? If the Council say they make these appointments not on the score of worth or merit, but to conciliate important interests, then I can understand the object, but if otherwise then they are inexplicable. I had imagined that an appointment on these committees was regarded as an honour given to the best and most

capable men of the profession, that the decisions of these bodies might possess the greatest possible weight and receive the greatest amount of respect. I have been a credulous donkey, as are all others who think the same. *Rural*. [It is very desirable to have an infusion of young blood from a good stock. Eds.]

Burning Potato Haulm.—At p. 116 you advise the burning of Potato haulm to destroy the germ of the disease. I want to be shown how this is practicable, that it may be put into practice. Others have also advised the burning of the haulm—has it ever got beyond the advice? I hold it to be absolutely impracticable if attempted to be done when the disease first appears. If left until the haulm is dry the benefit to be derived from the act is lost. [Only in part.] A large mass of green Potato haulm full of sap, in fact half water, is about as incombustible a material as can be found in the vegetable kingdom. If it would be a matter of difficulty to burn the haulm crop of any garden plot of Potatoes, what could be done with the produce of acres (as there would be a crop perhaps of several cartloads to the acre)? And in the case of a field of 50 acres the bulk would be so enormous as to require a dozen men several days, perhaps weeks, to cut or pull, cart it or otherwise remove away to be burnt. Then to char the haulm sufficiently to destroy the disease-germs would require immense fires of wood or coal, or some other combustible material; and even then it is questionable whether the haulm could be destroyed or consumed. If the haulm be pulled and laid together for a short time it soon decays, and becomes putrid, and is even more incombustible than before, whilst every day it is allowed to lie, that it may become dry and consumable, is simply time given to the disease-germs to escape. I want to hear from some one who has burnt green Potato haulm, and I want to be taught how it can be accomplished in a large way, for one grower to burn his haulm, and take so much trouble in a small way, whilst hundreds around him allowed theirs to decay on the ground, would be sheer waste of time and labour. To be of benefit the act must be general, if fire is to be the element that is to exterminate the Potato disease. *A. D.* [We have seen it done, as we have seen weeds burnt, and though we admit the force of our correspondent's objections, we believe a great deal might be done towards lessening the amount of disease. At present, in spite of what has been discovered, growers still continue to propagate the disease. Because they cannot extirpate it altogether, they elect to do nothing to check it. Is this reasonable? Eds.]

Which is the Best Celery to Grow?—As this question was introduced at p. 84, and as yet has remained unanswered, I hope you will not accuse me of sounding my own trumpet if I give you my opinion in the matter. As "*J. W.*" says, the amount of expense in labour, manure, and rent of ground, which its cultivation entails, makes it imperative that only the very best sorts should be grown. This is a well-known fact in our district, where field after field of Celery is grown, and where many depend on the growth of this vegetable for a livelihood, and I think I may venture to say that our district has gained a notoriety for the growth of Celery. "*J. W.*" says his experience leads him to select three varieties as superior to any others. I have grown the varieties named, besides a number of others, and I have come to the conclusion that Clayworth Pride is the very best Celery in cultivation; it was raised at Clayworth in 1875, and has now become such a favourite, that in 50 acres grown in our parish next season there will not be one of any other variety, providing the plants are procurable. I planted 8500 plants on May 21 last, and had it all cleared off by the middle of September, and a better lot of Celery I never saw. It is very hardy, and is standing this severe weather admirably. It has been exhibited at our local shows for the last two seasons, and taken a number of prizes, including three open to all England. I feel confident if growers will give this variety a trial, it will need no more praise from me. If it will interest your readers, I will endeavour to give our mode of culture in some future number. [Please do. Eds.] *R. Ogley, Clayworth, near Basby, Yorkshire.*

Ouvirandra Hildebrandtiana, Vatke.—Dr. Goeze's note on this interesting plant is published very *à propos* at the present time, when we have the African traveller, in whose honour it is named, with us in London. When we received at the Museum last year dried specimens of this aquatic (*Hildebrandt*, No. 2645) it was with some surprise that I saw it referred to *Ouvirandra*, as it is clearly a member of the allied genus *Aponogeton*. Indeed it is either identical with or closely allied to a widely diffused African species of the latter genus, which under the names *A. subconjugatus* (Schum.), *A. leptostachyus* (E. Meyer), and (probably) *A. abyssinicus* (A. Rich.), we have in the Museum herbarium from Guinea (*Thonning*), Angola (*Welwitsch*), and the Cape

(*Drège*). I may add that I have taken the opportunity of pointing out this identification of his *Kitui* plant to Dr. Hildebrandt, and that he fully acquiesces in it. To the *Ouvirandra Bernieriana* of Madagascar the East African specimens have scarcely any resemblance. *Henry Trimen, Jan. 25.* [We have a note from Mr. Dyer to the same effect. Eds.]

The Smallest Orchid in the World.—Having just seen specimens of this wee plant, sent by Baron von Mueller to Kew, I am reminded of his communication thereon to the *Gardeners' Chronicle*, p. 818 of the last volume, and of "*G. M.L.*'s" reply thereto at p. 55 of the present volume. It is evident that Baron Mueller has not confounded two plants, as "*G. McL.*" assumes, but having first mentioned the original plant in his *Fragmenta* as a *Dendrobium* he could not retain the name *moniliforme*, as that was preoccupied in the genus, and therefore he substituted the name *minutissimum*, which should now fall before the former if that has been published as really a *Bulbophyllum*. *W. B. H.*

The "Infallible" Bird Scarer.—Mr. C. J. Price, of West Moulsey, Surrey, has submitted to our inspection an invention of his for scaring birds, which appears to us admirably calculated to answer the purpose in view, and especially to answer the requirements of farmers and owners of fruit orchards. It takes the form of a battery of sixteen miniature cannons, which are loaded and timed to explode at intervals of twenty or forty minutes, according as the time-fuse is laid. The annexed illustration (fig. 23)

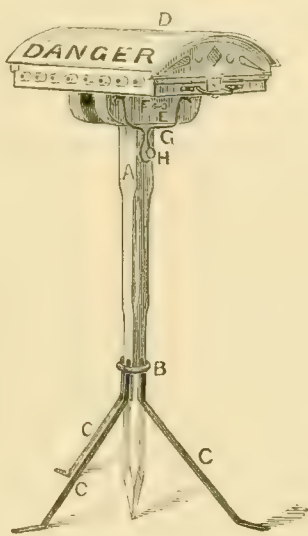


FIG. 23. BIRD SCARER.

gives a good idea of the apparatus, and the following details explain its use and manipulation:—To set it up push the pole, A, perpendicularly into the earth. Take the ring, B, in the left-hand, and place the three legs, C C C, on the ground, fitting the long end of each under the ring. Place the battery, D, on to the pole, and pass the pin, E, through the hole, F, and spring the triangle, G, on to the ring, H, in the pole. When it is required to load, remove the triangle, G, from the ring, and tilt the battery on one side and then on the other. To load insert a fuse into each touch-hole, pour into each cannon $1\frac{1}{2}$ drachm of powder, ram the wad well home with the ramrod and mallet, put the battery horizontal, insert the tinder in the channels, light one end, and then put on the cover. When loading care should be taken not to spill powder in the channels. No. 20 gun wad, which can be procured at any gunsmith's and most ironmongers in the country, will fit the guns. We should state that the cost per day for powder, fuses, &c., is about 4d., and that Messrs. Hill & Son, 4, Haymarket, W., are the manufacturers. The birds will be more frightened than hurt.

The Sarsen Stones at Reading.—I am compelled by "*A. D.*'s" letter on p. 120 to add a word to my former letter. The origin of Sarsen stones is by no means generally known among amateurs. Some of the stones, if not sandstone, may be Welsh, though probably then transported by human agency. Finally, I never hinted at anything I did not state clearly. Every one familiar with the history of Whiteknights knows the stones came from Wiltshire, but nevertheless there exist similar ones also in strata in Surrey. This much in the interests of accuracy. *G. S. Boulder.*

—Although I have myself seen and examined "*Sarsen Stones*" *in situ*, I do not in the least claim

any credence for my own belief on the subject, but I think it will require arguments a little more forcible than Mr. Lees' hammer to set aside the judgment of Ramsay, Aveline, and Hull, all of whose names appear on the title-page of the *Memoirs of the Geological Survey* (sheet 34), from which I quoted the passages which Mr. Lees' "many gentlemen well versed in geology" feel justified in disputing. The same facts—including the one for road-mending—are also stated on p. 163 of the *Descriptive Catalogue* (3d edit.) of *Rock Specimens in the Museum of Practical Geology*, Jermyn Street, where specimens may be seen. But then Mr. Lees failed to break the stones, just as, when an Irishman was tried for murder, for every one who had seen the deed committed a dozen witnesses were prepared to swear that they hadn't. *W. T. Thiselton Dyer.*

Peach Blossoms Destroyed by Ants.—In one of our early Peach-houses, now partially in flower, we have been much troubled with black ants eating out the stigma of the blossoms. We were unaware of anything being wrong until the blossoms expanded, when an ant, and in many cases two, were found nibbling at the pistil, close down at the embryo fruit. As soon as the flowers began to show their petals, and were sufficiently open to admit the ants, the work of destruction must have begun, as in every case the pistil was gone before the flowers were fully expanded, but the stamens and anthers were left undamaged. I never saw nor do I remember to have read of similar destruction to Peach blossoms caused by ants, and have on several occasions seen strong nests of both black and red ants in Peach-houses. I have strewed the house with sulphur, and tied bands of cotton-wool round the stems of the trees, and tarred other points where the ants would be likely to ascend. By these means we hope to check them and secure a crop, as there is sufficient flower still left if we can set them without further damage. Have any of your correspondents had a similar experience? *J. R.* [A ring of cotton-wool saturated with a dilute solution of carbolic acid or soluble phenyle will prevent the ants from getting up the stems. Eds.]

Wiring Garden Walls.—In answer to "*Chevalier*," I would say by all means have your walls wired for Morello Cherries, as the aspect is one that suits them admirably. Mr. Sheppard's plan, so ably explained by him in these columns, is undoubtedly superior for the purpose to the ordinary way of wiring walls, viz., alternate courses of brick, which places the wires at too great a distance from each other to be of any advantage in training Morellos or Peaches, but I think it entails too much labour in fixing to be adopted generally. I would suggest that each course of bricks be wired, this will be close enough for all purposes of training, and it would be an easy matter to fix the extra lines of wire on all walls wired on the old system. As to the damage to the trees done by galvanised wire, I have never found it to exist except where the shoots have been tied too tight; and who has not seen the effects of careless nailing, either by driving the nail too close to the shoot or by not allowing sufficient room in the shred for growth? I think it rather illogical to say that wired walls conduce to unfruitfulness: I would certainly say, have the wires fixed as close to the walls as possible, about $\frac{1}{4}$ or $\frac{1}{2}$ inch is ample space from it, although I must admit the finest show of Peaches and Nectarines it has been my good fortune to see on an outside wall was where the wires projected nearly 2 inches and the trees had no protection while in bloom save a temporary wooden coping about 18 inches in width. This was in 1873; locality North Wales. I think that probably one of the main causes of the failure of outside Peaches, &c. (except of course adverse weather), will be found in the fact that since glasshouses have been erected in such numbers, and indoor gardening generally received such impetus, outdoor Peach trees, and more particularly the borders, do not receive the attention they formerly commanded. A few words as to the cost of wiring walls: it must be borne in mind that when a wall is pointed and wired it will be no more expense, in the ordinary course of events, for a life-time, and not, as with nails and shreds, want pointing every four or five years, or be continually staring you in the face as something going to decay, as well as being a harbour for all kinds of insects from which it is next to impossible to dislodge them. *John Wilks, Park House Gardens, Cheadle.*

Magnolia grandiflora ferruginea.—I am able to confirm your statement (p. 114) on the superiority in point of hardness of the ferrugineous *Magnolia* over the Exmouth variety. About a score of fine bushy plants of the first-named variety, growing in the grounds here, are comparatively unharmed, although they have had no protection; while a single plant of the Exmouth variety, with the protection of a wall, is so much shattered and looks so miserable from the effects of the weather as to make one despair of its recovery. *J. Roberts, Gunnersbury Park.*

Vicar of Wingfield Pear.—My experience of this Pear is similar to Mr. Saul's (see p. 119). It is always one of the most popular stewing Pears—often also one of the most useful for dessert, quite equal in quality to the usual run of Glou Morceau or Beurré Rance. Easter Beurré, however, unless very badly ripened, is far superior to either of those two, or the Vicar of Wingfield at its best. Has Mr. Saul ever noticed a difference in colour as well as quality in the Vicar? I have had it once or twice dashed and speckled with purple or red, almost in the way of Louise Bonne of Jersey, and such fruit were invariably of fine quality. I am surprised to find that Mr. Saul has the Vicar still in use on January 15. Ours were all in season, and consumed in November last year, and they have seldom kept till Christmas. Our Vicar of Wingfield are on the Quince, and trained as pyramids. Most seasons the majority of the fruit are used for dessert, and are of average quality. Of course they will not compare with a good Marie Louise or Winter Nelis, the latter the perfection of quality in Pears. Pears were remarkably scarce in this district last season, and not a few of them also turned out inferior in quality, though Apples, Peaches, and Plums were remarkably good in quality. *D. T. Fish.*

Epidendrum ciliare.—I have grown and flowered this plant for several years, but have only just now found out its real merit, which is the being most deliciously fragrant at night. I have had a plant in the drawing-room for the last fortnight, and it will last at least a fortnight more, and every evening it perfumes all the end of the room where it is with its delicate and very peculiar scent. This, together with its flowering in the middle of winter, and with its being a most easy plant to grow, makes it well worth the room it takes up even in a small collection of Orchids. *C. W. Strickland.*

Primulas.—I think our strain of *Primula sinensis* as good as possibly can be had, the blooms being nicely fimbriated, and larger than a five-shilling piece, also presenting a variety of rich colours. We have also a race of very large *Cinerarias*, single blooms of which measure $2\frac{1}{2}$ inches in diameter. I enclose specimens of each as proofs. I may also add that the seeds of both were obtained from Messrs. J. Veitch & Sons last year. *G. S., The Gardens, Crawley Court, Winchester.* [The Primulas very good indeed, fine in quality, and nicely varied; the *Cinerarias* large, and richly coloured—a maroon-crimson, but too narrow in the florets to be considered as specially choice in quality, though no doubt effective for decorative purposes. *Eds.*]

Yellow Ground Picotees.—When I wrote the paragraph Mr. E. S. Dodwell quotes on p. 116 I had in my mind's eye as "varieties of a more refined character and delicate constitution included as show varieties" the yellow-ground Picotees that are catalogued by Mr. C. Turner and others, which, as Mr. Dodwell truly remarks, comprise but "very few good constitutioned yellow-ground Picotees." I am sorry I did not make my meaning sufficiently clear to Mr. Dodwell, but that I did so in the case of others is shown from the fact that I have received communications expressing surprise at Mr. Dodwell's remarks. I should no more think of presuming to call into question the decisions of "the gentlemen on whom devolved the duty of selecting the flowers worthy of such notice at the last exhibition of the National Carnation and Picotee Society" than I should of setting up as a teacher to Mr. Dodwell of how to grow and dress Carnations and Picotees for exhibition. *R. D.*

The Birds and the Buds.—The plan I have adopted for keeping small birds off Gooseberry and Currant bushes, and found to answer for several years, is merely to thread the bushes, in the form of a net, with black cotton, which is not easily seen by the depredators. As soon as the birds make their appearance upon the bushes they are pruned and netted over at once with the black cotton, and this prevents further destruction throughout the season. *W. Biggs, Liverpool.*

The Effects of the Frost.—On January 15 I went down to Colwyn Bay to see the results of the late frost. The thermometer has registered over 22° of frost, not on the morning of December 24, as here, but on the 10th or 11th inst. This is the severest frost since my house was built in 1868, and may be considered a fair test of the hardness of plants, though the dry summer and autumn count for a good deal. It is too soon to speak positively as to many shrubs, as some which now appear alive may succumb later on, and others apparently dead may revive. Three distinct species of *Eucalyptus* from Tasmania, from 12 to 25 feet high, appear to have escaped. One of these, with grey bark and narrow leaves, I have reason to believe is *E. amygdalina*. Young trees of *E. globulus* are nearly or quite killed, *Callistemon lanceolatus*, overshadowed by the last-named tree, is uninjured; *Acacia dealbata*, about 25 feet high, is

hard hit, but I think will survive; *Clematis indivisa*, on the house-wall facing S.E., seems all right; so does *Cordyline australis*, though by the side of a brook. *Fremontia californica*, out in the open, is only slightly injured. Most of the shrubby *Veronicas* are killed to the ground, if not entirely. *Phormium tenax*, by the brook, is, I fear, killed; *Olearia Hastii*, *Eugenia Ugii*, *E. apiculata*, *Pittosporum Tobira*, *P. undulatum*, *Leptospermum scoparium*, *Griselinia littoralis*, *Stauntonia (Holboellia) latifolia* (on a wall), *Bambusa Metake*, and many other supposed tender things, are quite uninjured. *Alfred O. Walker, Chester.*

The Frost and its Effects at Fota Island.

Such a severe winter has not been known in the South of Ireland for fifty-five years, and it may interest General Munro, and many others who are interested in Bamboos and half-hardy trees and shrubs, to know how they have fared. *Bambusa mitis*, *B. mitis viridis*, *B. glaucescens*, *B. edulis*, *B. aurea*, *B. Metake*, *B. violascens*, and *B. Mazelli* have passed the winter so far with but comparatively little injury. *Bambusa nigra* and *B. Simmonsi striata* are cut with the frost, the foliage being partly killed; whilst the old *Thamnocalamus Falconeri* (often called *Arundinaria falcata*), which has stood the severity of twenty-six winters unprotected, is much worse cut than any of the above. This might occur from the plants having been put in last spring when only young; during the summer they had thrown up a quantity of young canes about 8 feet high, most of which are now killed to the ground, but I am glad to say the base is all right, through a slight protection of leaves. *Dicksonia antarctica*, which has been out several years without protection uninjured, has the fronds killed, while in former years these have looked better in winter than in summer. It is too early yet to judge if the crowns are injured, as these were covered with a little dry straw. *Cycas revoluta*, treated the same as Ferns, have the points of the fronds killed, but the stems are all right; bushes of *Acacia armata* are killed, as also *Acacia verticillata* and *A. longiflora magnifica*, about 18 feet high, on an east wall. These had grown to the above height on the open wall, unprotected, in three years, whilst the green Wattle, *Acacia affinis*, is uninjured both as bushes and on walls. *Chamaerops excelsa* and *humilis* are both safe, not having a brown frond upon them. The points of *Colletia cruciata* are injured, but *C. horrida* is untouched. The New Zealand flax, *Phormium tenax*, of which we have thousands of large clumps, is much discoloured and beaten down, but the variegated forms seem more hardy than the green kind, as these are standing erect, and appear quite safe. The only Pine which seems injured at all is *P. canariensis*, while every variety of *Veronica* and *Fuchsia* is killed to the ground. Bay hedges are cut, while the *Laurustinus*, which has suffered in Cornwall, is quite uninjured here. *Ceanothus* and *Clanthus* of kinds, on walls, are injured, but not killed. The leaves of *Eucalyptus globulus* are injured, whilst *E. amygdalina*, of which I have sent you a sprig that was blown from the top of the tree, about 50 feet high, is not hurt. The base of this tree is 9 feet in circumference. The reason it is not much higher is that it is standing alone, and gets every gale from the Atlantic, which often severs large branches from its top. To all who contemplate planting the *Eucalyptus* as an ornamental tree I would recommend planting it on the driest situations that can be found, in moderately good soil, and in dry summers give them the necessary quantity of moisture. It may do to plant these trees on swampy places in more favoured climes than Britain, but if they are ever to become permanent ornamental trees in these isles they must be planted in dry situations, and thus be able to stand the inclemency of our winters. We have several species of the above to plant out this spring, and I shall be glad to give you the result of our experiment. *W. Osborne.* [Please do. *Eds.*]

Awards for Potatos at the Paris Exhibition.

—With respect to an announcement made in your pages some time since, that Mr. Wm. Porter, of Old Meldrum, had been awarded a Gold Medal for his Potato exhibits at the Paris Exhibition, and soon afterwards indirectly contradicted in so far as in the list of awards made to British exhibitors published by the British Commission Mr. Porter's name was not included, I desire to state that I have now lying before me an authentic copy of the list of awards made by the jurors, and published by order of the Minister of Agriculture and Commerce of France, and which is the official catalogue or "Liste des Recom-penses." In that, under heading Class 87, p. 524, appears in the lists of awards of "Medailles d'Or," or "Gold Medals," the name of Mr. Wm. Porter, Angleterre, the only other British name being that of Messrs. Jas. Carter & Co. Only ten Gold Medals were awarded in this class, two coming to England. How the British Commission, in making up their list, could thus omit the name of Mr. Porter seems inexplicable, and certainly requires explanation. *A. Dean.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JAN. 29, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|----------------------------------|--------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degrees of Humidity. Sat. = 100. | Average Direction. |
| Jan. 23 | 29.84 | +0.09 | 30.5 | 22.8 | 7.7 | 27.2 | -10.3 | 20.1 | 74 | E.S.E. In. |
| 24 | 29.84 | +0.09 | 30.7 | 26.1 | 4.6 | 28.9 | -8.8 | 21.8 | 73 | E.N.E. 0.00 |
| 25 | 29.97 | +0.14 | 32.5 | 26.4 | 6.1 | 29.7 | -8.1 | 26.8 | 89 | N.E. 0.00 |
| 26 | 30.06 | +0.31 | 34.2 | 31.0 | 3.2 | 32.6 | -5.3 | 30.2 | 90 | N.E. 0.00 |
| 27 | 30.23 | +0.47 | 34.7 | 31.3 | 3.4 | 33.0 | -5.1 | 30.6 | 91 | N.E. 0.00 |
| 28 | 30.13 | +0.36 | 32.0 | 29.3 | 2.7 | 30.9 | -7.4 | 27.6 | 86 | E.S.E. 0.00 |
| 29 | 30.08 | +0.32 | 33.6 | 28.0 | 5.6 | 31.2 | -7.1 | 27.5 | 85 | E.N.E. 0.00 |
| Mean | 30.01 | +0.25 | 32.7 | 27.8 | 4.9 | 30.5 | -7.4 | 26.4 | 84 | E.N.E. sum 0.02 |

Jan. 23.—Overcast, dull, and windy throughout. Bitterly cold.
— 24.—Overcast, dull day. Very cold. Little snow fell between 7 and 8 P.M.
— 25.—A dull overcast day. Cold. Slight thaw at night.
— 26.—Overcast, dull, and cold throughout. Slight thaw. Quantity of floating ice in the river Thames.
— 27.—Overcast, dull day. Cold. Very slight thaw continuing.
— 28.—A dull, overcast day. Very cold. Frosty.
— 29.—Overcast, dull, and cold throughout. Light breeze.

Note.—The mean temperature of the air for the twenty-nine days ending Jan. 29 was $31^{\circ}.5$, being $5^{\circ}.5$ below the average of sixty years.

LONDON: Barometer.—During the week ending Saturday, January 25, in the vicinity of London the reading of the barometer at the level of the sea increased from 30.13 inches at the beginning of the week to 30.38 inches by the evening of the 19th, decreased to 29.92 inches by the afternoon of the 21st, and (with the exception of small variations) increased to 30.09 inches by the end of the week. The mean daily values were above their averages on every day of the week, that for the 19th being 0.42 inch in excess. The mean reading for the week at sea level was 30.09 inches, being 0.07 inch above that of the preceding week, and 0.16 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 35° on the 19th, to $30\frac{1}{2}$ on the 20th, 21st, and 23d; the mean value for the week was $31\frac{1}{2}$. The lowest temperatures of the air observed by night varied from $22\frac{3}{4}$ on the 23d, and $23\frac{1}{2}$ on the 21st, to 29° on the 19th; the mean for the week was $25\frac{3}{4}$. The mean daily range of temperature in the week was $5\frac{3}{4}$, the greatest range in the day being $7\frac{1}{4}$ on the 23d, and the least $4\frac{1}{4}$ on the 18th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—19th, $31^{\circ}.7$, - $5^{\circ}.3$; 20th, $28^{\circ}.5$, - $8^{\circ}.7$; 21st, $26^{\circ}.9$, - $10^{\circ}.4$; 22d, $28^{\circ}.4$, - 9° ; 23d, $27^{\circ}.2$, - $10^{\circ}.3$; 24th, $28^{\circ}.9$, - $8^{\circ}.8$; 25th, $29^{\circ}.7$, - $8^{\circ}.1$. The mean temperature of the air for the week was $28^{\circ}.8$, being $8^{\circ}.7$ below the average of sixty years, and $13^{\circ}.9$ below the value for the corresponding week in 1878.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were $76\frac{1}{2}$ on the 19th, and 63° on the 22d; on other days the highest readings were between 32° and 38° . The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 24° on the 23d, $23\frac{1}{2}$ on the 22d, and 25° on the 20th; the mean of the seven lowest readings was $24\frac{1}{2}$.

Wind.—The direction of the wind was E.N.E., and its strength gentle. The weather during the week was dull and very cold, and the sky generally overcast. There was a quantity of floating ice in the Thames on the 24th, 25th, and 26th.

A little snow fell on the 24th; the amount measured was 0.02 inch.

ENGLAND: Temperature.—During the week ending Saturday, January 25, the highest temperatures of the air observed by day were $49\frac{1}{2}$ at Plymouth, 42° at Truro, 37° at Sunderland, and 36° at Cambridge, Norwich, Sheffield, Leeds and Hull; the highest temperature of the air at Leicester was 34° ;

the mean value from all places was $36\frac{1}{2}^{\circ}$. The lowest temperatures of the air observed by night were 18° at Sheffield, $18\frac{1}{2}^{\circ}$ at Wolverhampton, $19\frac{1}{2}^{\circ}$ at Leicester, 20° at Cambridge, 22° at Bradford, $22\frac{1}{2}^{\circ}$ at Bristol, and $22\frac{1}{2}^{\circ}$ at Nottingham; the lowest temperature of the air at Norwich was 28° , and at Sunderland was 27° ; the mean value from all stations was 23° . The range of temperature in the week was the greatest at Plymouth, $23\frac{1}{2}^{\circ}$, and the least at Norwich, 8° ; the mean range from all places was $13\frac{1}{2}^{\circ}$.

The mean of the seven high day temperatures was the highest at Plymouth, 38° , Truro, 37° , and Sunderland, 35° , and the lowest at Wolverhampton, $31\frac{1}{2}^{\circ}$, Blackheath, $31\frac{1}{2}^{\circ}$, and Sheffield, Liverpool, and Bradford, all $31\frac{1}{2}^{\circ}$; the mean from all places was $33\frac{1}{2}^{\circ}$. The mean of the seven low night temperatures was the lowest at Wolverhampton, 23° , Leicester $24\frac{1}{2}^{\circ}$, Blackheath and Cambridge, both $25\frac{1}{2}^{\circ}$, and Sheffield and Bradford, both $26\frac{1}{2}^{\circ}$, and the highest at Plymouth, $30\frac{1}{2}^{\circ}$, and Truro 31° ; the general mean from all stations was $27\frac{1}{2}^{\circ}$. The mean daily range of temperature in the week was the greatest at Leicester and Wolverhampton, both $8\frac{1}{2}^{\circ}$, and the least at Norwich, $3\frac{1}{2}^{\circ}$; the mean daily range from all places was 6° .

The mean temperature of the air for the week from all stations was 30° , being $11\frac{1}{2}^{\circ}$ lower than the value for the corresponding week in 1878. The mean temperature of the air was the highest at Plymouth, 34° , Truro $33\frac{1}{2}^{\circ}$, and Sunderland $32\frac{1}{2}^{\circ}$; and the lowest at Wolverhampton, $26\frac{1}{2}^{\circ}$, Leicester $28\frac{1}{2}^{\circ}$, and Blackheath, Sheffield, Liverpool, and Bradford all $28\frac{1}{2}^{\circ}$.

A little snow fell during the week; the amounts measured varied from half an inch at Nottingham, three-tenths of an inch at Leeds, and a quarter of an inch at Truro and Sunderland, to two-hundredths of an inch at Plymouth, Brighton, Blackheath, and Cambridge; the average amount over the country was 0.1 inch.

The weather during the week was dull, very cold, and dry. Snow fell generally, but the amount was very small.

SCOTLAND: Temperature.—The highest temperatures of the air observed by day varied from 39° at Paisley and 38° at Dundee and Perth, to $36\frac{1}{2}^{\circ}$ at Edinburgh, and 36° at Greenock; the mean from all stations was $37\frac{1}{2}^{\circ}$. The lowest temperatures of the air observed by night varied from 12° at Perth, 13° at Paisley, 17° at Dundee, and 20° at Edinburgh and Perth, to $25\frac{1}{2}^{\circ}$ at Aberdeen; the mean value from all places was $18\frac{1}{2}^{\circ}$. The mean range of temperature in the week was $18\frac{1}{2}^{\circ}$.

The mean temperature of the air or the week from all places was $28\frac{1}{2}^{\circ}$, being $1\frac{1}{2}^{\circ}$ below that of England, and 8° lower than the corresponding value in 1878. The highest was $31\frac{1}{2}^{\circ}$ at Aberdeen, and the lowest $24\frac{1}{2}^{\circ}$ at Perth.

A little snow fell generally: the amounts measured varied from a quarter of an inch at Dundee to 0.05 inch at Leith; the average amount over the country was 0.12 inch.

DUBLIN.—The highest temperature of the air was $39\frac{1}{2}^{\circ}$, the lowest $22\frac{1}{2}^{\circ}$, the range 17° , the mean $33\frac{1}{2}^{\circ}$, and the amount of melted snow 0.16 inch.

JAMES GLAISHER, F.R.S.

Obituary.

It falls to our lot to record the death of Mr. GEORGE P. TYE, on Sunday, January 19, at his residence, Stamford Road, Handsworth, Birmingham. His health had been declining for the past two years, and the event was therefore not unexpected by his family and friends. Mr. Tye will be long remembered as the producer of the Improved Registered Hyacinth Glass, introduced about 1852, which was indeed a well-marked improvement on the old tall, ill-contrived vessel in which Hyacinths were grown for many years. His profession was that of a die-sinker, but his great love for flowers led him to associate himself with the florists of the district. He took a warm interest in horticultural societies, and was a zealous supporter of every movement for its promotion in the neighbourhood of Birmingham. His genial disposition made him a great favourite, and endeared him to those who worked with him in horticultural matters. He was throughout its existence, it is believed, a leading member of the committee of the Handsworth Floral and Horticultural Society, and for a considerable period was honorary secretary, conjointly with his friend the late Mr. Charles J. Perry. He was also one of the founders of the Birmingham Rose Show. During the time Mr. Perry was the Editor of the *Birmingham and Midland Gardeners' Magazine*, Mr. Tye contributed occasionally to its columns.

Answers to Correspondents.

BONES FOR MANURE. Your correspondent "J. M. R." will find bones spoken of for manure in the tenth verse of the 83d Psalm, and again in the thirty-seventh verse of the ninth chapter of the second book of Kings. J. S.

BOUQUET AT FLOWER SHOW: Pandan. In July both the double Pelargonium and the Mrs. Marshall Fuchsia might be cut from outdoor plants, and if such were the case the judges were quite right. Possibly the framers of the schedule might have meant the bouquet to consist wholly of hardy plants, but if so, should have stated this plainly.

CAMELIAS: J. B. asks us to give him the names of some Anemone or Peony-flowered Camellias. We have never looked at Camellias from this point of view, and have not a complete list of them as Peony and Anemone-flowered, but will endeavour to get one as the flowering season advances; meanwhile we can only mention *pæoniiflora rosea*, *pæoniiflora pallida*, and *pæoniiflora alba*, as types of the Peony-flowered; and *anemoniflora*, "the red Waratah," *blanda*, "blush Waratah," *dianthiflora*, "Knight's Carnation Waratah," *Chandleri*, "Chandler's Striped Waratah," and *ornata*, the "pink Waratah," as types of Anemone-flowered.

CUCUMBERS: V. G. No doubt your plants are affected by disease. There is no known remedy, but your wisest course would be to clear your pits of plants and soil, wash or paint the wood, linewash the brickwork, make up a bed of new soil, and get a new stock of plants from a distance. We should avoid the dung, and try maiden soil.

DEER DROPPINGS: W. G. You can apply deer droppings as a top-dressing for Vine and Peach borders with perfect safety. It is a good manure.

DIPLADENIAS: G. B. The best compost to grow Dipladenias in, is a mixture of good peat and loam in equal proportions, and a liberal addition of silver sand.

GRAPES: W. G. Either the Muscat Hamburg or the Gros Colmar should do well inched on the Muscat of Alexandria (or Barnes' Muscat, as you call it), but if you have enough canes of the white Muscat, and are in the habit of starting the house tolerably early, we think the Gros Colmar would answer your purpose the best.

HEATING SMALL GREENHOUSE: E. F. No plan would be so good as a small hot-water apparatus, heated by gas, as that is available, nor would any other plan give so little trouble. The boiler should be set over an ordinary furnace of proportionate size, as if for burning coke, but, instead of burning fuel, let the gas-burners be placed in the furnace. There is then nothing to do but to light the gas, which will require no further attention than is sufficient to keep the heat regulated, the fumes will pass away up the chimney-pipe, and there will be no risk of the fire burning out for lack of attention. The furnace might be made accessible either from the outside or from some outhouse, as might be preferred. It should not of course communicate with the house in any way except to heat the water in the boiler. A small copper boiler would be best.

HOTBED: Amateur. Fresh stable manure, sweetened before using it, will answer your purpose much better than tan, and especially if you can mix with it an equal quantity of leaves.

INSECTS: Q., No. 37. The insects found in your cucumber-bed are the destructive wireworms or larvae of *Elatér sputator* or *lineatus*. The earth should be carefully sifted and baked. I. O. W.

LARGE SPECIMEN CHRYSANTHEMUM: T. M. H. The plant to which I alluded at p. 120 was grown by Mr. D. Donald, gr. to J. G. Barclay, Esq., of Leyton. I did not count the flowers, but I did on a plant of Christine of my own, and found about 350 large blooms. One cannot guess nearer than the statement that I made. On one occasion there was a dispute about the number of blooms on one of my Pompons; about 300 or 400 was the estimated number, and we counted about 1400. I well remember the plant in question. It was exhibited in the Artillery Hall, and the remark of one of the best exhibitors of blooms was, he wished he had one so good as those on Mr. Donald's plant to put into his stand. J. Douglas.

MACKAYA BELLA: S. S. This is a rather showy stove plant, belonging to the order of Acanthads. It is of easy culture, requiring the usual treatment of soft-wooded stove plants, that is, to be grown on vigorously and then rested.

NAMES OF FRUIT: J. F. Golden Noble. — *Edward Holmes*. Your Apple was so much bruised and rubbed that it could not be recognised.

NAMES OF PLANTS: H. M. E. 1. *Scelopendrium vulgare polyschides*; 2. *Selaginella pubescens*; 3. *Pteris hastata*; 4. *Lastrea tenericaulis*. — J. B. 1. *Athyrium Filix-femina*, crested, but too young to say which of the crested sorts; 2. *Onychium lucidum*; 3. *Gymnogramma Massoni*; 4. *Asplenium Belangeri*, *alias Veitchianum*; 5. *Pteris argyrea*.

PLANTAINS AND DAISIES ON LAWNS: J. G. The easiest of all methods adopted for exterminating these and other weeds in grass, is to encourage the latter to grow by all possible means. Give the lawn a dressing of nitrate of soda at the rate of 100 lb. per acre, which will save you the trouble and expense of burning.

PRIMULAS: G. R. B., Wincanton. Yours is a most extraordinary sport, and one which you should try to perpetuate, for though it would possibly not find favour with the florists, it might lead to something quite distinct from the races at present known. It is evidently very vigorous in growth; the flowers very large, with the calyx rather constricted at the mouth, and the corolla $2\frac{1}{2}$ inches across, much pitted and undulated, the

colour consisting of about equal proportions of rose, white, and green in distinct fronds or flakes. We shall refer again, next week, to any structural peculiarities it may present. — J. C. Remarkably fine, both as to size, form, and colour, and fully equal to the finest strains now so commonly met with in cultivation.

"REVUE HORTICOLE": Toujours prêt. We know nothing about the cost of advertisements in this journal. Apply to the publisher, M. A. Pelletier, 26, Rue Jacob, Paris.

ROCKERY: G. B. The bricks burnt together in odd shapes, and used for making rockeries, are known as "burs," and may be obtained at most brick-yards.

SOLANUMS FROM SEED OR CUTTINGS: W. G. We should think the seedlings would make the best plants, if well grown; but much depends on the skill of the cultivator. We have never tested the matter in the way you put it.

SPRING: Pandanad. The vernal equinox, which falls on March 21, marks the first day of spring.

THE CURATORSHIP OF THE ROYAL BOTANIC GARDENS, EDINBURGH: F. B. S. No good can now come by inserting such questions as you propose. Let a fair trial be made, and then if there is reason to complain let complaint be made.

VEGETABLE IVORY DUST: G. J. B. We have had no experience with it, but do not suppose that it is of much value as a manure, being composed chiefly of starchy material. It is totally different from animal ivory.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

ERRATUM.—At p. 111, third column, for "*Cupressus racemosus*" read *Cytisus racemosus*.

CATALOGUES RECEIVED:— Charles Wilson (Salford, Warwick), Catalogue of Garden, Farm, and Flower Seeds.—M. Bruant (Poitiers, Vienne, France), Catalogue of New Plants.—Messrs. S. Nairn & Son (62, Pilgrim Street, Newcastle-on-Tyne), Catalogue of Seeds, Gladioli, Dahlias, Hollyhocks, Pansies, &c.—Messrs. W. Samson & Co., and W. & T. Samson (8 and 10, Portland Street, Kilmarnock), Spring Catalogue of Seeds, Plants, Florists' Flowers, Trees, Implements, &c.—V. Lemoine (Rue de l'Etang, à Nancy, France), Catalogue of Plants, &c.—Richard Lowe (32, Queen Square, Wolverhampton), Descriptive Catalogue of Flower, Vegetable, and German Seeds.—T. W. Daley (Yeovil, Somerset), Catalogue of Vegetable, Flower, Agricultural Seeds, and Gladioli.—Messrs. P. S. Robertson & Co. (33, St. Andrew Square, Edinburgh), Descriptive Price List of Garden, Flower, and Farm Seeds, Implements, &c.—Messrs. Howden & Co. (Muirtown, Inverness), Descriptive Priced List of Vegetable and Flower Seeds, and List of Gladioli, Implements, &c.—Messrs. S. Dixon & Co. (34, Moorgate Street, London, E.C.), Catalogue of Vegetable and Flower Seeds.—Messrs. Drummond Brothers (52, George Street, Edinburgh), Select Catalogue of Roses, Liliuns, Seeds, Gladioli, &c.—Messrs. H. Cannell & Son (Swanley, Kent), Annual Illustrated Floral Guide and Catalogue for 1879.

COMMUNICATIONS RECEIVED.—W. P. (many thanks).—G. S. B.—C. Y. M.—R. G.—J. C. & Co.—J. I. L.—C. E. S.—H. B.—W. W.—T. H.—E. W. & Sons.—S. & S.—J. G. B.—W. H.—J. R. J.—C. L.—R. D.—D. T. F.—A. B.—W. C.—G. E.—W. S.—J. P.—H. C.—R. T. C.—W. T. T. D.—W. H. F.—P. J. M.

Markets.

COVENT GARDEN, January 30.

Trade remains quiet; the only feature this week has been a large consignment of St. Michael Pines at very low prices. The late severe weather has greatly limited the supply of outdoor vegetables. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|----------------------------------|
| Arum Lily, or Rich- | Euonymus, var., doz. 6 0-18 0 |
| ardia aethiop., doz. 9 0-18 0 | Ferns, in var., p. doz. 6 0-18 0 |
| Azaleas, per dozen. 24 0-60 0 | Ficus elastica, each 2 6-15 0 |
| Begonias, per doz. 6 0-12 0 | Foliage Plants, vari- |
| Bouvardias, per doz. 18 0-24 0 | ous, each .. 2 0-10 6 |
| Camellias, per dozen 18 0-60 0 | Mignonette, per doz. 6 0-9 0 |
| Cinerarias, per doz. 12 0-18 0 | Myrtles, per doz. 6 0-12 0 |
| Cyclamens, per doz. 12 0-30 0 | Palms in variety, |
| Cyperus, per dozen 6 0-12 0 | each .. 2 6-21 0 |
| Dracæna terminalis 30 0-60 0 | Pelargoniums, scar- |
| — viridis, per doz. 18 0-24 0 | lets, zonal, doz. 6 0-12 0 |
| Epiphyllum, per doz. 18 0-60 0 | Primulas, per dozen 4 0-12 0 |
| Erica Caffra, p. doz. 6 0-9 0 | Solanums, per doz. 6 0-18 0 |
| — gracilis, p. dozen 9 0-12 0 | Tulips, per dozen .. 8 0-12 0 |
| — hyemalis, p. doz. 12 0-42 0 | |

CUT FLOWERS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|---------------------------------|
| Abutilon, 12 blooms 0 6-1 0 | Lily of Val., 12 sprays 2 0-6 0 |
| Arum Lilies, 12 blms. 4 0-12 0 | Mignonette, 12 bun. 12 0-18 0 |
| Azaleas, 12 sprays .. 1 0-3 0 | Narcissus, paper- |
| Bouvardias, per bun. 1 0-4 0 | white, 12 sprays .. 2 0-6 0 |
| Camellias, per dozen 3 0-12 0 | Pelargoniums, 12 spr. 2 0-4 0 |
| Carnations, per dozen 1 6-4 0 | — zonal, 12 sprays 1 0-2 0 |
| Cyclamen, 12 blooms 0 6-1 6 | Primula, double, per |
| Deutzia, 12 bunches 6 0-12 0 | bunch .. 1 0-2 0 |
| Epiphyllum, 12 blms. 1 0-3 0 | — single, 12 bunch. 6 0-12 0 |
| Eucharis, per doz. .. 6 0-18 0 | Roses (indoor), doz. 3 0-12 0 |
| Euphorbia, 12 sprays 3 0-6 0 | Tropæolum, 12 bun. 2 0-6 0 |
| Gardenias, 12 blms. 12 0-24 0 | Tuberoses, per dozen 3 0-6 0 |
| Heliotropes, 12 sp. .. 0 6-1 0 | Tulips, 12 blooms .. 1 0-3 0 |
| Hyacinths, 12 spks. 4 0-12 0 | Violets, 12 bunches 4 0-9 0 |
| — Roman, 12 spks. 2 0-4 0 | |

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|----------------------|-------------|
| Apples, 1/2-basket | 1 6-5 0 | Oranges, per 100 | 4 0-8 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 3 0-8 0 | Pine-apples, per lb. | 1 0-2 6 |
| Lemons, per 100 | 1 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0-.. |
| Globe, doz. | 2 0-4 0 | Lettuces, Cabbage, | |
| Jerusalem, bush. | 4 0-.. | per doz. | 1 6-.. |
| Asparagus, Fr. sprue, | | Mint, green, bunch.. | 1 6-.. |
| per bundle | 1 6-.. | Onions, young, bun. | 0 4-0 6 |
| Eng., per 100 | 10 0-.. | Parsley, per bunch.. | 0 4-.. |
| Fr. giant, p. bun. | 30 0-.. | Peas, per quart | 12 0-.. |
| Beans, French, p. 100 | 2 0-.. | Potatoes, new, basket | 1 0-.. |
| Beet, per doz. | 1 0-2 0 | Radishes, per bunch | 0 1-0 3 |
| Brus. sprouts, bush. | 10 0-.. | Spanish, doz. | 1 0-.. |
| Cabbages, per doz. | 1 0-2 0 | New Jersey, doz. | 2 0-.. |
| Carrots, per bunch | 0 4-0 6 | Rhubarb, doz. | 10 0-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Shallots, per lb. | 0 6-.. |
| Celery, per bundle | 1 6-2 0 | Seakale, per punnet | 2 6-.. |
| Chilis, per 100 | 2 0-.. | Spinach, per bushel | 4 0-5 0 |
| Cucumbers, each | 0 9-1 6 | Sweet Potatoes, per lb. | 0 6-.. |
| Endive, Batav. dozen | 1 6-.. | Tomatoes, per dozen | 2 6-3 0 |
| Garlic, per lb. | 0 6-.. | Turnips, p. 12 bunch. | 3 0-6 0 |
| Herbs, per bunch | 0 2-0 4 | | |

The Potato market is quiet, and without alteration in prices:—
Regents, 100s. to 130s.; Early Rose, 110s. to 125s. per ton.

SEEDS.

LONDON: Jan. 29.—A very quiet feeling continues to characterise the trade for seed. Of medium English red Clover the supply is now most abundant, and prices consequently rule extremely low. Large purple Clover, however, being exceedingly scarce, is held for more money. Of foreign seed there is hardly anything on the market. The French, instead of, as usual, being large importers to this country, have this season been buyers of English seed. Of choice American red there is a small supply on Mark Lane; prices range from 40s. to 42s. per cwt. The latest advices from New York speak of a considerable export movement to Germany: cable quotations received this day from Chicago show an advance on previous rates of 1s. to 2s. per cwt. Fine Trefoils are obtainable at a moderate figure, and Alsikes and white Clovers are also very cheap. Sainfoin—by way of exception to the low level of value marking all other kinds of seeds—is this year relatively dear. In Mustard and Rape seed there is no quotable variation; the same can be said of Hemp, Canary, and Millet seeds, all of which are exceedingly cheap. Blue Peas and Haricot Beans move off on former terms. In consequence of the excitement over Lentils, the market has been quite cleared of the whole Egyptians: a few German Lentils are offering, but the demand chiefly runs upon the split Egyptians, which are in increasing favour at about 20s. per cental. Country buyers are taking advantage of the low prices of spring Tares—from 30s. to 32s. per qr.—to lay in some stock. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Trade was in a very quiet state at Mark Lane on Monday. A limited demand prevailed for Wheat, both English and foreign, and quotations showed little or no change. The tone of the market was weak, but there was no disposition to force sales. Good malting barley continued in request to the exclusion of other descriptions. Malt was steady on former terms. Oats and Maize had a very slow sale, and prices were with some difficulty supported. Beans and Peas were quiet and unaltered. Flour was dull at about late rates.—On Wednesday no feature of importance presented itself. Operations were confined within very moderate limits, and prices were much the same as Monday. English Wheat was in short supply, but the show of foreign was pretty good. Spring corn had a slow sale, and where there was any change it was not on the side of the seller. Flour was very dull.—Average prices of corn for week ending Jan. 25:—Wheat, 39s. 1d.; Barley, 37s. 5d.; Oats, 20s. 1d. For the corresponding period last year:—Wheat, 51s. 10d.; Barley, 44s. 8d.; Oats, 24s.

CATTLE.

At Copenhagen Fields on Monday the supply of beasts was short, but on the average no improvement in price could be reported. A few choicest qualities made rather over our top quotation. The demand for sheep was very limited, and prices could not be quoted higher. Choice calves were rather dearer. Quotations:—Beasts, 4s. 4d. to 4s. 10d. and 5s. 4d. to 5s. 6d.; calves, 5s. 6d. to 6s. 6d.; sheep, 5s. to 5s. 6d., and 6s. 6d. to 6s. 10d.—Trade was dull on Thursday, and much in the same position as on the previous market-day. Both beasts and sheep met a quiet sale, and were about the same in value as above reported. Calves were quiet, and pigs dull.

POTATOS.

The Borough and Spitalfields reports state that the demand for good Potatoes continues fair, and quotations for such are pretty firm, but there is a heavy market for inferior kinds. Victorias, 120s. to 150s.; flukes, 120s. to 140s.; Regents, 100s. to 130s.; Champions, 80s. to 100s. per ton.—The importations into London continue upon a very small scale. During last week 6056 bags were received from Hamburg, and between 800 and 900 bags from other parts of the Continent.

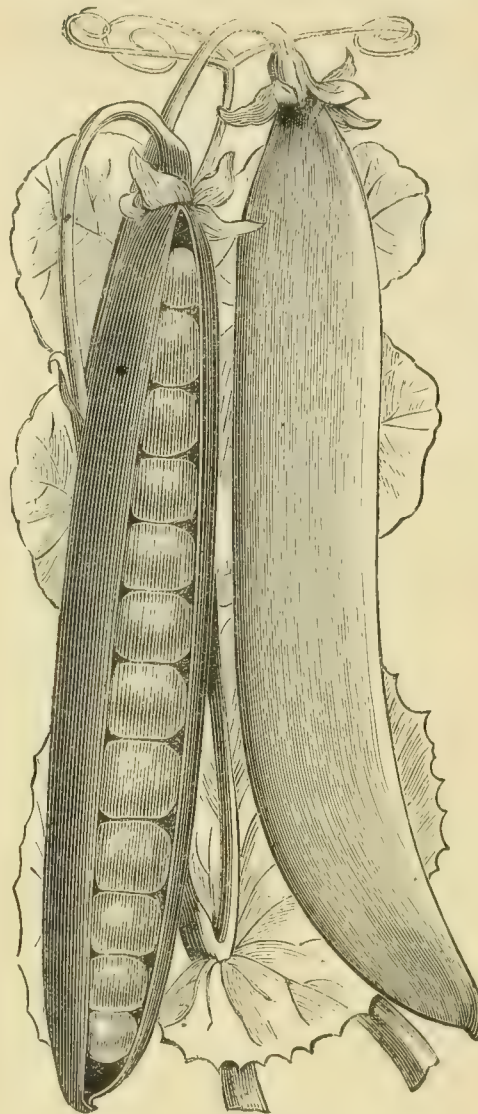
COALS.

Prices at market on Monday showed little alteration from those previously reported; Wednesday's report is to the same effect, but Hartleys gave way 6d. per ton. Quotations:—Beaside West Hartley, 14s. 3d.; Carr's Hartley, 14s.; Springwell West Hartley, 14s. 3d.; Walls End—Lambton, 20s. 6d.; Original Hartlepool, 21s.; Wear, 19s. 9d.; Salvin's Hutton, 19s. 6d.

CHARLES SHARPE & CO.

SHARPE'S INVINCIBLE.

New Long-Podded Blue Marrow Pea.



Price, per Quart, 2s. 6d.

Half-pint Packets, free by Post, 1s.

For further testimonials and description see "Gardeners' Chronicle" of Nov. 23, p. 671, and Nov. 16, p. 644.

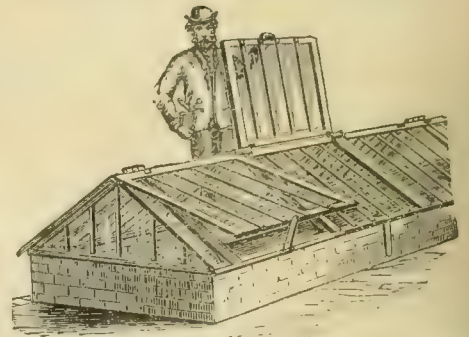
SHARPE'S RAUGEY HALL MELON.

Price, 2s. 6d. per Packet.

For TESTIMONIALS see "Gardeners' Chronicle" of Dec. 14, p. 766.

Trade Price on application.

SLEAFORD

BOULTON & PAUL,
Horticultural Builders, Norwich.

No. 64. PATENT PLANT PRESERVERS.

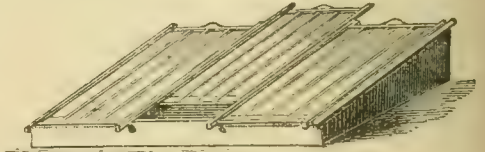
ARRANGED TO BUILD ON BRICK WALLS.

This is the Practical Gardener's and Nurseryman's favourite Frame, now largely used for storing the great quantities of bedding plants in winter, and in summer for growing Melons, &c.

Section No. 64 shows the frame built on brickwork, with a pit sunk low enough for making a dung bed for growing Cucumbers, Melons, &c. This form can be made up to any length required. (See List, free on application.)

CASH PRICES, including two glass ends to each length, painted four times, glazed with 21-oz. glass. Carriage paid.

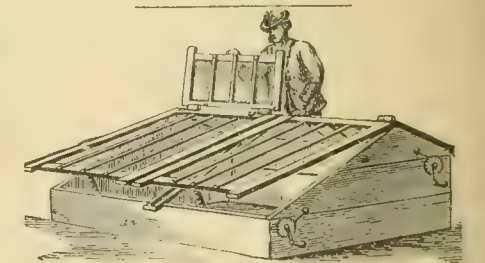
| Length. | Width. | | Length. | Width. | |
|---------|--------|---------|---------|--------|---------|
| Feet. | Feet. | £ s. d. | Feet. | Feet. | £ s. d. |
| 12 | 5 | 5 5 0 | 24 | 6 | 11 10 0 |
| 18 | 5 | 7 5 0 | 30 | 6 | 14 0 0 |
| 24 | 5 | 9 2 6 | 12 | 7 | 8 0 0 |
| 30 | 5 | 11 2 6 | 18 | 7 | 11 0 0 |
| 12 | 6 | 6 10 0 | 24 | 7 | 14 0 0 |
| 18 | 6 | 9 0 0 | 30 | 7 | 17 0 0 |



100 MELON and CUCUMBER FRAMES

Ready to dispatch on receipt of order. These Frames are made of the best red deal, thoroughly seasoned, and fitted by first-class workmen: 24 inches high at the back, 13 inches high in front; painted three coats of good oil colour, glazed with the best 21-oz. glass, every pane of which is nailed in and bedded in putty—the best method of glazing known, and adopted by the most eminent Builders and leading Nurserymen (see the *Garden* for January 13, 1877, p. 30). Iron handles to each light, and an iron strengthening bar across. Each light is 6 feet by 4 feet, and 2 inches thick.

| | CASH PRICES. | £ s. d. |
|--------------------|------------------|---------|
| 1-Light Frame..... | 4 feet by 6 feet | 2 0 0 |
| 2-Light "..... | 8 " 6 " | 3 7 6 |
| 3-Light "..... | 12 " 6 " | 4 17 6 |
| 4-Light "..... | 16 " 6 " | 6 7 6 |
| 5-Light "..... | 20 " 6 " | 7 17 6 |
| 6-Light "..... | 24 " 6 " | 9 7 9 |



No. 74. NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.

Our illustration shows a New Frame for Growing Cucumbers, Melons, &c., and for storing plants. It is made to give greater height and more convenience than the Melon Frame, No. 75. The front is 11 inches high, without the light, 32 inches high at the ridge, and 22 inches high at the back. The front lights can be turned back on the lights behind, and the back lights turned on to the front lights, giving access to all the plants. They are made of the best red deal, sides and ends 1 1/2 inch thick, 2 inch lights; all are painted three times and glazed with 21-oz. sheet glass.

| | CASH PRICES—Carriage paid. | £ s. d. |
|------------|----------------------------|--|
| Size. | From front to back. | Gearing extra to 8 ft. size and upwards. |
| Feet. | Feet. | £ s. d. |
| No. 1.. 4 | 6 | 3 0 0 |
| No. 2.. 8 | 6 | 4 15 0 |
| No. 3.. 12 | 6 | 0 10 0 |
| No. 4.. 16 | 6 | 8 5 0 |
| No. 5.. 20 | 6 | 10 0 0 |
| No. 6.. 24 | 6 | 11 10 0 |

SPECIAL NOTICE.—Carriage paid to any railway station in England, also to Dublin, Glasgow, and Edinburgh, on order of 40s. and upwards.

Breakage seldom occurs. Should any glass be broken we will send sufficient to repair it, carriage free. Packing Cases charged cost price, and half allowed when returned free to our Works.

New Illustrated Catalogue of Greenhouses, Plant Preservers, Melon Frames, &c., post-free.

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First-class Certificate, Royal Horticultural Society.

Selected from Culverwell's "Telegraph," from which it differs in the seeds being wrinkled, whilst the quality is very superior. Like Culverwell's "Telegraph" it is an extraordinary cropper, bearing myriads of immense semi-double pods, full of very large Peas of most exquisite flavour. Highly recommended.

Awarded a First-class Certificate by the Royal Horticultural Society, after a Crucial Trial in the Society's Gardens.

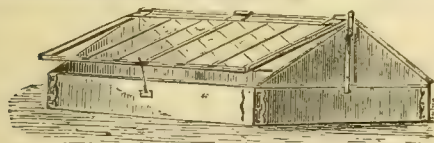
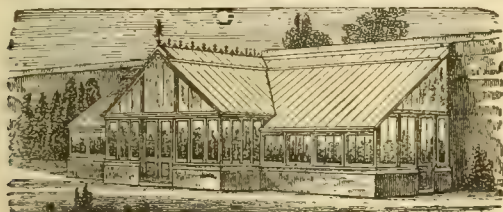
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HIGH HOLBORN,
LONDON, W.C.

PARHAM'S PATENT SYSTEM OF GLAZING WITHOUT PUTTY



New "Registered" Acme Plant Preserver,

With "Truss" Hinge, and no Principals.

The Ridge always fits close, the interior is free from all obstruction, the corners are secured in iron angle-plates: glazed, without putty, with 21-oz. glass.

| Long. | Wide. | Price. | Long. | Wide. | Price. |
|------------------|-------|--------|-------------------|-------|--------|
| 6 feet by 3 feet | .. | £2 7 6 | 12 feet by 3 feet | .. | £4 0 0 |
| 6 feet by 4 feet | .. | 3 0 0 | 12 feet by 4 | .. | 5 0 0 |

On Channelled Wrought-Iron
Rafters,

Secures almost entire immunity from Breakage of Glass, great saving in repairs and re-painting, and absolute freedom from Drip.

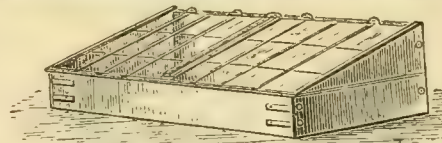
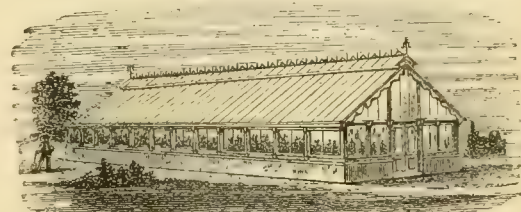
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Extra strong Cucumber or Melon Frames,

With 2-inch sashes and 1½-inch red deal frames, secured at each corner with two wrought-iron strap bolts. Glazed, without putty, with 21-oz. glass.

| Long. | Wide. | Price. | Long. | Wide. | Price. |
|-----------------------------|-------|--------|-----------------------------|-------|---------|
| 4 feet by 6 feet, 1 light | .. | £2 2 0 | 16 feet by 6 feet, 4 lights | .. | £7 5 0 |
| 8 feet by 6 feet, 2 lights | .. | 3 12 0 | 20 feet by 6 feet, 5 lights | .. | 8 15 0 |
| 12 feet by 6 feet, 3 lights | .. | 5 7 6 | 24 feet by 6 feet, 6 lights | .. | 10 10 0 |

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GLOXINIA CRASSIFOLIA GRANDI- FLORA, magnificent strain,

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ROSES, FRUIT TREES, CONIFERS,

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SEED POTATOS.—Myatt's Prolific, Royal

Ashleaf, Erin's Queen, Mona's Pride, Gloucestershire Kidney, Early Rose, Extra Early Vermont, Veitch's Ashleaf, Snowflake, International Kidney, Prince Arthur, Schoolmaster, Magnum Bonum, Beauty of Hebron, Covent Garden Perfection, Trophy, Triumph, Table King, Scotch Champion, Superior, &c.

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CHOICE FLOWER SEEDS

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We have designed the following Collections for persons who have only a small space at their command, and who do not wish to have large packets of seed, but still wish to have flowers of the best quality. We have saved several of the following from our own unsurpassed strains, and the others have been obtained (regardless of expense) from the most noted strains extant. We do not profess to give large quantities of seed, but we guarantee it to be of the best quality.

The GREENHOUSE COLLECTION contains twelve of the Improved Camellia-flowered, Begonia (tuberous rooted), Calceolaria, Cineraria, Cockscomb, Cyclamen persicum, Petunia hybrida grandiflora, Primula sinensis fimbriata. The above eight, post-free, 5s., or four of the above, post-free, 2s. 6d.

The BEDDING COLLECTION contains twelve of the most useful for raising in heat and bedding out in May, as follow:—Ageratum Imperial Dwarf Blue, Aster Dwarf Chrysanthemum-flowered, Cineraria maritima, Linum grandiflorum rubrum, Lobelia speciosa, Myosotis (Forget-Me-Not), Perilla nankinensis, Petunia hybrida, Pyrethrum aureum laciniatum, Phlox Drummondii grandiflora splendens, Stock (large-flowered dwarf German), Zinnia, double. The above twelve, post-free, 3s. 6d.; six, post-free, 1s. 9d.

The HARDY COLLECTION contains twelve of the best and most showy hardy annuals, post-free, 1s. 2d.

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Reduced Price:—In 4 bushel bags, bags included, at 1s., or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—J. STEVENS and CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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supplied by G. W. Tricker & Co. to the principal Nurserymen and Gardeners in the United Kingdom. Finest Kent and Hampshire PEATS, Bedfordshire SAND, LOAM, MANURES, and everything for the Garden and Conservatory. Goods free to Rail in London. Write for price list.

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GARDEN REQUISITES.—COCOA-NUT

FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners,

3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s.

4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;

5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half

ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF

MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and

Paper, Russia Mats, &c.

Write for free PRICE LIST. Goods free to rail.

H. G. SMYTH, 10, Castle Street, Endell Street, Long Acre, W.C.

PEAT.—South of England Horticultural Peat

Lands.—C. R. HOLLOWAY, Christchurch, Hants.—BROWN, FIBROUS, Light-weighting Peat, of excellent quality, for Orchids, Ferns, &c., well cut in Turfs and carefully loaded into Railway Trucks, at 17s. 6d. per ton, in loads of 4 Tons and upwards. Sample bag, 5s.; five bags, 21s.; 12 bags, 40s. Some also, of good quality, at 13s. 6d. per ton, four tons and upwards. "Carriage rates given."

PEAT for RHODODENDRONS and ordi-

nary POT PLANTS, in trucks containing 14 yards or loads, put on rail at Ringwood Station, £3 15s. Carriage paid to London or any Station on the L. & S.W. Railway, £5 5s. per truck of fourteen loads. Cash or reference.

J. PRYER, Manager, Peat Stores, Vauxhall Station and Ringwood.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best

quality for Orchids, Stove Plants, &c., £6 6s. per truck.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.

Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 12 bags, 36s. Bags, 4d. each.

Fresh SPHAGNUM, 10s. 6d. per bag.

WALKER and CO., Farnborough Station, Hants.

PEAT SOIL, PEAT SOIL.—

BROWN FIBROUS, good quality, for Orchids, Pot

Plants, Ferns, &c., £6 6s. per truck. BLACK, good quality for

American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s.

per ton, or 6-ton truck for £4 10s. Delivered on rail at Black-

water, S. E. R., or Camberley, S. W. R., by the truckload. Cash

with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER and SON, Crown Nurseries, Reading.

THE BEST MANURE.—

CARTER'S FERTILISER FOR FLOWERS.

CARTER'S FERTILISER FOR POTATOS.

CARTER'S FERTILISER FOR VEGETABLES.

Professor CHURCH says, "I am much pleased with the

thoroughly satisfactory character of Carter's Fertiliser."

Price 1s. 9d. and 4s. 6d. per tin. Cheaper in larger quantities.

CARTERS, The Queen's Seedsmen, High Holborn, London.

VINE MANURE.—Two-Cwt. sample, in

bag, free on Rail in London on receipt of P. O. O. for

10s. 6d. payable to

COLLINS and CO., 28, Long Lane, Bermondsey, S.E., and Belvedere Manure Works, Belvedere, Kent.

Safe and Certain.

SIMPSON'S RED SPIDER

and THRIP ANTIDOTE. Per quart, condensed, 6s.;

per pint, 3s. 6d. Supplied to Seedsmen and Chemists.

Prepared by JOHN KILNER, Wortley, Sheffield.

THE NEW FRENCH MANURE,
LE FLORAL,
surpasses all others.
FOR VEGETABLES increases the quantity. LE FLORAL
FOR FLOWERS increases size and brightens colour. LE FLORAL
FOR TREES, &c. increases verdure and luxuriance. LE FLORAL
For testimonials, prices, and full particulars apply to
The Sole Agents for England,
SUTTON AND SONS, The Queen's Seedsmen, Reading.

CLAY'S FERTILISER, Or PLANT FOOD.

Is now respectfully offered to the Public, after having been thoroughly tested and approved, during the last three years, by the principal Market Growers and Gardeners. It is a powerful and lasting Manure, quick in action, and clean and safe to use. See correspondence in *Gardeners' Chronicle*, Oct. 5, 12, 19, and 26. To be had of Seedsmen, Nurserymen, and Florists, in packets, 1s.; and in bags, $\frac{1}{2}$ cwt., 7s. 6d.; $\frac{1}{4}$ cwt., 12s. 6d.; 1 cwt., 20s.; or by letter addressed to 174, High Street, Homerton, London, E. References can be given to over 200 of the principal Nurserymen and Florists.

GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Wholesale Russia Mat Merchants.

MARENDAZ AND FISHER, Importers of
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RAFFIA FIBRE, &c. Manufacturers of TANNED
NETTING, TIFFANY, and other Garden Requisites.
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RAFFIA for TYING,
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Bamboo Canes, Virgin Cork, &c.

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For COVERING, TYING, and PACKING,
are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. SACKS and BAGS of every description. TARPAULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

To Orchid Growers.

BASKETS.—Superior made, Teak-wood; galvanised or copper wire used. Sample Basket sent carriage paid on receipt of 24 stamps. List of Prices on application. Reference to several Prize Growers.

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TERRA-COTTA more durable than Stone.—Vases, Tazas, Flower Trays, Pedestals, Balustrades, Brackets, Terminals, Cornices, &c. For designs and prices apply to JOHN M. BLASHFIELD, 42, Berners Street, W.

Rosher's Garden Edging Tiles.



THE ABOVE and many other PATTERNS

are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design. F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability. Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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SILVER SAND, fine or coarse grain as desired. Price by Post per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post. FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Under the Patronage of the Queen.
J. SMITH'S IMPERISHABLE STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit." Samples and Price Lists free.

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO'S PATENT.—Prices, Printed Patterns, and Specimens, sent post-free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c. MAW AND CO., Benthall Works, Broseley.

HELLIWELL'S PATENTED NEW SYSTEM of AIR and WATER-TIGHT IMPERISHABLE GLAZING. All Woodwork is covered, and no outside Painting is required. Old Roofs Reglazed. Any one can repair or take in pieces.

"It is suitable for Railway Stations, Mills, Weaving Sheds, &c., but is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."—*The Builder*.

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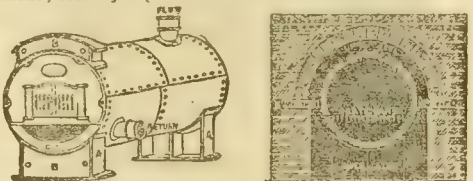
"Convincingly prove the new Glazing System to be worthy the attention of readers of the *Keystone*."—*The Keystone*.

For Estimates, Drawings, or Particulars, apply to the Patentee.

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STEVEN'S TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most SIMPLE, ECONOMICAL, EFFECTUAL, and LASTING BOILER extant; recently improved.



See Testimonials from Highest Authorities.

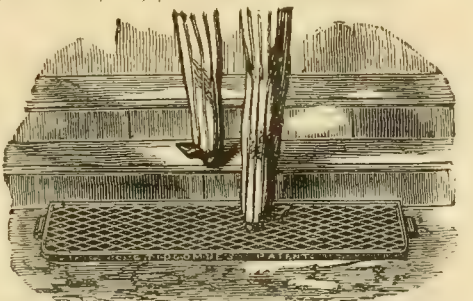
For Illustrations, with full particulars, apply to the Sole Makers,
F. & J. SILVESTER.

HOT-WATER ENGINEERS, &c., &c.,
Castle Hill Works, Newcastle, Staffordshire.

Our Boilers are the ONLY ones made with the sanction and under the inspection of the inventor, Mr. Stevens—all others being base imitations.

THE GRAVEL-WALK METAL

SCRAPER MATS.—They improve the appearance of Entrances, are suitable for all kinds of Gravel-walk Entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step. They are the width of an ordinary step, and being directly in the path cannot escape use, save much wear in other mats, floorcloths, and carpets, and their endurance is incalculable. Lengths, 2 feet 3 inches, price 10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.; 3 feet 8 inches, 18s.; 4 feet, 20s. All 12 inches wide.



Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

Galvanised Corrugated Roofing (Salvage).

BROOKER, DORE AND CO., 2, Rood Lane, London, E.C. have a quantity of slightly discoloured but otherwise sound Sheets for sale cheap, 4 to 10 feet long and 2 feet wide.

TIFFANY AND ELASTIC NETTING

(REGISTERED).—It is now twenty-five years since we introduced the article we called "SHAW'S TIFFANY" for horticultural shading and protecting, and up to the present all imitations have fallen short of the beauty, texture, and utility of the article. Our immense sale enables us at all times to put it on the market at a lower price than any other house.

Tiffany and Elastic Netting (REGISTERED), with Canvas and all other Shading and Protecting Materials, manufactured and sold by
JOHN SHAW AND CO., 29, Oxford Street, Manchester.
Samples and prices on application.

Send for a PRICE LIST of BLAKE'S SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of
Villages, Irrigation, Railway Stations, Mansions,
Fountains, Farms.

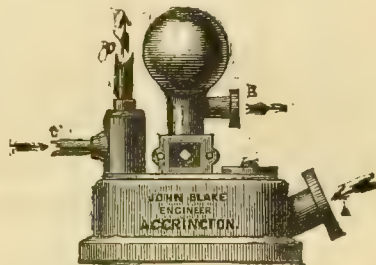
No Cost for Motive Power, which is obtained from the
Stream of Water passing through the Rams.

NO OILING OR PACKING REQUIRED

Made in sizes to raise from 300 to 100,000 Gallons per day.

WILL FORCE TO A HEIGHT OF 1500 FEET.

This advertisement will
appear again on Feb. 15.



This Ram will raise a part of the same water that works it, or will raise pure water from a well whilst it is worked by a stream of impure water.

TESTIMONIALS.

From the Right Hon. T. SOTHERN ESTCOURT, *Estcourt Park, Gloucestershire, September 6, 1875.*

"You will be glad to hear, as I am to tell you, that your Self-acting Hydraulic Ram has worked exceedingly well and continuously since it was erected, more than twelve months ago. It is, in fact, perfectly successful."

(The delivery pipe in the above case is 4200 feet long, with 100 feet rise.)

From Captain TOWNSHEND, *Wineham, February 10, 1877.*

"In answer to your enquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long at the rate of 80,000 gallons per day, although you only promised 50,000."

From W. SCARTH, Esq., *Agent to His Grace the Duke of Cleveland, Raby Castle, Darlington, July 16, 1878.*

"The Hydraulic Ram you supplied to his Grace the Duke of Cleveland in 1875 is a complete success. It worked for more than two years without once stopping, and throws more water than promised."

Deanwater, Wilmslow, November 20, 1873.

"Dear Sir,—In answer to your enquiries respecting the Hydraulic Ram you supplied me with six months ago, I beg to state that I am more than satisfied with it, as it is in perfect order, sending up to the top of the house about 2000 gallons of water in the twenty-four hours, whereas you only contracted to deliver in that time 500 gallons. I have, therefore, every reason to be well pleased with your work, and more especially as I had a Ram supplied me by another maker which could not send up a single gallon of water to the height required, and a second maker informed me that no Ram with a fall of 3 feet could send up water to the distance required, namely, 120 feet. But yours is an accomplished fact, and does its work most effectually.—I am, yours truly, L. HANMER."

From JOHN TAYLOR, Esq., *The Rocks, Bath, Aug. 22, 1878.*

"The Self-acting Hydraulic Ram you fixed here in March of last year continues to work well. It has only the same quantity of water and fall to work it as the water-wheel and pump which I used previously to force to a height of 294 feet, and yet the Ram sends up more than double the quantity of water than the wheel did to the same height."

From JOHN PENNINGTON, Esq., *Emmott Hall, near Colne, December 21, 1868.*

"Sir,—The Self-acting Hydraulic Ram you supplied me with nine months ago continues in excellent condition. It receives water from a spring through a 2-inch pipe, of which it forces 3600 gallons per day of twenty-four hours to a height of 90 feet, exceeding all you promised, and far surpassing the water-wheel and force pumps which it has displaced. Its cost is small, it occupies but little space (2 square feet), and in mechanical detail is simplicity itself. I have much pleasure in recommending it as a cheap and efficient method of raising water."

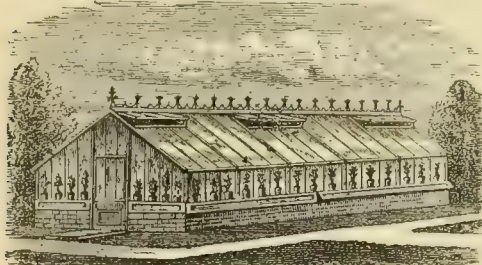
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ENGINEER, ACCRINGTON.**

GREENHOUSE LIGHTS, FRAME LIGHTS, PIT LIGHTS.

All sizes in Stock or in progress. Made of best material, glazed or unglazed, 6 feet by 3 feet 10½ inches, painted three times, glazed with 21-oz. English glass, 16s. each. Special price for a quantity. Carriage free. Packing free.

Estimates for any size and quantity given.

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HORTICULTURAL BUILDERS,
NORWICH.



JOHN BOWMAN,

Timber and Mahogany Importer and Merchant,
HORTICULTURAL BUILDER,
WEST END STEAM JOINERY,
NEWCASTLE-ON-TYNE.

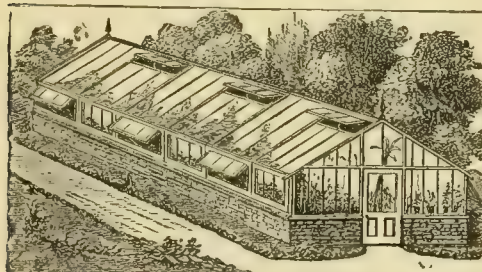
GREENHOUSES complete, from £10 to £1000.

PORTABLE BOX with ONE LIGHT, 6 feet by 4 feet, glazed
16 oz. sheet glass, and painted four coats .. 35s.
PORTABLE BOX with TWO LIGHTS, as above, each Light
6 feet by 4 feet. .. 65s.

Estimates given for Conservatories and Green-
houses of every kind.

*Well-seasoned Materials and First-class Workmanship
guaranteed.*

Legion of Honour (Paris Exhibition): Gold Medal.
W. H. LASCELLES, HORTICULTURAL
BUILDER,
121, Bunhill Row, London, E.C.

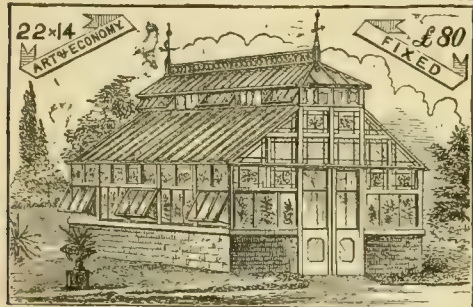


Estimates given on application for GREENHOUSES and
CONSERVATORIES of all kinds, and to any design.

GARDEN BOXES and LIGHTS. Each
Portable Box with One Light, 6 feet by 4 feet, glazed
good 15-oz. sheet glass, painted four coats, and
packed ready for use .. 35 0
Portable Box with Two Lights, as above, each light
6 feet by 4 feet .. 65 0

LIGHTS ONLY.

3 feet by 4 feet light, not painted nor glazed .. 3 6
Ditto glazed, good 15-oz. sheet glass, and painted 4 coats .. 10 0
6 feet by 4 feet, not painted nor glazed .. 6 0
Ditto glazed and painted 4 coats .. 16 6



BECKETT BROS.,

HORTICULTURAL BUILDERS and HOT-WATER ENGINEERS.
Patentees & Manufacturers of the Self-adjusting Throttle Valve,
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Glasshouses.

B. W. WARHURST (late Hereman & Morton)
will give Prices for all kinds of
HORTICULTURAL BUILDINGS IN WOOD,
on receipt of particulars.

Price Lists free. A Pamphlet for three stamps.
B. W. WARHURST, 43, Highgate Road, London, N.W.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

BETHAM & SON,

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B. & Son have always a large Stock in London of 20-in. by 12-in.,
20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. & 21-oz.

HORTICULTURAL WINDOW GLASS.

A large variety of sizes, 15-oz., 12s. 6d.; 21-oz., 16s. 6d.,
per 100 feet. Large sizes, in Cases, for Cutting up—15-oz. 4ths,
30s.; 3ds, 40s. per 100 feet;—21-oz. 4ths, 30s.; 3ds., 40s.
per 200 feet.—ALFRED SYER, Glass, Lead, Zinc, Oil and
Colour Merchant, 8, Pentonville Road, London, N.



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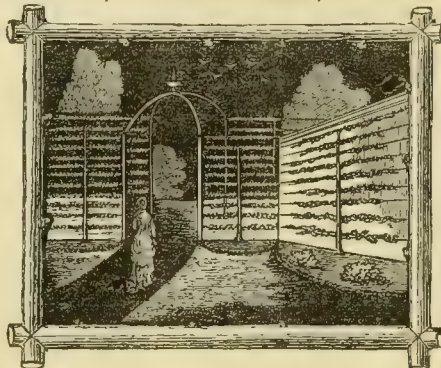
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CONTINUOUS BAR FENCING,

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Field and Entrance Gates, Tree Guards, &c.,
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FOR

Wiring Garden Walls & Training Fruit Trees.

Admitted by every practical gardener to be an immense im-
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being done to the wall, and the tying being effected in a much
better manner and in a quarter of the time; all the fittings are
galvanised, thus making them imperishable.

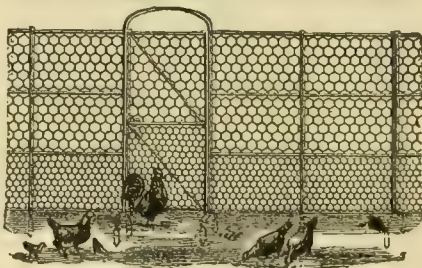
PRICES.

GALVANISED EYES for Guiding the .. s. d.
Wires upon the Walls .. 0 4 per dozen.
GALVANISED TERMINAL HOLD-FASTS; two required for each line of
wire .. 1 9 "
GALVANISED RAIDISSEURS, for
Straining the Wires .. 3 0 "
WINDING KEY for same .. 0 4 each.
EYE BOLTS, to use instead of Raidis-
seurs .. 3 0 per dozen.
Best No. 14 GALVANISED WIRE .. 2 0 per 100 yards.
Carriage paid upon all Orders of 40s. and upwards.

BOULTON & PAUL,

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NEW and IMPROVED POULTRY FENCES.



This fence is a much stronger description of fencing than the
lattice panels with loose standards, and is more portable, being
made in lengths 6 feet long with double pronged feet. A run
or pen can be formed of any length or shape without extra cost;
it is easily fixed or removed; the gate can be placed in any part
of the fence.

PRICES:—

6 feet high, including all necessary Bolts and
Nuts .. 5s. per yard.
Doorway complete, 2 feet wide, including
Standards and Arched Stay .. 13s. 6d. each.
Angle-iron Pillars for Corners, with Cast Orna-
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Carriage paid on orders of 40s. value. Orders executed on receipt.
NEW POULTRY LIST, with Illustrations, on application.
BOULTON AND PAUL, Norwich.

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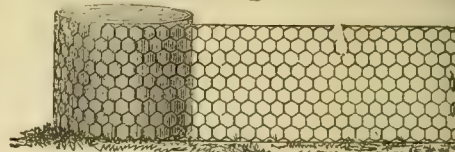
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GALVANISED WIRE NETTING. THE SILVER MEDAL

And the Report of the Jury that

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Finest in the Exhibition.

Also the Sole Highest Awards at Vienna, 1873,
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Prices per Lineal Yard, 24 in. high:—

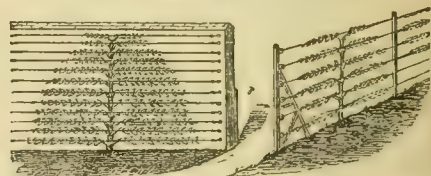
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| 2 in. | Dogs or Poultry. | 19 | 3½d. | 18 | 4½d. | 17 | 5½d. |
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*. IRON HURDLES, IRON BAR and WIRE FENC-
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WIRING MATERIALS. PRICE LISTS free on application.

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New Improvements and Reduced Prices
for the Season 1878 to 1879.



Per dozen—s. d.
GALVANISED RAIDISSEURS .. 3 0
" **STRAINING SCREWS and HOLDFASTS** .. 4 0
" **CLIMAX EYES, 2½ inches** .. 0 4
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Galvanised Wire Trellis for Training Creepers, &c.,
3¼d. per square foot, including Holdfasts.
Price Lists free.

A. & J. MAIN & CO.,
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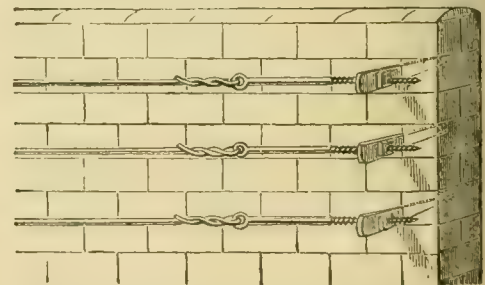
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For Wire applied to Horticultural Purposes.

FITTINGS for WIRING WALLS. NEW and IMPROVED SYSTEM.



The following prices give the total cost of each line of wire,
including holdfasts, straining bolt, intermediate guiding eyes,
10 feet apart, and best quality galvanised wire:—

Length of Wall—20 yds. 40 yds. 60 yds. 80 yds. 100 yds.
s. d. s. d. s. d. s. d. s. d.
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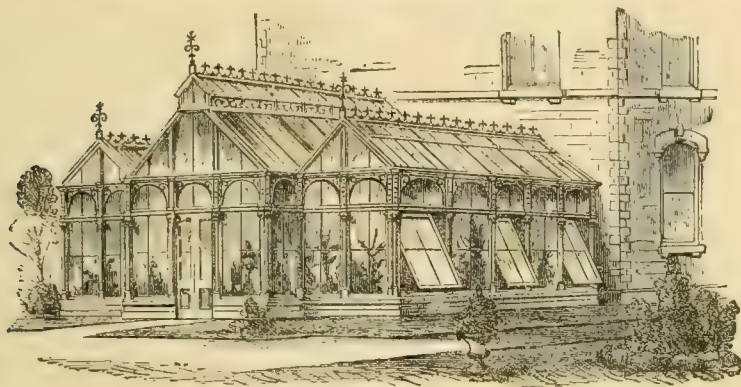
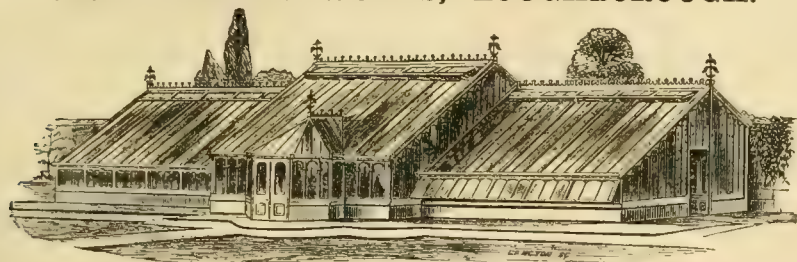
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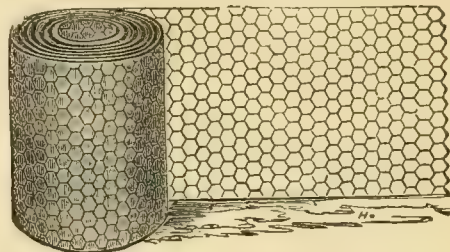
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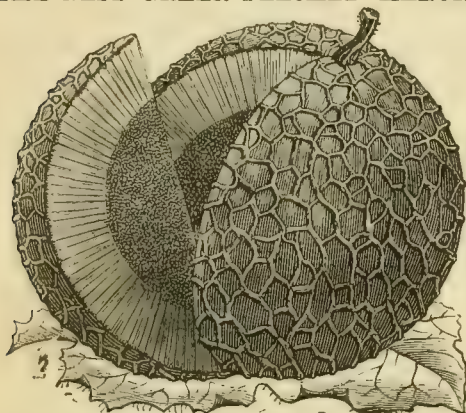


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THE GARDENERS' CHRONICLE
VOLUME for JULY to DECEMBER, 1878.

W. RICHARDS, 47, Wellington Street, Strand, W.C.

ROYAL HORTICULTURAL SOCIETY.

—The ANNUAL GENERAL MEETING of the Royal Horticultural Society will be held in the Council Room at South Kensington on TUESDAY, February 11, to receive the Report of the Council, and for the Election of Members of Council, Officers, Expenses Committeemen, and Auditors. Chair to be taken at 3 o'clock P.M.

ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.
NOTICE.—SCIENTIFIC, FRUIT, and FLORAL COMMITTEES' MEETINGS on TUESDAY next, February 11, at 11 o'clock. Admission 1s.

N.B.—The ANNUAL MEETING of the Society will be held at 3 o'clock, in consequence of which the Committees will meet in the Conservatory.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY OF MANCHESTER.

HORTICULTURAL MEETING at the Town Hall, Manchester, 18th of MARCH NEXT.
The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1879 will open in the Gardens, Old Trafford, MAY 30. For Conditions apply to the undersigned.

BRUCE FINDLAY, Curator and Secretary.
Royal Botanic Gardens, Manchester.

GRAND FLORAL FETE at York, JUNE

18, 19, 20, 1879. PRIZES, SIX HUNDRED POUNDS. Schedules, now ready, on application to the Secretary.—N.B. Special Prizes for large Collection of Fruit.

13, New Street, York. JNO. WILSON, Sec.

CRYSTAL PALACE.—

FLOWER SHOWS, 1879.
SATURDAY, May 24, GREAT FLOWER SHOW of the Season. SATURDAY, June 28, GREAT ANNUAL ROSE SHOW by the National Rose Society.

Schedules will shortly be ready, and will be forwarded to applicants and previous exhibitors.

ALEXANDRA PALACE.—

The GREAT ROSE SHOW will be held on SATURDAY, July 5. Schedules of Prizes will shortly be ready, and may be obtained on application to The MANAGER, Alexandra Palace, Muswell Hill.

HOOPER'S ROUND WHITE

POTATO. Price 35s. per bushel, 10s. 6d. per peck. HOOPER AND CO., Covent Garden, London, W.C.

HOOPER'S ROUND WHITE

will please alike Gardener and Farmer.

HOOPER'S ROUND WHITE

is handsome, prolific, and of UNEQUALLED QUALITY FOR TABLE. No coarseness, no earthiness, no disease.

CHAMPION POTATO is acknowledged

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Asparagus, GIANT.—Splendid Roots

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is the Best Book of its class that has come under our notice, and if regarded as a Trade Circular is certainly a remarkable production. In the printing and getting up it is a model of elegance throughout; it contains a considerable body of literary matter, and it weighs 13 oz.—*Gardeners' Magazine*, Dec. 29.

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The Queen's Seedsmen, Reading.

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DANIELS BROS., Royal Norfolk Seed Establishment, Norwich.

Fillbasket Pea.

CHARLES SHARPE AND CO., SEEDSMEN,
Sleaford, can offer this new and valuable Pea at a moderate price. For field cultivation and pulling green it is one of the best, being hardy and a most abundant cropper.

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J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

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JOHN LAING AND CO., Nurseries, Forest Hill, S.E.

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WANTED, nice plants of ANÆCTOCHILI.

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A. VAN GEERT, Nurseryman, Ghent, Belgium.

WANTED, PALM SEEDS.—State price,

&c., to
T. C. PACET, Royal Nurseries, Clapham, London, S.W.

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THORNS, not less than 24 inches in height above ground. To be good, strong, healthy plants. Quote price by letter to
P. Q., Deepcar Post-office, near Sheffield.

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J. AND W. THYNE, Great Western Nursery, Glasgow.

WANTED, three large dwarf-trained

PEACH TREES, healthy and in fruit-bearing condition—namely, two Early York, true, and one Barrington, true.
BENJAMIN CROSLAND, Richmond Nurseries, Sheffield.

WANTED, Two extra strong FIG TREES,

trained for wall. Brown Turkey and White Marseilles preferred. Address, with full particulars, as to age, price, and dimensions, to
JAMES VEITCH AND SONS, Royal Exotic Nursery, Chelsea, S.W.

Five Gold Medals, Paris, 1878.
CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Illustrated Catalogues gratis and post-free. Awarded Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.

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POPE AND SONS, 120, 121, 122, Market Hall, 3, Great Western Arcade, Birmingham.

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CUCUMBERS.—Pearson's Long Gun, 1s. 6d. per packet; Rolliison's Telegraph, 1s. per packet. CATALOGUES of all Seeds on application.

J. R. PEARSON, The Nurseries, Chilwell, Notts.

NEW CUCUMBER.—Stanstead Rival is a genuine novelty, and will take its place as the best Cucumber grown. Sealed packets 2s. 6d. each. The Trade supplied.

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TO THE TRADE.—VEGETABLE, FLOWER and AGRICULTURAL SEEDS, of sterling quality only. Our own, and other carefully selected Novelties of the season.—SANDER and CO., Seed Growers, St. Albans.

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J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

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TREES, most important for all Orchard Planters to see, as years are gained by planting good trees.

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ROSES, fine Dwarfs, on Manetti—all the

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W. B. ROWE solicits the inspection by Nurserymen of his extensive stock of the above, which are well-grown, and fit for removal.

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EAST LOTHIAN STOCK, in the three

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RAWLINGS BROS., Romford, beg to offer a great variety, all over 1-yr. old, 6s. per dozen.

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GARDEN POTS of best quality,

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Unreserved Sale of Lilies from Japan, Consisting of 4000 very fine Bulbs of Liliun auratum, 300 L. Thunbergianum staminosum, 2000 L. speciosum album and rubrum, L. tigrinum jucundum, L. longilobum, and L. Kramerii; a quantity of choice English-grown Lilies, including good flowering Bulbs of the beautiful Liliun neilgherense; also L. pardalinum, pyrenaicum, Humboldtii, giganteum, Wallichianum, superbum pyramidale, elegans lateimanne, e. alutaceum, e. Wilsoni, and others; imported plants for forcing of Cypripedium spectabile, Spirea palmata, and other HARDY ORCHIDS and BULBS, PEGONIA FRÉBELII, and others; Crinum australe and americanum, 1500 Double American TUBER-ROSES, 300 ditto, the Pearl (pure white); together with a choice collection of Established Orchids, consisting of Ptilintha fragrans, Odontoglossum cirrhosum, madrense, nebulosum, Alexandræ, and Donianum, Dendrobium formosum giganteum, D. japonicum, Oncidium Barkerii, Cattleya citrina, &c.

MESSRS. PROTHEROE AND MORRIS will sell the above, at the Auction Mart, Tokenhouse Yard, opposite the Bank, E.C., on MONDAY NEXT, at 11.30 precisely.

On view morning of Sale. Catalogues at the Mart, and of the Auctioneers, 98, Gracechurch Street, E.C.

Taunton, Somerset.

CLEARANCE SALE—Land Sold for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. Hockin to sell by AUCTION, without reserve, on the Premises, The Nurseries, Taunton, on THURSDAY and FRIDAY, February 13 and 14, at 12 o'clock precisely each day, the first portion of the NURSERY STOCK, consisting of specimen Coniferæ and Evergreens from 4 to 12 feet; 1500 Gold, Silver, and Fancy Hollies, 5000 dwarf-trained and pyramid Fruit-trees, half an acre of Stools, thousands of Ornamental Trees and Shrubs, 30,000 Larch, a choice assortment of Stove and Greenhouse plants, together with the erections of five Greenhouses and Pits, Hot-water Piping, Boilers, Frames, Utensils in Trade, and numerous effects.

On view, Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

In Liquidation.—R. Wm. Rollisson & Sons.
CLEARANCE SALE of the SECOND PORTION of the INDOOR STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to sell by AUCTION, on the Premises, The Nurseries, Tooting, S.W., on MONDAY, February 24, and three following days, at 11 for 12 o'clock precisely each day, the remaining portion of the extensive collection of ESTABLISHED ORCHIDS, comprising several beautiful specimens, many of them of the newest and most handsome species known, and including fine plants of Bollea celestis, strong plants of Odontoglossum vexillarium, fine specimens of some of the best Dendrobiums, such as crassinode, suavisimum, and thyrsoforum, each with about thirty stems; the handsome Findleyanum, extra fine plants of D. bigibbum, also of the new and beautiful superbienis, Masdevallia tovarensis, M. bella, M. Harryana, M. ignea, and M. Davisii; large plants of Oncidium ampliatum majus, O. macranthum, and O. Papilio; Odontoglossum Alexandræ, O. cirrhosum madrense, Leopoldinum hystrix and citrosimum; fine strong plants of the scarce Pescatorea Roezlii and Dayana alba, Cymbidium eburneum; several fine Cattleyas, including Doriana exoniensis superba, and others; also a large and varied assortment of choice STOVE PLANTS, PALMS, and FERNS, including the new and beautiful Tillandsia caracasana (not yet in commerce), T. Rollissonii, a considerable number of Dracenas, a quantity of D. Haageana; thousands of Gloxinias, Tydeas, and Achimenes; several Aspidistra lurida variegata, Cocos Weddelliana, Areca Verschaffeltii, Pritchardia filifera, Kentia Wendlandii, Geonoma Portii, Dennstedtia davaloides Youngii; Adiantums, Marratias, several specimen Tree Ferns, including Cyathea dealbata and Dicksonia antarctica; a large collection of NEW HOLLAND and GREENHOUSE PLANTS, comprising thousands of Camellias and Azaleas, amongst which are several specimens and half specimens, hard-wooded Heaths, large quantities of the new Pultanza rosea, Boronia elatior and megastigma, eighty Yucca filamentosa variegata, Daphne indica rubra, thousands of hard and soft-wooded Heaths and Epacris in stores and 60's; together with a few lots of choice CONIFERÆ, RHODODENDRONS, planted in open ground, TEA ROSES, CLEMATIS, WALL TREES, &c.

May be viewed. Catalogues obtained on the Premises, of G. Whiffen, Esq., the Trustee, 8, Old Jewry, E.C.; of Messrs. Lewis, Munns & Longden, Solicitors, 8, Old Jewry, E.C.; and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Second Portion of the Very Extensive Importation of COOL ORCHIDS from NEW GRENADA, Collected by Mr. Falkenberg.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to sell by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 10, at half-past 12 o'clock precisely, the second portion of an unusually fine lot of COOL ORCHIDS from New Grenada, in extra fine health, comprising 500 Odontoglossum triumphans, hundreds of the beautiful Ada aurantiaca, rarely received in good condition; some hundreds of Odontoglossum Phalenopsis, together with an extensive consignment of Orchids from Mexico, among which will be found the largest masses of Odontoglossum Rossi majus that have ever reached Europe. The plants are in extra good condition, having bulbs of enormous size, and amongst them the beautiful varieties Galeotti and rubescens. Prof. Reichenbach writes in last week's *Gardeners' Chronicle*, p. 138, a full description of these Odontoglossums.

On view morning of Sale, and Catalogues had,

Lilies, Roses, &c.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 12, at half-past 12 o'clock precisely, a fine lot of scarce HARDY BORDER PLANTS, consisting of different varieties of Dodecatheons, Agapanthus, Eremurus robustus, Caladiums, Chloragalum, Hellebores, Primula Stuarti, Iris stolsa, dalmatica, and others; Orchis foliosa, Cypripediums, Polygonatum giganteum, Anemone peninsina, and many others; also a fine collection of LILIES of extraordinary size, comprising all the best varieties in cultivation, 6000 fine Bulbs of Liliun auratum, and 2000 L. Kramerii, and various other Lilies from Japan, BEGONIAS, TUBEROSES, FRUIT TREES, Standard and Dwarf ROSES, GLADIOLI, ANEMONES, RANUNCULI, SPIRÆAS, LILY of the VALLEY, &c.

On view morning of Sale, and Catalogues had.

Odontoglossums from Bogota.

MR. J. C. STEVENS will include in his Sale, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 10, an importation of ODONTOGLOSSUMS, received direct from Bogota, most probably O. Alexandræ, O. Pescatorei, O. Andersonianum, and other good varieties—about 1000 plants, many with strong breaks.

On view morning of Sale, and Catalogues had.

Important Sale of Roses direct from the Nurseries of the celebrated Grower, Mr. B. R. Cant, of Colchester.

MR. J. C. STEVENS is favoured with instructions from Mr. Cant to submit for SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 15, at half-past 12 o'clock precisely, a valuable assortment of the newest and choicest Standard, Half-standard, Dwarf, Pillar, and Climbing ROSES. The plants are of the finest description, and may be relied upon as being true to name. They will be sold without reserve, as the ground upon which they are growing must be cleared. Also a quantity of Hardy TREES and SHRUBS, FRUIT TREES, HERBACEOUS PLANTS, GLADIOLI, LILiums, SPIRÆAS, &c.

On view morning of Sale, and Catalogues had.

Newly Imported and Semi-established Orchids.

MR. J. C. STEVENS has received instructions from the New Plant and Bulb Company to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 13, at half-past 12 o'clock precisely, a magnificent importation of ORCHIDS from Columbia, including Cattleya Mendeli, C. gigas, also the following beautiful Odontoglossums—Odontoglossum Alexandræ, O. coronarium, O. Phalenopsis, O. triumphans, O. Pescatorei; the rare and beautiful Oncidium cucullatum, also Eriopsis rudibulbon, Trichopilia hymenantha, Anguloa Clowesii, Warrea cyanea, Sophronitis violacea, &c. A small consignment of extra large bulbs of LILium AURATUM in magnificent condition.

On view morning of Sale, and Catalogues had.

Rare Lilies.

MR. J. C. STEVENS has received instructions from the New Plant and Bulb Company, to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 17, at half-past 12 o'clock precisely, splendid LILium AURATUM, in magnificent condition; importation of rare INDIAN LILIES, a fine collection of the choicest Hardy LILIES, collection of Hardy American ORCHIDS, Disa grandiflora, rare Greenhouse flowering BULBS, the new SPIRÆA PALMATA ELEGANS, the splendid new Bulbous Plant FREESIA REFRACTA ALBA.

On view morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS has received instructions from R. C. White, Esq., of The Priory, Lewisham, to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on THURSDAY, February 20, at half-past 12 o'clock precisely, a valuable collection of ESTABLISHED ORCHIDS, including many fine and healthy plants of rare varieties.

On view morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale of Plants.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, EARLY IN MAY, the magnificent COLLECTION of PLANTS at Dangstein, and which for many years has been one of the most extensive and interesting in the country.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Camberwell (4575).—Through Death of Owner.

FOR SALE, a SMALL NURSERY, near Two Stations, $\frac{3}{4}$ miles from the City. Half an acre of ground, with Cottage and three houses. Thirty-two years' Lease, at a peppercorn rental. Price low. Apply to PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C.

S.W. District (4567).

FOR SALE, TWO DWELLING HOUSES, with Greenhouses, Pits, Show-house, and Seed Shop, capable of great improvement. Estimated annual rental, £108. Ground rent, £39. Price for 21 years' Lease, £800. Particulars of PROTHEROE AND MORRIS, as above.

Surrey (4560), 3 miles from London Bridge.

FOR SALE, a small FLORIST'S and JOBBING BUSINESS. Rental nominal. Price for Stock, six modern Greenhouses, 21 years' Lease, &c., only £400. Good cause for disposal. Details and orders to view of PROTHEROE AND MORRIS, as above.

Herts (4577).

TO SELL, a BUSINESS, in good position, near a Station. Dwelling-house and Shop, over 2 acres of Land, and over 3000 feet super of Glass. Rent £50. Price for Lease, some Glass Erections, and good Stock, £450. Orders to view of PROTHEROE AND MORRIS, as above.

FOR SALE, 200 Acres of good LAND, being Lot 7 on the 8th concession of Vesper Township, with House and Barn, and 40 Acres of clearing, about thirty-four of which are under grass and six will be cropped. There is a good spring of water, which might be diverted for irrigating purposes. It would make a good Stock Farm when cleared. The timber consists of Cedar, Black Ash, Tamarak, &c., and suitable for fencing, railway ties, &c. The Mining Road touches the top corner of the Farm and the North Simcoe Railway the bottom corner. There will be a station close by, and two stores and several churches, and blacksmith and wheelwright's shops on the adjoining concession. The distance from Barrie, the county town, is about 8 miles. The price is £700, half of which might remain on mortgage at 8 per cent.

Apply to JOHN MORREN, Minesing, near Barrie, Ontario, Canada.

TO BE LET, or SOLD, 70 years' unexpired Lease of a PLOT of LAND of about 5 Acres, situated centrally for Four of the best Markets in North of England, and adjoining Railway Station. On the Property is upwards of 10,000 feet of good Glass Structures, well heated with hot water, also cold-water taps in every House, well stocked with Vines in splendid bearing order, together with some hundred Seedlings untested. Good reasons given for selling.—AMATEUR, *Gardeners' Chronicle* Office, W.C.

To Florists and Seed Merchants.

TO BE DISPOSED OF, with Long Lease, a first-class SHOP and HOUSE, doing a good Counter and Outdoor business, situated in a first-class position, South Kensington. Apply by letter to FLORIST, 101, Lupin Street, Piccadilly, S.W.

Florists, Fruiterers, and Seedsman's

TO BE DISPOSED OF IMMEDIATELY. Incoming only £220. Main thoroughfare, good Trade, long Lease. An opportunity that seldom offers. Address A. B. Z., *Gardeners' Chronicle* Office, W.C.

To Nurserymen and Others.

TO BE SOLD or LET, a NURSERY of 19 acres, containing some of the best Land in the country for Growing Rhododendrons and Coniferæ. Close to a Railway Station, and only 30 miles from London. Apply to J. MILLER, Auctioneer, 37 and 38, Market Place, Reading.

To Nurserymen and Florists.

THE CROWN ESTATE PAVING COMMISSIONERS hereby give notice of their readiness to receive TENDERS from Persons willing to enter into a CONTRACT for KEEPING in ORDER PARK SQUARE and PARK CRESCENT GARDENS, the Gardens attached to the various terraces in the Regent's Park, and the Gardens attached to Carlton House Terrace, for a period of Three Years from March 1 next.

Specifications, with Forms of Tender, can be obtained upon application, between the hours of 11 and 1, at the Lodge in Park Square West, Regent's Park.

Sealed Tenders, addressed to the "Crown Estate Paving Commissioners," and marked "Tender for Gardens," are to be delivered at No. 1, Whitehall Place, S.W., at or before 1 o'clock on Wednesday, February 12, 1879.

FRAS. ADAMS, Clerk to the Commissioners.

1, Whitehall Place, January 27, 1879.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

A New and Brilliant Primula.

CARTER'S VESUVIUS.—Brilliant scarlet. "For which a world-wide popularity may be safely predicted."—*Gardeners' Magazine*. Price 2s. 6d. per packet, post-free.

See STERLING NOVELTIES, a short Catalogue profusely illustrated with the best New Things of the Year, gratis and post-free, from CARTERS, The Queen's Seedsman, High Holborn, London.

STANDARD ROSES, 3 to 4 feet stems, with good heads, 75s. per 100. J. IRELAND, The Nurseries, Raveleigh, Barnstaple, Devon.

Special Cheap Offer.

TO SEEDSMEN, MARKET GARDENERS, and OTHERS PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to W. BALL and CO., Bedford Road Nursery, Northampton.

SEAKALE, ASPARAGUS, and RHUBARB Roots, for forcing, exceptionally fine. For special quotations apply to H. THORNTON, 1, Maxwell Road, Fulham, S.W.

Three Really Good Things.

CUCUMBER.—New Improved Telegraph, 12 seeds, 2s. per packet. GOURD.—Petition or Mammoth, 1s. per packet. CELERY.—Dixon's XL, red, 1s. per packet. 1 packet of each for 30 stamps, post-free. JOHN E. DIXON, Seedsman, Gainsborough.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Choice Herbaceous Calceolarias.

1s. 6d., 2s., and 3s. per dozen, post-free. **WM. POTTEN'S CATALOGUE** of good Seeds at moderate prices. Post-free to all applicants. Camden Nursery, Sissinghurst, Staplehurst, Kent.

ASTERS, STOCKS, BALSAMS, &c.—Get your supply of the above direct by post from the best growers in Germany, and save from 20 to 30 per cent. on prices usually charged. For particulars and Priced LIST (gratis and post-free), DURANT AND SONS, North Tawton, Devonshire.

Genuine Seeds.

JOHN LAING AND CO.'S Annual CATALOGUE of Kitchen Garden, Flower and Farm Seeds and Implements, will be sent free to all applicants. Orders above 20s. carriage paid. Stanstead Park, Forest Hill, London, S.E.

To the Trade.

SEED POTATOS.—Our SPECIAL LIST, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application. H. AND F. SHARPE, Seed Growers, Wisbech.

Dahlia Pot Roots.

THOMAS BURY begs to offer the above, in all the leading varieties, at 18s. per 100. Cash with order. The Nurseries, Osbaldeston, near Blackburn.

Before Purchasing Your Seed Potatoes Send for QUINCEY'S RETAIL DESCRIPTIVE

PRICE LIST and compare with others. It contains over fifty of the best English and American varieties. Samples, good, and true to name, the greater part Seed size, post-free on application. Wholesale List on receipt of trade card only. CHRISTMAS QUINCEY, Potato Grower and Merchant, Peterborough.

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MESSRS. SUTTON find it necessary to state that their Novelties can only be had direct from them. Every packet bears their Registered Trade Mark. Descriptive particulars on application. The Queen's Seedsman, Reading, Berks.

Economy in the Garden.

TO LARGE CONSUMERS.

JAMES CARTER AND CO. being *bona fide* growers of the seeds they offer, are enabled to place PUBLIC INSTITUTIONS, HOTEL-KEEPERS, &c., on the most liberal terms. State quantities and sorts required to CARTERS, The Queen's Seedsmen, High Holborn, London.

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ANOTHER DELUGE of MERETRICIOUS SEED CATALOGUES reminds us of Carlyle's "Hatter of the Strand," who "instead of MAKING better hats, as he was appointed by the universe to do, turned his whole industry to PERSUADE us that he had done such."—*Past and Present*, Book III.

For new LISTS of Choice Vegetable and Flower Seeds, &c., also of Trees and Shrubs, Conifers, &c., send to

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Excellence and Economy combined is our motto.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, are now sending out their New Show and Fancy PANSIES, also VIOLAS, PENTSTEMONS, PHLOXES, &c., which they warrant all first-class flowers. Older varieties of the above by the 100 or 1000. Price on application.

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J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

SUTTON'S PAMPHLET on Laying Down and Improving LAWNS, CROQUET GROUNDS and CRICKET GROUNDS.

May be had gratis, post-free, of SUTTON AND SONS, The Queen's Seedsmen, Reading.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE will be pleased to make special offers of all the leading varieties of SEED POTATOS they have grown this season. The prices will be found very advantageous to purchasers. Seed Growing Establishment, Wisbech.

To the Trade.

OSBORN AND SONS can still supply a quantity of Dwarf Maiden PEACHES, NECTARINES and APRICOTS, and a few Standards. Also the following FRUIT TREE STOCKS:—Common and Brussels Plum, Pear, Crab, Paradise, Quince, and a few Cherry and Brompton Plum.

Prices on application.

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To the Trade.

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H. I. HARDY, Stour Valley Seed Grounds, Bures, Suffolk.

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ROYAL EXOTIC NURSERY,

KING'S ROAD, CHELSEA, S.W.

PEAS.

MARVEL (Laxton).—A grand new main-crop Pea; bears a profusion of well-filled pods. Per quart, 5s.

PEAS.

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DWARF FRENCH CANADIAN WONDER.—Very prolific, large-podded variety. Fine for main crop. Per quart, 2s. 6d.

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VEITCH'S DWARF LATE CURLED.—Highly recommended. Per packet, 1s.

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VEITCH'S SELF-PROTECTING AUTUMN.—A splendid variety for use in November and December. Per packet, 1s. 6d.

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LETTUCE.

EARLY PARIS MARKET.—Very early and compact. Per packet, 1s.

LETTUCE.

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EARLY SCARLET FORCING TURNIP.—Distinct in colour, and of very quick growth. Per ounce, 1s.

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HATHAWAY'S EXCELSIOR.—Fine shape, and very prolific. One of the best Tomatoes in cultivation. Per pkt., 1s.

SEED CATALOGUE,

Containing all the Leading Varieties of

VEGETABLE AND FLOWER SEEDS,

POTATOS, GARDEN IMPLEMENTS,

SELECT LIST of NOVELTIES, &c.,

Is now ready, and will be forwarded, post-free, on application.

Royal Exotic Nursery, Chelsea, S.W.

The Finest Primula of the Season.

SUTTON'S RUBY KING.—First-class Certificate, R. H. S. "Most striking and magnificent in appearance."—*Gardeners' Chronicle*. Price 5s. per packet, post-free. Jan. 14, 1879.

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Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to THE MANAGER, Calcot Gardens, Reading. CATALOGUES post-free on application.

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Early orders are solicited for the above choice plants. Apply to THE MANAGER, Calcot Gardens, Reading.

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E. BURGESS begs to offer the following:—Strong Standard PEARS, Standard-trained APRICOTS, Turkey and English OAK, English and Scotch ELMS, LIMES up to 12 feet, BEECH up to 7 feet, and a general Nursery Stock. Prices on application. The Nurseries, London Road, Cheltenham.

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WM. AND D. STEWART have large quantities of fine transplanted LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Prices on application. Ferndown Nurseries, Wimborne, Dorset.

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Gratis and post-free on application to The Queen's Seedsmen, High Holborn, London, W.C.

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Early Bird (warranted true), from 8 to 20 stones, 3s. per stone of 14 lb. International Kidney same price. Money to accompany order.

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(True). SCARLET, very fine, 6d. and 1s. per packet. NEW CRIMSON, very fine, 6d. and 1s. per packet. PURPLE, very fine, 6d. and 1s. per packet. WHITE, very fine, 6d. and 1s. per packet. WHITE WALLFLOWER-LEAVED, very fine, 6d. and 1s. per packet.

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SEASON 1879.

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SUTTON'S KING of the CAULIFLOWERS, dwarf, compact, very large, firm, beautifully white heads.

From Mr. JOHN CLARK, Gr. to the Most Noble the Marquis of Ripon.—"Your King is a very dwarf, good strain of Cauliflower, producing firm and beautifully white heads." 1s. 6d. and 2s. 6d. per packet, post-free.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

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WEBB'S IMPROVED SCHOOLMASTER POTATO.—This splendid new round Potato is of extraordinary flavour, and unequalled for general purposes. It is a great cropper, producing tubers of large size, uniformly round and handsome, with shallow eyes; skin white and rough, flesh snowy white and very mealy. It is free from disease, and a superior exhibition variety. Price 6s. per peck of 14 lb., or 21s. per bushel of 56 lb.

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Potatoes of 20s. value carriage free; 5 per cent. discount for cash.

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5s. and 2s. 6d. per packet, post-free. Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

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W. M. CLIBRAN AND SON'S PLANTS for the GARDEN and CONSERVATORY are unsurpassed for correctness of nomenclature, lowliness of the prices, high quality of the varieties grown, strength and hardiness of the plants.

All lovers of hardy FLORISTS' FLOWERS, such as Carnations, Pinks, Picotees, Pansies, Phloxes, Delphiniums, Pyrethrums, Potentillas, Pentstemons, Antirrhinums, Pæonias, &c., and of Herbaceous and Alpine plants, Roses, &c., should read our CATALOGUE and compare our Prices before ordering elsewhere.

All growers of beautiful SPRING FLOWERING PLANTS, Hepaticas, named and seedling Polyanthus, Double and Single Primroses, and all other Spring Flowering Plants or Bulbs, should look over our LISTS of above.

All who possess Conservatories, Stoves, or Greenhouses, and require STOVE or GREENHOUSE PLANTS, beautiful tuberous Begonias, the finest old and new varieties of Fuchsias, Chrysanthemums, Geraniums of all classes for winter or summer bloom, or any indoor plants, may read our CATALOGUE with the certainty of finding almost, if not quite, all they require, at reasonable (not fancy) Prices, and select from LISTS comprising the choicest sorts of their respective classes, and not surpassed by any offered in this paper.

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"THE BEST" POTATOS, Schoolmaster and Snowflake.

"THE BEST" ASPARAGUS ROOTS, Connover's Colossal.

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FREEMAN AND FREEMAN (late C. R. Freeman),

Economic Seedsmen, No wick.

QUEEN OF LILIES, LILUM AURATUM.

—Imported Bulbs are now arriving, and orders are

solicited. This lovely Lily is quite hardy, and should be generally

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are given.

Reduced Prices:—Size No. 1, 6d.; No. 2, 9d.; No. 3, 1s.;

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ORCHIDS.—Special offer of the following fine Orchids, for

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required):—1 plant Phalenopsis Schilleriana, 2 plants Dendrobium

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rubra and luteo oculata, 1 plant Dendrobium Pierrardi, 1 pot

Limnæodes rosea.

All orders to be accompanied by a remittance. Lily and

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WILLIAM GORDON, 10, Cullum Street, London, E.C.,

Lily Bulb and Plant Importer.

Sutton's Superb Primula.

SUTTON AND SONS offer New Seed of

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Mr. J. CLARKE, Gr. to Lord Hastings, in the *Gardeners'*

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Primula I can truly assert is the most carefully selected I have

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They have been greatly admired."

Send for SUTTON'S LIST of NOVELTIES, gratis and

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SUTTON AND SONS, The Queen's Seedsmen, Reading.

To the Trade.

SPECIAL PRICES ON APPLICATION

GEORGE COOPER, SEED MERCHANT,

Hertford, begs to offer the following, of the choicest

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BEEF, Red, Cooper's Excelsior

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CUCUMBER, Improved Tele-

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SWEDS, Cooper's Improved

Large Purple-top

TURNIP, Improved Aberdeen

Green-top Yellow

ONION, White Spanish

White Globe

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CELERY, Cooper's Improved

White

BROMPTON STOCK,

Giant Scarlet

CYCLAMEN PERSICUM,

from large flowers.

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MR. WILLIAM BULL will send out about the MIDDLE of APRIL NEXT the following six NEW VERBENAS, which are a Selection made from the handsome Varieties raised by J. F. Mould, of Pewsey. These Verbenas have attracted considerable attention in the West of England, and a notice of them appeared in the *Gardeners' Magazine* of October 19, 1878. They are remarkable for the size and fine form of their flower-pips, their huge trusses, freedom of growth, distinct colours, and profusion of bloom. They are good and desirable both for bedding purposes and for exhibition.

CLEOPATRA, waxy cream white, suffused with pink; a fine, round, well-formed flower. 3s. 6d.

CYPRUS, bright scarlet-crimson, with white eye; very large, finely-shaped pip; immense truss. 3s. 6d.

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Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THE TRADE.

RHODODENDRONS, Hybrids, with bloom-buds.

YEW, Common, 3 to 4 feet.

ALDERS, 2 to 3 feet, and 3 to 5 feet.

BIRCH, 2 to 3 feet, and 3 to 5 feet.

BEECH, 3 to 4 feet.

CHESTNUTS, Horse, 3 to 12 feet.

LARCH, Firs, 1½ to 2 feet.

HAZEL, 2 to 3 feet, and 3 to 4 feet.

MANETTI STOCKS, very good and cheap.

ARBOR-VITÆ, Chinese, for stock.

DEUTZIA GRACILIS.

SWEET BRIER, 2 feet.

WILLIAM FLETCHER, The Nurseries, Ottershaw, Chertsey.

SUTTON'S BEAUTIFUL FLOWER SEEDS

FREE BY POST

5/- 7/6

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W. VIRGO, Womersley Nurseries, near Guildford, can now supply the undermentioned good strong and healthy plants:—

20,000 PLUM, Lent Withy, 4 to 5 feet.

40,000 ALDER, 4 to 5 feet.

20,000 SPANISH CHESTNUT, 2 to 3 feet.

20,000 MANETTI STOCKS.

THORNS, Paul's Double, 6 feet

PINUS AUSTRIACA, 5 to 6 feet.

OAK, Scarlet, 6 to 7 feet.

LIMES, 7 to 8 feet.

Norway MAPLE, 10 to 12 feet.

HORSE CHESTNUT, 10 to 12 feet.

SYCAMORE, 8 to 10 feet.

5,000 Standard ROSES.

5,000 Half-standard ditto.

5,000 Dwarfs on Manetti Stocks.

Prices, &c., on application.

Notice.—Roses, Roses, &c.

TO THE TRADE AND OTHERS.

ROSES.—A quantity of good Standard and

Half-Standard, clean and well-grown, with good stems and

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Established Upwards of a Century.

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Coverts, FRUIT TREES, &c., which have been grown in

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Early and Late PHLOXES, &c.

Descriptive CATALOGUES free on application.

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THE BEST EARLY PEAS IS
SUTTON'S IMPROVED EARLY CHAMPION.—Extensively used by the principal Pea Growers. Ten days earlier than Daniel O'Rourke; very prolific good quality. Also:—

Sutton's Racehorse
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Champion of England
Veitch's Perfection

Invicta
First and Best
Fortyfold
Advancer.

Price per bushel and quarter on application.
SUTTON AND SONS, The Queen's Seedsmen, Reading.

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STOCK, East Lothian, very select strains.

"Crimson, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.

"Purple, Scarlet, White, and White Wallflower-leaved, per packet, 6d., 1s., and 2s. 6d.

ASTER, Betteridge's superb Quilled Globe (Seed direct from Mr. Betteridge).

"24 varieties, separate, including latest novelties, 2s. 6d.

"12 ditto ditto, 1s. 6d.

"mixture of 24 splendid varieties: per packet 3d., 6d., and 1s.

MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex.; per packet, 6d. and 1s.

COCKSCOMB, Sime's superb strain, 1st prize at Carlisle International Show, and wherever exhibited. Was shown at Edinburgh with comb over 40 inches long. Per packet, 1s. and 2s. 6d.

PANSY, Show, from a superb collection of named Exhibition varieties: per packet, 1s. and 2s. 6d.

"Fancy, from a first-rate collection of named flowers: per packet, 1s. and 2s. 6d.

ABOVE FREE BY POST.

TODD AND CO., Seedsmen and Florists, Maitland Street Edinburgh.

Camellias.

WM. PAUL AND SON (Successors to the late A. Paul & Son, established 1806), Paul's Nurseries, Waltham Cross, Herts, invite attention to their large stock of the above. The collection, which comprises upwards of 200 varieties, is now coming into flower, and will continue in bloom throughout February and March.

Plants nicely set with bloom-buds can be supplied from 30s. to 120s. per dozen. Specimen plants from 21s. to £30 each.

Visitors by railway can enter the Nurseries from the platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

Garden Seeds.

CHARLES TURNER'S Descriptive

CATALOGUE of the above is now ready, containing several interesting and valuable novelties.

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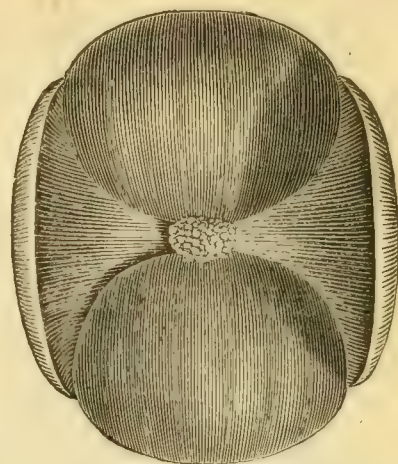
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(The usual Discount to the Trade.)

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ROSES, Standards, 100s. per 100.
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A splendid exhibition variety, similar in shape to Early Rose, an enormous cropper, and of rich delicate flavour. Ripens some days before the Early Rose.

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An American variety of great excellence. Tubers delicate flesh colour, long, and somewhat flat. Flesh fine-grained and of excellent quality. Vigorous growth, and ripens a few days after Early Rose.
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NORWICH.

SECOND PORTION of the VERY EXTENSIVE IMPORTATION of COOL ORCHIDS from NEW GRENADA

COLLECTED by **Mr. FALKENBERG.**

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On view the morning of Sale and Catalogues had.

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Giant Early Marrow.

THE EARLIEST IN CULTIVATION.

"It is a splendid Cabbage. Mrs. Williams cut some last season only eight weeks planted out, weighing 7 lb. each."—Mrs. Williams, Kilmaganny, Ireland.

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"I am greatly pleased with your DEFIANCE CABBAGE, which is in all respects the best flavoured, mildest, and finest I have ever seen."—Rev. H. N. Ormsby, Carrig Vicarage, Jan. 13, 1879.

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Is the finest and best Cabbage in the world for all purposes, beating every other variety for earliness, quality, flavour and size.

Price in our own Sealed Packets, 1s. 6d. each, 5s. per oz.

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THE FOLLOWING NOVELTIES,

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INCLUDING

1000 CATTLEYA MENDELII,

ODONTOGLOSSUM ALEXANDRÆ,

A NEW or RARE ONCIDIUM.

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PLANT AND BULB COMPANY, Colchester, to SELL by AUCTION, at his Great Rooms
38, King Street, Covent Garden, W.C., on THURSDAY, February 13, at half-past 12 o'clock
precisely, a magnificent Consignment of ORCHIDS, received from their Collectors, consisting of
the following:—CATTLEYA MENDELII, C. GIGAS, ODONTOGLOSSUM ALEXANDRÆ,
O. PESCATOREI, O. CORONARIUM, O. TRIUMPHANS, O. PHALÆNOPSIS, &c.,
ANGULOA CLOWESII, EPIDENDRUM SCEPTRUM, ERIOPSIS RUTIBULBON,
TRICHOPILIA HYMENANTHERA, &c.—(grand specimens of all).

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NOBLE.

THE FINEST FIRST EARLY
POTATO.

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"I obtained a splendid crop of
KING NOBLE POTATOS, which
are excellent for table. I think
highly of it, and intend planting it
next season."—W. ALLAN, *Gardener*
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THE MOST PROLIFIC FIRST
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"KING NOBLE is a most
abundant cropper, and the tubers
are of good quality."—JAMES PINK,
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THE HANDSOMEST FIRST
EARLY POTATO.

"Your Potato, KING NOBLE,
which you sent me for trial, proved
a very excellent sample, both in
regard to its even, handsome, round
shape, and cropping qualities."—WM.
EARLEY, *Editor of "Villa Gardener,"*
"Horticultural Record," &c., Oct. 7,
1878.

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KING NOBLE comes into use at
the same time as the true Old Ash-
leaf, is of fine flavour, and cooks
remarkably well. The tubers are
medium sized, smooth, handsome, and
shallow-eyed, and are produced in
great abundance. KING NOBLE is
of dwarf, compact habit (1 foot), and
will be found most valuable for early
frame work and market purposes.

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KING NOBLE.

PRICE:

4s. per Peck of 14 lb.

14s. per Bushel of 56 lb.

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*Seedsman to Her Majesty the Queen,
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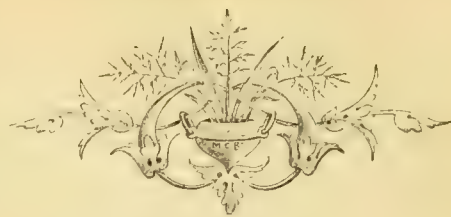
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SATURDAY, FEBRUARY 8, 1879.

SELF-DEFENCE AMONG PLANTS.*

IN cases of war or pestilence the normal condition of the human species is quickly restored by the vacant places being rapidly filled up by the multiplication of its units. In like manner an unusually hard winter will destroy a number of plants whose vacant places in the household of Nature will be filled up either by the multiplication of individuals of the same species or by individuals of other and stronger species. Rapid and continuous reproduction as a means of defence is more conspicuous and striking in the plant kingdom than among animals. The rapidity with which introduced plants have spread in foreign countries shows that the power of self-defence must be as valuable in retaining an old place as in gaining a new one. Another, and nearly related defensive power, consists in the constitutional peculiarities of plants. The European traveller in Africa may protect himself against malaria by medicine, whereas his Negro servant is protected simply by his constitution; the one by a material agency, the other by an impalpable one. Similar constitutional means of protection are very common, and of much importance among plants. For example, where many plants are exposed equally to frost, only those will survive whose constitutions in some unknown way will enable them to resist its effects; their descendants will inherit to a certain extent their hardy constitutions, and thus a permanent advance will have been made in the character of the species. Chemical and mechanical methods of defence are equally obvious. Flowers chiefly adopt the former and leaves the latter. The Gorse or Furze plant affords an example of both these means; the flowers being unpalatable to animals, whilst the leaves are armed with prickles and are not usually eaten by animals—although very nutritious—until they have undergone some sort of preparation. An analogy to this among animals will be found in the hedgehog and the skunk; the one relying on his prickles, the other on his offensiveness. Prickles and thorns are very apparent and striking means of defence, and it has been remarked that thorny and spiny plants become frequent as vegetation becomes scarce, for where that is the case a browsing animal, or other plant enemy, would try every green leaf, and the necessity for self-defence would grow with the severity of the danger. Thus many trees have thorns when young which cease to grow them when older, and out of the reach of browsing animals. In like manner the succulent shoots of Briers and other plants need a more formidable array of thorns than the older and tougher stems of the mature portions of the plant. We know comparatively little of thorns and prickles in Europe, yet even here plants are to be found which make their power felt. In the Alps, for example, certain pastures are rendered almost worthless by the presence of a grass which is armed with sharp tips which inflict injuries on the noses of the sheep. Africa is pre-eminently the land of thorns, and in Nubia and some parts of Abyssinia almost every tree is thorny. Curved thorns are to be found there which tear like hooks of steel, and grasses whose edges are like knives, so that the vegetation of

* Abstract of a lecture delivered at the London Institution, by Francis Darwin, Esq., M.B., M.A.

these regions is well armed both for offence and defence. The most celebrated of these plants is the South African Acacia, or "Wait-a-bit" Thorn as it is there called, which is so strong as to have been known to hold and starve to death a lion. The Cactuses are well defended by spines, and savages often take advantage of this to protect their huts by Cactus enclosures. Humboldt states that mules will break off these spines with their hoofs, and then eat the succulent inside part of the Cactus; a meal which is often paid for by a lame foot. The quality of hardness is noticeable as a means of defence more commonly in fruits than in leaves. The hard wall of a cherrystone is a familiar example of the embryo plant being guarded by this means. In cultivated plants this kind of protection is found to be of importance. Thus, a thin-shelled variety of Walnut is found to suffer more from the depredations of tits than the common sort; and in the same way the hardness of Pea-pods is found to be a distinct element in determining the respective value of varieties.

Chemical means of self-defence are possessed by stinging plants. The sting of a plant may be described as a vegetable hair, whose point entering the skin and breaking, allows the irritating contents to flow into the wound. The common Nettle is a familiar example. This plant is relished by animals when crushed or scalded, and is even used as food for man, so that it is worth eating, and would be attacked but for its means of defence. Wild animals have learned to avoid the Nettle, but Mr. Romanes gave them to some guinea-pigs, which immediately began eating them, got stung, and became angry, so that the experiment resulted in a free fight amongst the unfortunate animals. Rabbits are greatly afraid of Nettles, and Sir J. Hooker states that some exotic Nettles are a terror to the natives, the poison being so pungent that the mere scentless effluvia will cause water to flow from the eyes and nose, the actual sting causing inflammation. The stings of other species of Nettle are said even to cause death. Stings on leaves are probably useful chiefly as defence against browsing animals, and insects take advantage of this, as butterflies prefer stinging plants on which to lay their eggs, thus obtaining security from wholesale destruction, and this may explain why caterpillars are common on our stinging Nettle. One of the most curious forms of defence is afforded by a recently discovered class of plants, which, being stingless themselves, are protected by stinging ants, which make their home on the plant and defend it against its enemies. Of these the most remarkable is the Bull's-horn Acacia, described by the late Mr. Belt in his admirable book *The Naturalist in Nicaragua*, a shrubby tree with gigantic curved thorns from which its name is derived. These thorns are hollow and tenanted by ants, which bore a hole in them, and the workers may be seen running about over the green leaves. If a branch is shaken the ants swarm out of the thorns and attack the aggressor with their stings. Their chief service to the plant consists in defending it against leaf-cutting ants, which are the great enemy of all vegetation in that part of America. These form large underground nests, and their work of destruction consists of gathering leaves, which they strip to form heaps of material, which become covered over with a delicate white fungus, on which the larvæ of the ants are fed, so that literally they are a colony of Mushroom growers. The special province of the little stinging ants, which live in the thorns of the Acacia, is, therefore, to protect the leaves of the shrub from being used by the leaf-cutters to make Mushroom-beds! Certain varieties of the Orange tree have leaves which are distasteful to the leaf-cutters, the distasteful property of the leaves thus forming a means of

defence. Other plants are unaccountably spared by them—grass, for example, which if brought to the nest is immediately thrown out by some ant in authority. The Bull's-horn Acacia, in return for the service rendered by the stinging ants, not only affords them shelter in its thorns, but provides them with nectar secreted by glands at the base of its leaves, and also grows for them small yellow Pear-shaped bodies, about one-twelfth of an inch in length, at the tip of some of its leaflets, which they use as food. When the leaf unfolds the ants may be seen running about from one leaflet to another, to see if these little bodies are ripe, and when ready to be gathered they are broken off by the ants, and carried away to the nest in the thorn. These little yellow bodies are made up of cells containing protoplasm rich in oil, which affords excellent food for the ants. As butterflies lay their eggs on Stinging Nettles, so in like manner several small birds build their nests in the Bull's-horn Acacia, thus escaping from a predatory ant which is capable of killing young birds. The Trumpet-tree, another plant of Southern and Central America, is also protected by a standing army of ants; and, like the Bull's-horn Acacia, grows for the ants small food-bodies containing oil, but instead of secreting nectar on its leaves it harbours a scale insect (*Coccus*), whose sweet secretion is much relished by the ants. Beccari describes an epiphytall plant growing on trees in Borneo; its seeds germinate, like those of the Mistletoe, on the branches of the tree; and the seedling stem, crowned by the cotyledons, grows to about an inch in length, remaining in that condition until a certain species of ant bites a hole in the stem, which then produces a morbid gall-like growth, which ultimately becomes a tuber-like body, which constitutes the home of the ants. If the plant is not fortunate enough to be bitten by an ant it dies. These ants then protect their plant-home by rushing fiercely out on intruders, the white sessile flowers being produced on the tuber-shaped body of the plant.

(To be continued.)

A NEW NATURAL ORDER OF PLANTS.

WELL, if not a new natural order, at least a very anomalous member of the vegetable kingdom, has been discovered by Dr. Beccari, in New Guinea. It is described and figured in the third part of Dr. Beccari's *Malesia*. At first sight one would take it for an Orchid, and on a little closer inspection one would be inclined to regard it as an Orchid with six free stamens. There are other peculiarities in its structure, it is true, and possibly our colleague, Dr. Reichenbach, may not see his way to annex this novelty; but when we recall the structure of *Arun- dina pentandra*, *Dendrobium normale*, *Cypripedium*, and *Uropedium*, and the genera *Apostasia* and *Neuwiedia*, the difficulties in the way of adopting *Corsia ornata*, for so Beccari names it, as an Orchid, seem to vanish. Formerly, *Apostasia* and *Neuwiedia* were regarded as constituting an order distinct from Orchids, because they have a three-celled ovary and a slender style; but *Uropedium* and *Selenipedium* have a three-celled ovary, and other connecting links between the two groups are not wanting. We believe that Dr. Reichenbach claims the *Apostasia* as a tribe of Orchids. In passing, we may refer to Mr. S. Moore's paper on monstrosities and abnormalities in the structure of Orchids, which appeared in the *Journal of Botany* for January of the current year. Therein the reader will find mention of or reference to some of the most interesting deviations from what is termed the normal structure of Orchids.

But to return to *Corsia ornata*, a genus dedicated to the Marchese Corsi Salviati, a name well known to the horticultural world, even outside of Italy. It is a brittle, straw-coloured, root parasite, from 6 to 8 inches high, with a stoloniferous knotted root, emitting long fibres, and bearing scales and buds. The stems are somewhat tufted or clustered, and clothed with variable scales increasing in size upwards, the upper ones sheathing at the base, and about an inch long. Each

stem is unbranched, and terminates in a solitary flower, which is about $1\frac{1}{2}$ inch in diameter when fully expanded. Colour not mentioned by Dr. Beccari, but doubtless the whole plant is almost colourless. Perianths superior, persistent, consisting of six divisions, a large upper cordate one, which is erect and flat, like the standard of some Papilionaceæ, and five narrow, strap-shaped ones, directed downwards. The standard, or labellum, as we ought perhaps to call it, is furnished at the base with a thick crescent-shaped crest or callosity, which is papillose around the margin. Stamens six, in two series; filaments distinct but very short and thick; anthers relatively large, two-celled, containing pulverulent pollen. Ovary inferior, one-celled, with three intruding parietal placentas; style short clavate, terminating in a slightly three-lobed stigma. Dr. Beccari's Latin diagnosis is given below.* What we have termed the labellum, it should be mentioned, is quite outside of all the other parts of the perianth, and enfolds them in the bud, whilst the labellum of true Orchids is one of the inner segments of two whorls of three segments each.

With regard to the position of this singular plant in the natural system, Dr. Beccari says it is undoubtedly near the Orchideæ, and further adds that it might constitute the type of a new family between the Burmanniaceæ and Hypoxidæ, to be called the Corsiaceæ. The morphological interpretation of the floral envelope, Beccari continues, is not easy. At first sight one might think that the large external standard-like part belonged to the same verticil as the other five, but he thinks perhaps it forms of itself a separate exterior verticil, and that the crest at its base represents the sixth segment of an interior verticil. Dr. Beccari has not attempted to give the structure of the seed, because he intends making a special study at the same time of those of other parasites; his sole object now is to make known the general physiognomy of the plant. The habitat of *Corsia ornata* is in Mount Morait, on the north coast of New Guinea, at an elevation of between 1200 and 1300 feet. We may add that the same part of *Malesia* contains descriptions and figures of some exceedingly curious new types of the Burmanniaceæ, a small family related to Orchids. These new types are, like *Corsia*, nearly all minute leafless root-parasites, presenting the most singular and elegant forms of perianth imaginable. H.

BRUSSELS SPROUTS AND EARLY CABBAGE.

JUDGING from present appearances, vegetables of all kinds will be more than usually scarce this season, for never since the severe winter of 1860-61 have I seen them so cut up as they are just now, when even the old Cabbage stumps that, with their hard woody stems, are generally regarded as frost-proof, are either killed outright, or so injured that it is next to impossible any of them can recover. The loss of these will be severely felt in most gardens, for during early spring they are much depended on for furnishing a great many gatherings of delicate sprouts before others of the Brassica tribe are fit for use. Being thus early, they have always formed one of the staple articles for supplying Covent Garden and other large markets. Vegetables are not over-abundant or cheap in our large cities and towns at any time, and unless growers bestir themselves they are likely before May is out to be almost at famine prices, so that those who have ground and take time by the forelock may reap a rich harvest.

It is very remarkable that, although old Cabbage stumps are so badly hurt, young plants, which are far more succulent and tender, have not suffered to anything like the same extent, and their immunity can only be accounted for by their having stood so much nearer the ground, where they were partly protected by a covering of snow, which not only kept off a great portion of the frost, but broke the force of the scathing blasts that blew for so long, and completely

* *Corsia*. — Perigonium superum anomalum, marcescens 6-fidum irregularissime bilabiatum; segmentum posticum maximum vexilliforme cordatum, basi nectario semi-lunari callosa auctum; segmenta antica 5-loriformia reflexa approximata valde minora. Stamina 6, biseriata, 3 interiora filamentis brevioribus; antheræ biloculares ovate obtusæ extrorsæ. pollen pulverulentum; stylum breve crassum clavatum; stigma breviter trilobum. Ovarium inferum elongatum obtusè trigonum uniloculare, primo intuitu trilobulare, placentis 3 parietalibus valde intrusis, deduplicatis; ovula anatropa. Capsula elongata cylindracea, genitalium exuvii coronata, extus marcescens, placentis induratis trivalvatis dehiscens; semina pendula fusiformia testa subcrustacea tenui involuta. Embryo Planta pusilla parasitica aphylla caule squamato. — Beccari, *Malesia*, i., p. 238, t. 9.

dried the sap out of all that were exposed to their direct influence. Bad as the continuous frosts were to vegetation, the bitter north-easters were far worse, and did more harm in a few days than all the hard weather had done before. Seeing the destruction that has been wrought around, among full-grown plants, it is to be hoped that beds of young ones have escaped; and if so, those who have them in quantity will be fortunate indeed, as by planting soon in well-prepared ground in drill rows they will turn in quickly after any that may stand for the winter, and thus fill up a void.

It is not often that Cabbages are sown under glass, as it is only in exceptional seasons like the present that it answers the purpose; but I am of opinion that if done at once it will pay well, as thousands may be raised in a very small space. A few old lights and a board or two placed on a warm border where the soil is naturally light and dry, will afford the best accommodation for sowing where large quantities are required, as there they may stand till large enough for planting without further handling. In gardens, however, where only a limited number would be wanted, and where labour and time are not so much an object as a regular supply for the kitchen, a few pans or boxes sown and stood in gentle heat till the seeds germinate, and afterwards nursed on near the glass in a cold frame, will come in valuable, and be far ahead of any less favourably circumstanced. These pricked out by-and-bye in a sheltered situation, and finally planted, will go on without check, and turn in with firm hearts, of fine flavour, rich, juicy, and succulent, in which condition I know of nothing to be had in the vegetable way that will equal them, or that is more nutritious and wholesome. In order to grow them possessing these fine qualities, it is essential that the land in which they are to be planted should be highly manured, as a crop that comes to maturity so quickly and produces so much food must of necessity take much from the ground; and Cabbages that are half-starved soon get the "blues," when they at once become stringy and tough to an extent that no amount of boiling or skilful cooking can rectify. By trenching the soil and giving it a good dressing of rotten dung at once, it will be in fine condition for the plants by the time they are large enough, for what frost we may get now, and the air combined, will sweeten and pulverise it, besides helping to rid it of insects. A dressing of soot dug in helps wonderfully in effecting this, and is an excellent fertiliser as well, as is also a sprinkling of salt with it, but when this is used thus early it should be with a sparing hand, as the plants will not bear so much as they will later on.

There is one other vegetable to which I wish to call particular attention at the present time, which is Brussels Sprouts, for although Broccoli and most others of the Brassicas have succumbed, as already observed, Brussels Sprouts have held on bravely and look as if they would pull through it all. Considering the great value of these for use during the whole of the long winter and till late on in the spring, the wonder is that they are not more largely grown instead of strong coarse Savoys, that have little but size to recommend them, whereas firm compact Sprouts are the most delicate of vegetables, and for which almost every one has a liking. It is seldom, however, that they are seen in the state of perfection they are capable of attaining, from the simple fact that they are not sown early enough for the stalks to reach the necessary size and strength before autumn closes, when they cease to make any further progress except in furnishing the side shoots. To produce an abundance of Sprouts something of the size and hardness of green Walnuts, the stalks should be as thick as one's wrist and a yard high, from which the yield is something enormous. To get them into this desirable state they must be sown at once, under the protection of glass, after the manner recommended for Cabbage; but to keep them sturdy and strong they must have plenty of space, as nothing spoils them so much as becoming long-legged and drawn at the outset. Thin sowing and plenty of air when up will prevent this, if followed by early planting, which should be done as soon as they are large enough to handle; but like all others of the same family they are gross feeders and must have plenty of depth of soil, heavily manured, and if in addition they can have a soaking or two of sewage during the summer they will give a good return for the labour.

In rich land, where their roots can get well down, a yard will not be too much to plant them apart,

for unless the leaves can have plenty of room to spread and fully develop themselves it is impossible to have fine stems, and without these large Sprouts are out of the question. It sometimes occurs that during hot summers the plants become infested with aphids, the best remedy for which is a mixture of dry powdered lime and soot thrown over them the first thing in the morning while the dew is on, as then it adheres readily and is more effectual. There are several varieties of Brussels Sprouts, as Scrymger's Giant, Rosebery, Dalkeith, and Albert, but none that will compare with the imported kind, which is decidedly the best and most useful for general purposes. As to Cabbage for early sowing I prefer Wheeler's Imperial, and to succeed it either the Fulham or Battersea, both of which are larger and second to none in quality and flavour. J. S.

ORCHID COLLECTING IN NEW GRENADA. *

"José, this night you have to sleep here in the house, as to-morrow we shall go out for a fortnight."

José, to whom this order was given, is my "boy," twenty-four years old, married, and a pure Indian. He is a great thief, and robs and cheats me whenever he can; indeed, people who know him well warned me not to let him see that I carry any large sum of money about with me. He was a soldier for six and a half years, knows every path in the environs, and is always willing to do as I order him—qualities which, after six weeks spent in my service, I have discovered that he alone possesses among the four "boys" I had employed. José, to whom I give 6 reals (2s. 6d.) per day and boarding, asks me for an advance of 5 dols. for his wife.

The mule is carefully fed and receives a double portion of bran with syrup, likewise corn and grass *ad libitum*; the saddle and harness are examined, and the bridle sent to the saddler for a small repair. All the necessary objects for travelling are set apart, to be fixed on the saddle, or put in the four saddle-pockets, as waterproof bayonet (a heavy woollen cover enveloped in a goatskin), nuana, a bottle of brandy, cigars, matches, knife, thread, candle, cholera-drops, opium, sticking-plaster, lint, balsam, odontalgia, quinine in pills and powder, purgatives, emetics, alkali, liniment, lancet and pincers, my medicine-chest, thermometer, and a drinking cup made of the shell of a Cocoa-nut. In a wicker basket, 2½ feet high and 1½ foot wide, which is to contain the plants gathered, and which the boy carries on his back, I put 15 lb. of dry meat (at 1s. per pound), 5 lb. of bread, some cocoa, rice, peas, biscuits, extract of meat, two wooden spoons, and a towel. I myself am provided with great waterproof boots, large spurs, a twelve-meter revolver in my belt, and a matchet, and am dressed in warm clothes. We start at half-past four in the morning, in the brightest moonshine, after taking coffee, bread and eggs.

The journey commences step by step, and, half-an-hour after, we go on slower still—we begin to mount. The road is intersected by two ridges, each 2 leguas up and 1 legua down, and as, on the average, in the Cordillera one hour and a half is spent in traversing a legua, we arrived in Mutiscua at half-past ten, just in time for breakfast, after having stopped twice on the road to wet our throats. A sixpennyworth of grass is purchased for the mule, and 1 lb. of meat and a little chocolate is handed to a woman, who prepares it for us. At midday we continued our journey, and an hour afterwards the wind began to blow more and more, becoming colder and colder, and we enter into the Páramos—mountainous districts.

Up to this point the road was in the pure rock, 4 to 6 feet wide, uneven, rough and stony, with incessant windings, sometimes rising steeply on both sides, sometimes rising on one side with a frightful abyss on the other. Protruding blocks of rock and disrooted trees above often threaten the rider on these ways, which become still more disagreeable when one meets a train of mules loaded with boxes, bales, &c. Several times I got such knocks with boxes on the knee-cap, that I was almost ready to fall down from my mule. On such roads horses are quite useless.

It is just on such routes as these that goods of all

kinds have to suffer, and that my darling plants are injured so much, if not altogether spoiled. Collisions with mules bearing on their sides packages of one and a half quintals each, which sometimes, as in the case of tobacco-boxes, empty bags, &c., are very voluminous, are on such roads inevitable, the more so, as from five to six beasts are driven by one man, and these caravans consist very often of from thirty to forty mules. As the pace of loaded mules is a quick one, the shock is a very rude one. There is no other road in this direction, and the communication between ——— and Bucaramanga is very animated. The only way to diminish the danger is to travel as quickly as possible, and to avoid the approach to towns on market days. Another way of accounting for the frequent losses in damageable cargoes is to be found in the mode of fastening them to the sides of the mules; for, naturally, in order to resist the often-repeated shocks against other mules with baggage which they meet on their way, or trees and rocks that obstruct the road—these packages must be fastened very closely, and the ropes make deep grooves in their sides.

We continue our journey. Now we get on a little quicker, because of the cold and the road being level, and further because the next cottage is some 3 leguas distant. There we arrive at four o'clock, just when mist and damp begin to cover everything. Doña Maria, the housemother, is a chuffy, unfriendly old woman; but as I always show her little attentions, which take the form of a present, sometimes of a shabby image of a saint, another time of a ribbon for her daughter, she offers me the best place near the big three stones (the fireplace) in the kitchen, which is safely closed, and where the smoke of the tremendous fire intended for cooking, warming and lighting all at once, makes the eyes weep. The kitchen is at the same time saloon and dormitory for the most favoured guests; and for that reason I receive, after the dinner (off my provisions), a cow-skin and the privilege of choosing the best place in the kitchen. The amiability of the householder reaches its height when two sheepskins are opened for me—the saddle pad supplies a pillow, and at eight o'clock we go to rest. Ten minutes afterwards my boy at my side snores so loudly that I am obliged to give him a poke in the ribs. For me there is no thinking of sleep, on account of the hundreds of fleas, and so I have sufficient time to make my plans for the next day, to think about Orchids and a thousand other things, including the paying-orders floating between London and ———. Awaiting anxiously the approach of day, my boy receives a second poke. He awakes and asks me whether it is time to saddle the mule. Not yet, it is midnight. Then I am startled by the crowing of a cock at some distance over my head. Half the box of matches is spent before I find a candle in the saddle-pocket. It is five o'clock, and therefore time for rising. José, who had gone for the mule, comes back with a piece of the strap of leather in his hands, wherewith the mule was tied to a pale the evening before—hungry dogs had eaten the leather and liberated the mule, which, of course, looked for a more hospitable land than the Páramo, where, in a square mile, there is not a handful of grass to be met with. My boy runs back, and returns two hours afterwards, but without the mule, and there is nothing for it but to wait till somebody coming the same way may be able to give us some information. That happened, happily, sometime after. The owner of a great train of mules, who was going from Bucaramanga to ——— with tobacco, and who was now on his return, had seen my mule near Mutiscua, and he suggested that his people, who had remained behind, would probably have caught my mule and bring her along with them; indeed about mid-day I was so happy as to see my mule again. To the people who brought the beast I paid 1 dol., and to every one a drink by way of contribution. It was too late now to start that day; so I resolved, therefore, to proceed the next day, very early, and did so.

From here are 3 leguas, half of it still in the Páramo, the other half is a horrible slope, before reaching Tona, at every path increasing in richness of vegetation. At the end of the Páramo there is a cottage, from which a woman called to me by name, and asked me if I would be so kind as to dismount for a moment. Politeness is very seldom experienced in this region, but in this case there was a motive for it. When I passed, two and a half months ago, for the first time on this road, the night surprised me, and I was

* We are indebted to Mr. Alfred Borwick for this extract from an amusing letter describing a journey to Tona, written by a friend in New Grenada on October 2, 1878.

obliged to ask her for a night's lodging. There was a small boy of seven or eight years, whose eyes were full of suppuration: I myself washed his eyes with warm Camomile-tea, and, as I did not know what more to apply or prescribe, I wetted a piece of linen with the white of an egg and covered his eyes with it. It is easy to fancy how terrified I was a week later on my return when passing there, to see the poor boy just as I had left him with his eyes glued. I thought my practice would have occasioned bad consequences, but happily, and to my greatest surprise, after removing the rag with warm water, his eyes were perfectly re-established. A stranger, in the opinion of the people, must always be something of a doctor, and they would take it to show a want of goodwill should one deny to lend medical assistance when it is wanted. I am not very formal in the choice of remedies, and apply in specially difficult cases pills made of a little bread and Epsom salts: the fingers being always sufficiently dirty to give them, by kneading and twisting, a professional appearance. Faith renders the doses efficacious, and I am not astonished when people thank me afterwards for my good services, as this poor woman did: she offered me a cup of soup.

Such people do not believe medicine to be efficacious if it is not dear or has no disgusting taste. In general the people on the Páramos are inhospitable, lazy, extremely dirty, superstitious, thievish, distrustful, cowardly, and therefore cunning. They have something of the character of gipsies; with all that, the journeys in the glacial Sahara, as it may be called, are the most disagreeable ones imaginable.

From the end of the Páramos one descends rapidly and continuously till, after two hours, we arrive at a small unfriendly town. There exists no inn, but a shopkeeper of my acquaintance offers to lodge me in his house. A letter of recommendation to the clergyman, Dr. P——, which sometimes is of great use, is delivered, and after dinner I am so fortunate as to meet with the man in whose territorial possession, 1 legua distant, I intend to pick up my plants. Mr. M—— is very glad to see me again, and we arrange to meet the next day, he undertaking to procure two workmen, axes, and beasts, for the transport of the collected plants. The next day I meet Mr. M—— at ten o'clock, the worse for drink, and when I speak to him about our agreement he begins to insult me, saying he would not fulfil his engagement, and that all strangers come only to his country to exhaust it, and to deceive them, &c. To avoid a quarrel, and concluding that for this day there is nothing to expect, I return to the town. When intoxicated people often show their true sentiments, and in such a condition we learn, alas! that we strangers are only tolerated, and that their kindness is simulated.

The next day Mr. M—— comes to town and asks me to excuse his having offended me, and invites me to come on the following day when he would prepare everything necessary to fell the trees, &c. This day I could begin my work, collecting on two trees about the contents of half a box of plants, which I transport to the house. The next day heavy rain prevents me from doing anything—only after seven days is the quantity of plants I want brought together, and I am very fortunate the next day to find the necessary mules for their transport. The plants are packed with leaves of Bananas and moss in nets, similar to fishing nets; this is a day's work, and afterwards they are loaded on the mules, which bring them home in three days. Immediately after arrival they are discharged and spread out on the floor of my house, whilst I go with fresh linen to the bath-house, to clean myself of the different insects wherewith clothes and body are covered.

New Garden Plants.

MASDEVALLIA PARLATOREANA,* n. sp. (n. hybr. ?)

When I published the beautiful *Masdevallia splendida* I suggested that it might be a hybrid between *Masdevallia Veitchiana* and *amabilis* or *Barlaeana*. Now a second similar case occurs, and this case has been eagerly expected for years. It was one of the numerous

* *Masdevallia Parlatureana*, n. sp. (n. hybr. ?).—(Coccineæ Veitchianæ).—Pedunculo tenui; tubo perigonii externi breviusculo; sepalis impari brevi oblongo in caudam bene longiorem extenso; sepalis lateralibus multo latioribus majoribus in caudam breviusculis extensis, interstitio inter utrumque sepalum lato; tepalibus unguiculatis; basi semisagittatis ligulatis acutis longitudinaliter oblique carinatis; labello ligulato obtuse acutiusculo, utrinque medium usque obscure lobato; columnæ androclinio acuminato.—Posset dici quodammodo *Masdevallia Barlaeana* papillis velutinis, *Masdevallia Veitchianæ*, sed paulo diverse secta (ex horto ill. Veitch). *H. G. Rehb. f.*

secrets of the Royal Exotic Nursery that there might be a new scarlet *Masdevallia* (not the *spectabilis* nor *Barlaeana*) in the houses, but which was the new plant? Mr. Davis had carefully dried and put aside some flowers, and these gave the hope the distinct thing might be among the rest in the houses. Both Messrs. Veitch and myself had agreed that the novelty should bear the name of Filippo Parlature, whose last great work, the Exhibition and Congress of Florence, will abide in our thankful memory. Parlature had accepted the dedication with satisfaction, but it was not our good luck to be able to publish it in his lifetime. I keep my word to the deceased, and it is a very great pleasure to me that it has to stand just near *Masdevallia Barlaeana*, since Messrs. Barla and Parlature were intimate friends for the greater part of their lives. This plant is the third species with the violet velvet lustre as in *Masdevallia Veitchiana* and *spectabilis*. It

ADIANTUM BELLUM, T. Moore (fig. 24).

This Maidenhair Fern forms pretty neat dwarf green tufts, which do not appear to exceed 6 inches in height, and are often fertile when half that size. The fronds are of ovate lanceolate form, very slender and bipinnate, with few short pinnae, and small wedge-shaped or transverse-oblong pinnules, irregular in form, and attached by hair-like ebony-coloured stalks. The sori are round or subulate, with entire indusia, and the stipes and rachides are smooth and ebony-coloured. The plant is essentially of neat habit, producing its densely-set erect fronds so abundantly as to form close compact tufts of a pleasing and lively light green colour. It is allied to *A. fragile*, and might be mistaken for a dwarf form of that species were it not that its pinnules are not deciduous, as those of *A. fragile* are in a marked



FIG. 24.—ADIANTUM BELLUM, BULL.

has the same thin slender peduncle as the last, while *Masdevallia Veitchiana* has a very strong one. Since in the shape of the flower it comes very near to *Masdevallia Barlaeana* we may now guess that it is perhaps a hybrid between *Masdevallia Veitchiana* and *Barlaeana*, and *M. spectabilis* between *Veitchiana* and *amabilis*. As in *Masdevallia Barlaeana*, there is a very wide interval between the lateral sepals, which are remarkably short-tailed. The flowers are light flesh-colour (salmon-colour) outside, finest scarlet with amethyst warts inside, the small inner organs being white and violet-amethyst. The sepals have a short stalk; they are oblong-ligulate, acute, semisagittate at the base, with a longitudinal oblique keel. The lip is oblong, with obscure lateral blunt lobes: it is white, with a very dark violet spot at the top, and a longitudinal middle line, that is violet, and spreads in two shanks towards the base. Column semiterete, acuminate, white, with violet angles. It was imported from Peru by Messrs. Veitch, and flowered last autumn, after having been expected, as I stated, for years. *H. G. Rehb. f.*

degree. This is shown by the dark-coloured stalk being continued in a short y-shaped form into the base of the pinnules, the two branches growing on into the flabelliform veins which traverse the pinnules, instead of its stopping short, and showing an articulation where it joins the pinnule, as in *A. fragile*. This peculiarity has not been very clearly shown by our artist. It comes from the island of Bermuda, whence it was introduced a short time since by Mr. W. Bull, of Chelsea. The following is a technical description of the plant:—

Fronds tufted, 3–6 inches high, bipinnate, ovato-lanceolate; pinnae of 3–6 pinnules, $\frac{1}{2}$ –1 $\frac{1}{2}$ inch long; stalked; pinnules cuneate or irregularly transverse-oblong, the somewhat larger terminal ones cuneate and divided into two or three shallow lobes, the margin erose, all shortly pedicellate, the pedicels hair-like, not articulated with the pinnule, but showing at their apex a short y-shaped ebeneous furcation, which passes into the flabellate venation; sori various, two or three on the smaller pinnules, short and roundish, longer and subulate, situate at the apex of the shallow lobes;

indusium entire; caudex thin, shortly creeping, with criniform scales; stipes and rachides ebeneous, smooth. *T. Moore.*

SELAGINELLA BELLULA, *T. Moore* (fig. 25).

This fine ornamental species of Club-moss is closely related to *Selaginella inaequalifolia*, but the latter

of a dull deep green, paler, and rather glossy beneath, the upper ones rather densely packed, ovate, with a stalk-like base, closely bipinnate, the secondary branches being mostly forked near the tips. The leaves, which are set in the axils of the furcations of the stem, are obovate and bluntish, with a mucro; those of the stem are rather thinly scattered, those of

the base, and the posterior side is more produced towards the base and rounded. The small leaves on the upper surface are ovate, sharply acuminate, obliquely affixed, subparallel, of a deep green, as is the rest of the foliage. The fructifications are very copious, a quadrangular spike nearly or quite 1 inch long terminating each of the numerous little branchlets. It has been imported from Ceylon by Mr. W. Bull, of Chelsea. The description is as follows:—

Stem continuous, erect, 12 inches high, of a reddish hue, roundish, with two shallow furrows, branched to the base; branches alternate, the lower ones more distant, smaller, and less divided, the upper ones rather crowded, spreading, ovate in outline, with a stalklike portion at the base, closely bipinnate, the secondary branches mostly forked near the end; leaves entire and glossy beneath, those of the main stem distant, of the branches more approximate, oblong, subfalcate, acute, broader on the anterior side of the prominent nerve, but more produced at the base and rounded on the posterior side, erectly spreading and deflected from the plane, the smaller leaves ovate, shortly acuminate, obliquely affixed, subparallel; leaves of the branchlets close set, oblong, with a straight upper and curved lower margin, the nerve falcately curving to the acute point; leaves of the forks obovate mucronate; spikes slender, quadrangular, $\frac{3}{4}$ —1 inch long. *T. Moore.*

Forestry.

PRUNING.—There is a trite saying, applicable alike to much of what is said and done amongst us daily, "What is true is not new, and what is new is not true." From this, however, it need not be inferred that the true is less valuable or less important because not new, and it will be a sorry epoch in our history when novelty usurps the place of truth, which I would not say is an impossibility. Pruning as a branch of forestry is not in general uniformly well directed, and as seldom well performed. Upon some estates it is altogether neglected, and its importance ignored, while upon others it is carried on to an injurious and hurtful extent. Upon some estates the system pursued is a wrong one, and upon others, while the system is right, the performance and execution of the work is so rude and barbarous that any one seeing it is justified in wishing the work had never been performed at all. That which leads to wrong doing generally is wrong thinking, and if a word can be said in such a way as to turn the current of thought, the hand that might perpetrate mischief may be thereby arrested. One common impression in regard to pruning is, that when an important limb or branch is cut off from the bole of the tree the sap which was wont to flow into it, to nourish and sustain it, will, on its being cut off, find its way into the stem or bole of the tree, and thereby nourish and enlarge it to the full extent that it did the member cut off. That this is a wrong impression can be easily shown, and also that the anticipated benefits resulting from such pruning are never realised. If it be asked how it is ascertained that the sap which formerly supplied the amputated limb does not find its way into the trunk and add nourishment to it proportionately (or to any appreciable extent) to what it did to the limb, the answer is, by experience and observation, such as any one may avail himself of at pleasure. I have several sections of wood before me, taken from trees previously pruned, all of which show that the sap-vessels of the stem or limbs adjacent to that cut off do not enlarge or increase in strength subsequent to the operation. In most of the sections I observe a diminution of growth rather than an increase, such as is produced upon a neighbouring tree in the act of thinning. The sap does not flow in one class of vessels only, but in several; not in longitudinal ones but transverse ones as well. Each branch and limb evidently has a primary class of longitudinal sap-vessels peculiarly its own for conveying its nourishment, but in addition to these there is a secondary class of transverse ones, all connected one with another, and with every part of the tree to its remotest extremities. This is clearly demonstrated by cutting off a branch and leaving the smallest ligature on the outer surface along with the bark, which is found sufficient to keep the whole branch supplied with sap and alive for an indefinite length of time; or, what is still more remarkable and illustrative of the affinity of sap-vessels and their connection one with another, is the experiment of cutting down a tree of any size, small or large, and leaving the slightest connection of the sap-wood entire at the root. By this means I have seen a Beech tree of

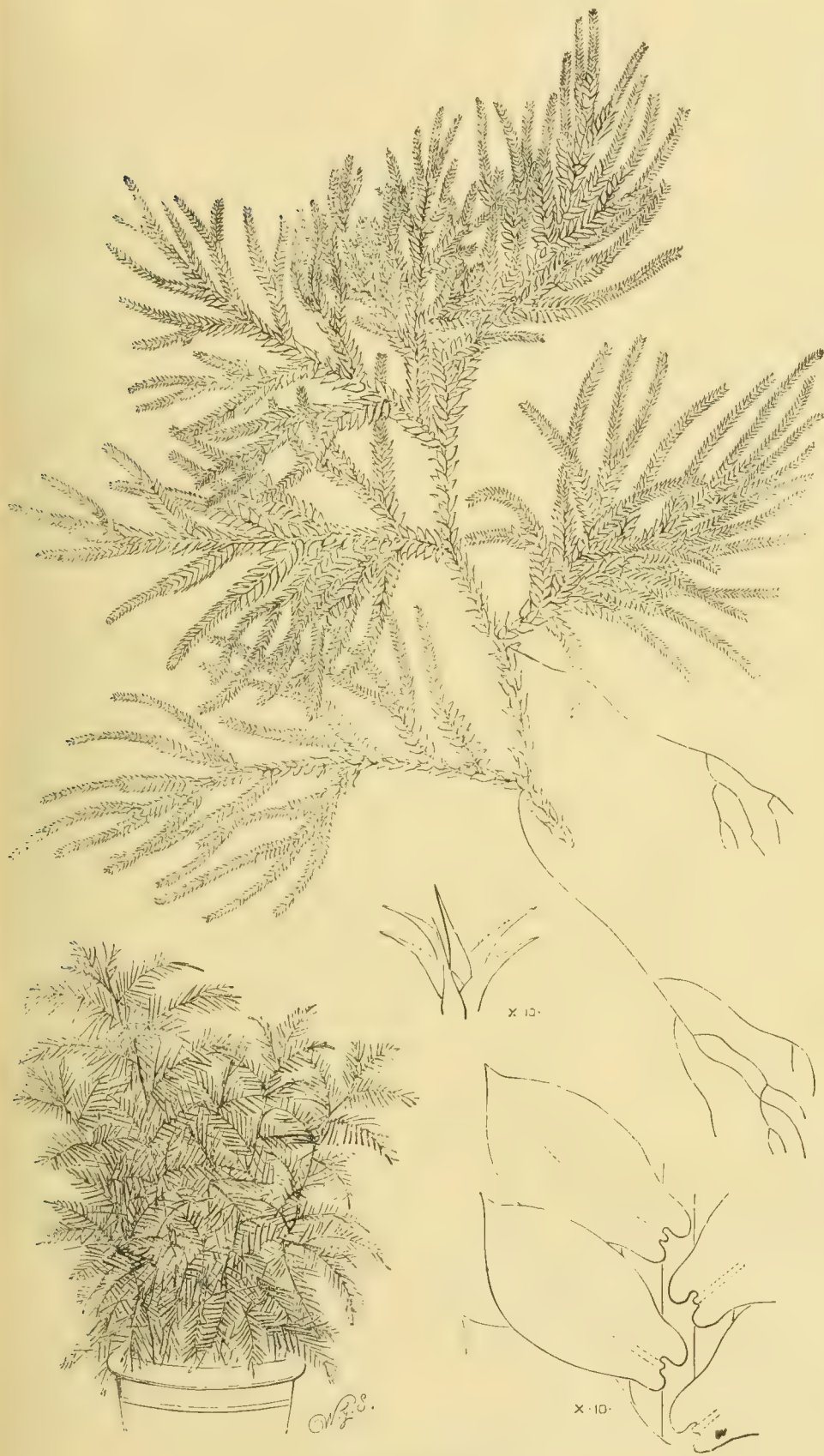


FIG. 25.—SELAGINELLA BELLULA.

differs in its paler coloured stem, and in its general aspect, the eye at once detecting a difference which is not easily expressed in words. It is not only dwarfer and denser in its habit of growth, but much more fructiferous. The stems are erect, about 1 foot high, and nearly terete, pinkish red, the branches are alternate and horizontal,

the growing branches less so, and those of the branchlets rather closely set and deflected from the plane of the branch, so that its surface appears as if shallowly ridged. The latter are oblong, with the upper margin straight and the lower margin rounded; the prominent nerve takes a falcate curve to the acute apex, the anterior side of the leaf is broader but more cut away at

large size kept alive for many years, and no part of it suffer decay, not even the extremities of the branches, notwithstanding that the sap-vessels through which the whole structure of the tree was nourished and supplied with sap was not over 4 inches by 1½ inch, including the bark. Trees in this state of prostration, and with the limited supply of sap, do not make any perceptible enlargement either in shoots or woody substance; but the circumstance of their budding, foliating, and defoliating the same as other trees shows conclusively that the sap becomes common throughout the whole structure of the trees, and though entering by a small channel and only a limited number of vessels, it soon spreads into other channels, and extends uniformly to all parts of the tree.

The foregoing remarks, while admittedly a digression from the subject of pruning, may be excused on the ground of their relationship to it, or at least on account of their showing the importance of sap-vessels, and how they act and react upon each other, without a knowledge of which no system of pruning can ever be made intelligible and satisfactory. A forester's knowledge of the growth of a tree, and how it is produced, is probably better shown by the manner in which he executes pruning, than by any theory else.

That the roots supply the tree with nourishment is no more certain than that the tree supplies the roots with the power and means of doing so, for there is no more certain means of arresting root-supply than by denuding a tree of its branches and leaves. The deprivation of its leaves not only prevents the tree from forming and maturing its wood, but will very soon deprive it of vitality altogether. In the year 1865 (I think) the caterpillar attacked the natural Birch woods in Strathspey, and rendered them in many cases leafless, the result of which was that many trees died down to at least the surface of the ground, and never revived. It is the branches situated upon the lower part of the stem that principally nourish the roots, and when these, in the act of pruning, are taken away, the consequences may be readily apprehended. The clearing of the stem of all branches, great and small, is done in order to form a beautiful clean cylindrical trunk some day; but however laudable the object is, its attainment is not to be secured in that way; indeed the means employed are just such as to frustrate the object, as can easily be shown. No one is more enraptured with a splendid trunk than I am, and every forester should aim at such an attainment; but, while he is so aiming at it, it is absolutely necessary that the means adapted to the end be properly used. The stem, as I have frequently stated, should, in the case of a well-grown tree of pruning age, girth as many inches round as it stands feet in height. When this rule is attended to, all under and over-pruning will be prevented, and the same rule is applicable to all species of forest-trees grown for profit and as a crop. Tastes and fashions are applied to trees as well as to persons; and it ought to be the aim of all who influence fashion to do what they can to make her servant to, not mistress over Nature and her laws. *C. Y. Michie, Cullen House, Cullen, Banffshire.*

Florists' Flowers.

TREE, OR PERPETUAL FLOWERING, CARNATIONS.—When the days are at their shortest, and keen frosty winds have cleared the gardens of all their sweet-scented flowers, the occupants of the greenhouse are naturally more valued; and what flower is there more easily grown, and more worthy of admiration, than that named at the head of this paper? All the summer and autumn months the plants have been in a favourable position out-of-doors; the whole attention they have required has been to tie the stems to a stick as they advance in growth, and to keep the pots well supplied with water at the roots. They have now been removed into the greenhouse, and their beautiful sweet-smelling flowers will be highly valued all through the winter months. As a proof of their great value, I may say that out of a collection of not more than four or five dozens of plants we are seldom without flowers from now until the ordinary varieties of the florist type come in about the end of July. To obtain this result the plants must not only be well grown, but free flowering sorts must be selected.

Their culture is very simple, and success may be attained by those not possessing much glass accommodation, or who have but little knowledge of garden-

ing. A greenhouse cannot be kept constantly full of flowering plants unless there is also a range of pits, or frames, as feeders to the larger structure. It is not every garden that has such, and many gardeners are not in a much better case in this respect than the children of Israel when they were commanded to make bricks and find their own straw. To all such that require choice flowers in winter I commend the culture of perpetual flowering Carnations. In order to obtain large flowering plants by November, it is necessary to begin to propagate early in the year. If there is a small artificially-heated propagating house on the place the cuttings may be put in from the middle of January. The small side-growths strike root most freely, and they should be just slipped off and dibbed into 4-inch or 5-inch pots, in fine soil; a thin layer of silver-sand should be placed on the top of the soil. I plunge the pots in a gentle bottom-heat, and the temperature of the house should be about 50° to 55° at night; over the pots I place a square of glass—it rests upon the labels that are inserted in the pots. This plan prevents too rapid evaporation, and the plants are not so likely to die off, as they sometimes do early in the year when quite covered with glass.

They do not take long to form roots, and when this is the case the glass must be removed, or, as most likely the freest growing sorts will root first, the pots that contain rooted plants must be taken out and placed on a shelf, near the glass, until the more stubborn sorts have also formed roots. I leave the cutting pots on that shelf until they are fairly filled with roots, then the young plants are potted off singly into small pots; and here it is necessary to remark that the potting material ought to be good turf, clayey loam, four parts, one part rotten stable manure, as much leaf-mould, and sufficient sharp river sand to keep the compost open. Let the pots be clean and well drained; the soil to be pressed firmly round the roots with the fingers. Some varieties grow very much more freely than others, and will by the end of the season require much larger pots. Even at the first potting off the weakly varieties should be potted in small sixties and the robust-growing varieties in large sixties. The plants should be taken back to the forcing house and be placed near the glass again. They require a night temperature of 50° to 55° to keep up a gentle growth. If they were put into a greenhouse, or cold frame, in February or March the growth would be checked. I do not care to turn them out into cold frames until April, and from there they are removed into the open air in May. The plants must be potted on as they require it during the season. I generally pot the strongest into 8-inch pots, while those 6 inches in diameter, inside measure, are large enough for others to flower in. Those who have not the convenience of a forcing house can have early plants raised in a hot-bed, but they ought not to be put in until a month later, nor before the heat has considerably declined. They must be potted off in the same way as the others, and be grown on until May in cold frames. Those who have not even a cold frame can propagate young stock by layering the old plants in August; when rooted, pot them up and place the pots in the greenhouse, or in a shady place out-of-doors. These will make very strong flowering plants in twelve months, but they are not likely to produce many flowers in the following winter.

The only insect pest that is likely to cripple the plants is greenfly, and it can be destroyed by fumigating. Many of the varieties are apt to run up with long stems when grown under glass, but this tendency can be checked by placing them near the glass, admitting as much air as possible under the circumstances, and keeping the atmosphere rather dry. Let it always be understood that a damp close atmosphere causes an apparently more rapid growth, but it is not healthy development—it is haste, not speed.

A few words as to varieties. Nearly all the new sorts emanate from the Royal Nurseries, Slough. They are either raised there or introduced to the public through Mr. Turner. There are three varieties that have been introduced to the public from other sources, and as they should be in every collection, their names must be given. They are Miss Jolliffe (Masters), La Belle (Blackley), and Annie Williams, sent out, I believe, by Mr. Williams of Holloway. La Belle is pure white, and the other two are rose or flesh-coloured; all of them grow freely, and are amongst the best for market purposes. A. Alegatière still holds its position as a dwarf free flowering sort with bright scarlet flowers. Guelder Rose has

large pure white flowers; Empress of Germany, a free growing desirable sort, has large pure white flowers very slightly flaked with rose; Sir Garnet Wolseley must be grown for its distinct buff-coloured flowers edged and flaked with red; King of the Belgians does not grow so freely as some, and it is still scarce, its large rose-coloured flowers are neatly fringed; Rose Perfection, Scarlet Defiance, Prince of Orange, Celestial, Mons. Baldwin, Proserpine, Gloire de Lyon, and Duke of Wellington, should all be grown. *J. Douglas.*

Garden Operations.

HARDY FRUIT GARDEN.

There is now some appearance of a thaw, though the ground while I write is still frozen and covered with a sheet of ice, which again is covered with snow, and that is thickly glazed and varnished over with rain, which freezes as it falls, while bars and ribs of ice stretch across the walls wherever there is a leaky place in the coping, and the twigs and buds are covered with icicles. In this state of things it does not seem easy to advise operations in this department which shall be at once possible, seasonable, and profitable; but as work is getting more and more in arrears every day it behoves us to see that nothing is omitted that can possibly be done, as there is sure to be a pressure of it in every department by-and-bye. In addition to what has been advised in previous Calendars some sort of covering should be provided for Apricot and Peach trees during their blooming period, and whether it be Frigi Domo or fish netting, Spruce branches or pieces of Bracken, the time will be well employed in getting it ready for use at any moment it may be required. I have never found it easy to effectually protect pyramid and bush trees from a nipping spring frost excepting an isolated specimen or two, but undoubtedly the best plan, and one that answers perfectly for ordinary spring frosts, is to fix a row of tall stakes in the line of the trees, and over this to throw a sheet of good tiffany, cotton bunting, or any similar material, making the outer edges secure to rows of shorter stakes placed at a suitable distance from the trees. Where means are allowed for carrying out such a plan as this the present will be a good time for making the necessary preparations. Vines growing on gable-ends and other places out-of-doors should be pruned at once if not already done, or they may bleed badly if the present severe weather should be immediately succeeded by a period equally mild and warm—a sort of change which is not uncommon with us. Orchard trees that have had the requisite pruning should now have their stems and branches cleared of any moss, &c., that may be growing on them by being moderately scraped with a piece of hoop-iron and then washed with a thin mixture of newly slaked lime to which a little soot and clay has been added. If scale or American blight be troublesome take a gallon of the above mixture and add to it 4 oz. of soft soap and a pint of strong tobacco liquor. With this and a stiff brush wash and scrub the parts affected. Gishurst Compound, 8 oz. to the gallon, will do as well. There are also other remedies equally effectual, but from my own experience I cannot say that they are equally safe in all hands. Manure for top-dressing such trees as require assistance in that way, may now be conveyed to some suitable place adjacent, but had better not be spread until after the frost is quite out of the ground, as that would only retard the thawing process. *F. Harrison, Knowsley.*

PEACHES AND NECTARINES.—Another cold, sunless month has closed upon us, a thick black pall shuts out every ray of warmth. The external temperature for the past three weeks has scarcely exceeded the freezing point; the ground is as hard as adamant, and we have no snow in this locality to protect our trees and shrubs from the effects of the biting north-east wind. Our early Peaches have blossomed, and received extra attention by way of fertilisation and the maintenance of low, steady heats, particularly at night, and we have reason to believe we have a good set of fruit. Late blooming kinds still in flower in the early house must have the camel-hair pencil passed over them daily, and the house must be kept moderately dry with a gentle circulation of air, until the flowers show signs of fading, when gentle syringing twice a day with tepid soft water will soon set the mind at rest with regard to the first stage, under the most trying conditions that we have experienced for many years. Peach trees having their roots in good inside borders will stand a great deal of hard forcing, they will also bear and set well in a very low temperature, and make up for lost time as days increase in length and brightness. Old practitioners will follow the slow-and-sure course; young ones will do well to follow in their steps, as nothing can be more annoying than the loss of a crop through undue haste. Proceed cautiously with disbudding and shortening back shoots that were left full length at pruning time. Take off the fore-right shoots first,

commencing at the extremities of the trees, and work gradually down to the horizontal branches at the base. Watch closely for greenfly, and fumigate as soon as the pest puts in an appearance. Keep all corners and surfaces near the pipes constantly moist, using a little sulphur in the water as a check to red-spider, and make frequent additions of fresh horse-droppings, little and often, for giving off ammonia, but on no account apply heavy mulchings of strong manure until the stoning process is over. See that the roots of the trees are well supplied with weak tepid liquid, give a little air on all favourable occasions, and run up 10° or 15° after closing, when the sun again reaches the earth. Succession-houses now approaching the flowering stage may be treated precisely the same as the earliest. Syringe well until the blossoms begin to open. Remove the buds from the lower sides of the shoots that are thickly studded before they expand, and on no account omit the fumigating on a calm afternoon when the trees are dry. Late houses are backward enough this season, but the wood was well ripened, and where due attention has been paid to watering the inside and protecting the outside borders, judicious ventilation will keep the trees in a promising state for giving full crops of fruit. Where the lifting and re-arrangement of trees in late houses had not been completed when the severe weather set in early in December, a little patience must be exercised, as the Peach is most accommodating, and may be re-planted up to the time the flowers show colour, with every chance of its carrying a good crop of fruit. We still have a new house to plant. The trees are laid in, and the compost is ready, but no move will be made until the frost is quite out of it, and I do not despair of having to thin the fruit in May. *W. Coleman, Eastnor.*

CUCUMBERS.—The plants which have been producing fruit all the winter will now be the better for having the surface of the old soil removed and replaced with an admixture the same as recommended in our last Calendar, which will have an invigorating and beneficial influence upon their almost exhausted energies. See that the young growths are kept tied up to the trellis, but not too tightly, for this would be very injurious, if not positive and ultimate ruin to the shoots in developing their growth; avoid also overcrowding of the shoots. See that the bottom-heat does not fall below 75° or rise above 90°. Red-spider has been somewhat troublesome this winter in consequence of the long-continued and severe firing rendered necessary by the adverse nature of the weather, and for the annihilation of which various antidotes are recommended, one and all of which are effective enough when applied at the proper time and in the right way. There are, amongst many others, the following preparations—Gishurst Compound, Veitch's Chelsea Blight Composition, Frettingham's Liquid Compound-soap, quassia-water and sulphur, the last-named being perhaps the most easily applied, most clean, and most effective, but it should be applied cautiously and with judgment. We use it in this way:—Into a small bucket of limewash (according to the extent of heating surface to be painted) we put 2 lb. of the flowers of sulphur and stir the whole together, after which it is applied with a whitewash brush to the pipes or flues in the evening, the foliage of the plants being thoroughly dry before the sulphur is applied to the highly heated pipes and the water kept at boiling heat, not, however, allowing the temperature of the house to rise above 83°; and having kept the house at this degree of heat for a couple of hours we let the temperature gradually down to the regular heat, running up the temperature for an hour or two again the succeeding evening, and giving a free circulation of air during the day, weather permitting. This we find produces the desired effect without in the least injuring the foliage of the plants. However, remembering the old adage, "prevention is better than cure," we would say maintain a nice moist, genial, and growing atmosphere. Young plants will shortly be ready, if not quite, for planting on the hillocks in the Cucumber-house, the soil having been put in a few days previous so that it may have become warm; then it should be pressed firmly round the plants and a stick put to them for support and fastened to the first wire of the trellis. The same treatment must be pursued, with regard to heat, moisture, and airing, as recommended for the old plants. Should the sun "make an appearance" before the plants have had time to take root in the new soil, a little shading would be advisable to prevent their flagging. *J. W. Ward, Louford Castle.*

MELONS.—With an almost total absence of sunshine since my last paper was written, and a prevailing and bitterly cold north-easterly and easterly wind, which has been accompanied at intervals with snow, the subjects in this department have made but little progress, therefore every available means consistent with the proper treatment of the Melon must be had recourse to to encourage growth. Great care must be exercised in not admitting an unbroken current of air while the wind is in the quarter above indicated.

A piece of fine hexagon netting doubled a couple of times and placed over the ventilators will answer this purpose. Maintain a night temperature of from 65° to 70°, which will be amply sufficient during the present chilling weather, and in order to obtain even the former degree of heat in many places mats and other protecting material will have to be used. Cover dung frames with double mats and plenty of Fern at night, and see that the linings are regularly and properly attended to, *i.e.*, that the old linings are removed and replaced with fresh fermenting material. See that succession plants do not become drawn or potbound. *H. W. Ward.*

FLOWER GARDEN, ETC.

Operations in this department will still greatly depend upon the weather, but no opportunity should be omitted to endeavour to maintain a neat appearance in the grass of the lawns and the gravel walks; sweeping and rolling is all that can be done for the former at present, but for the latter any conspicuous weeds may be most easily removed after a frost, and any patches covered with green moss may be made to look fresh by scrubbing them over with stubby birch besoms, and after a heavy shower of rain they may be well rolled down. It is always best to wait for rain when a thaw occurs after frost before rolling, as otherwise it is apt to stick to the roller and does more harm than good. It is to be hoped that due advantage has been taken of the long-continued frosty weather through which we have lately passed to turn over all compost heaps as frequently as possible, as there is nothing that will tend more to sweeten them, and increase their fertilising properties, than the frequent exposure of fresh surfaces to the influence of frost; this is more particularly of advantage to such constituents of composts as decaying leaves and rotting manure, which in mild winters are apt to be taken possession of by thousands of worms, which renders them sour and unfit for use, unless they are subjected to the influence of severe frosts, or, what is equally efficacious, the burning heat of the sun at midsummer; but, of the two, the enforced leisure of a long frost will enable the operator to pay more attention to secure these ameliorating influences.

With such a long frost, we can hardly realise the necessity for a close attention to the wants of May and June in the planting department; but such, however, is the case, and seeds of the required varieties of sub-tropical plants should be sown and put into heat without delay. A little extra trouble in this department will be rewarded by strong plants, which will grow away at once when turned out, and be far in advance of later sowings. To do justice to these which are sown now, they will require a considerable amount of room, at a time too when room is valuable, so that it is as well to know within a few plants the exact number which will be required, and not occupy space and time in the nurturing of plants which would most likely be sent to the rubbish heap when real wants are supplied. In the last two winters *Echeveria secunda glauca* passed through them very well and without injury in the open borders. The present one is widely different, and most of those left exposed are destroyed; this points to the absolute necessity of always securing a stock under glass, but if they are likely to be short means should be at once taken to increase it, and although they may be propagated by leaves a less troublesome plan is to sow seed at once in a brisk heat, and by early pricking-out and the encouragement of a nice growing heat they will make tidy little growing plants for use at the end of May. To increase the stock of another pretty and very useful succulent plant, the *Pachyphyton bracteosum*, it is only necessary to break off the leaves and place them out separately on shelves or anywhere in the propagating house, and when they have thrown out roots and formed the germ of the future plant they should be potted and grown-on through the summer and autumn for use next year, as they are very slow-growing, and seldom of sufficient size the first year.

It is time to look to the propagation of *Alternantheras*. If the number required is very large, commence at once, the old plants being encouraged by a little increase of heat to throw up an abundant stock of cuttings; but where the number required is not so great, the propagation may be deferred another month, and as the plants potted in the autumn need not be so much cut about they will make substantial plants for bedding out. Nearly the same routine may be followed with *Iresine* and *Coleus Verschaffeltii* and *marmorata*: if these have been kept through the winter thickly planted in store pots it may be as well to wait until they have made a little growth rather than to cut down the tops for cuttings to be propagated at once, and after the lapse of ten days or so the old stock will show signs of breaking into fresh growth, and may be turned out and potted singly in 3-inch pots, or two in a 4-inch one, and they will make fine stocky plants for bedding out. These and indeed most kinds of stock plants are extremely liable to the attacks of green aphides,

which should be checked by timely fumigation as soon as any of them put in an appearance: prevention is better than cure, so do not wait for a large development but nip them in the bud. It is yet too early to take account of the ravages of the frost amongst flowering plants, but I am much afraid from present appearances that *Myosotis dissitiflora*, on which much of the beauty of the spring display depends, has suffered severely, not indeed from severity of frost, but from the scathing influence of the dry easterly winds. *John Cox, Redleaf.*

PLANT HOUSES.

Although the present cold sunless weather renders it undesirable to disturb the roots of stove plants just at present, the time for repotting the greater portion of them will soon be here, and it will therefore be advisable at once to set about making due preparation for the work by getting under cover all soil that is likely to be required, that it may be in proper condition for use when wanted. It should be borne in mind, that not only is it necessary to have the peat or loam in the medium state of neither wet nor dry, but that it is equally or even more important for the dead chill to be taken off before it is allowed to come in contact with the tender roots, as otherwise the delicate spongioses are sure to suffer injury and receive such a check as greatly to retard the plants' progress, and throw them back for some time. Unless where there are large collections to deal with, a few barrowloads will generally suffice for each day; and if this is placed either under the stage, or wheeled in the pathways of the stove the night previous, it will have absorbed sufficient warmth by the morning so as to enable the work to be carried regularly on to the end. In order to do this, however, there must be no lack of clean pots of different sizes ready to hand, for to put plants in such as are soiled or coated with green is a great mistake, and is very inimical to their health. Crops, too, if used a second time, should have a rinse, to free them of all earthy matter, and render the drainage perfect. After potting, stakes of some kind or other are sure to be needed, as also labels of various sizes to replace those becoming illegible or rotting at the base, and here again the thoughtful workman will show his forecast by being prepared with a good supply of these, and then all will go on in a systematic manner. For stakes I know of no wood more suitable or enduring than good red deal, as such generally contains plenty of resin, which repels water, the first and general source of decay. To take off the glaring appearance, it is a good plan to draw them through a piece of coarse rag made moist with green paint, which is a much quicker way than using a brush, and gives a more regular coating. For commoner uses, such as training *Pelargoniums*, *Chrysanthemums*, &c., nothing answers better than the young shoots of Hazel, which cut now and tied up tightly in bundles after being pointed, will harden and stiffen by the time they are required for use.

CONSERVATORY.—In order to keep this gay it will be necessary to introduce to the forcing-houses a regular supply of hardy plants as auxiliaries to those flowering naturally, which if brought slowly and gradually on, will last double the time they would if subjected to much heat. To give them the benefit of what little sun we get, it will be advisable to go over the roof-climbers, and remove all superfluous growth, or as much as can well be spared without denuding them too much of their foliage. Such things as *Passifloras*, *Tacsonias*, &c., that are now on the move, will bear the knife freely, as they will soon be emitting fresh shoots; and by removing a large portion of the old it will cause them to break back more regularly and concentrate their strength around the old spurs. Beautiful and indispensable as *Tacsonias* are for the embellishment of conservatories, they are unfortunately very subject to white scale, and seldom attain much age without becoming badly affected. The plants being now in a semi-dormant condition, with less wood about them than at any other time, a capital opportunity is afforded for going thoroughly over them, to make a clean sweep of the pest. After trying various expedients, I could never find anything do the work so effectually as the smothering process, by giving the bark a dressing of a similar nature to that generally used for Peaches and Vines. Plastic clay, with two or three ounces of any of the insecticides, and about the same quantity of soft soap to a gallon of water, thickened by the former to the consistency of paint, and then put on with a brush, will settle matters with them to a certainty, without any harm to the plant. The only thing is to see that every part is covered, and if this is done they will be no further trouble for a long time to come. The severe winter, involving as it has the use of much fire-heat, has dried the borders near the pipes to a much greater extent than is generally suspected, which being the case an examination should be made, and, if needful, a thorough soaking given, as nothing tends so much to engender weakness in creepers as an arid condition of the soil over and above what is necessary to give them a fair season of rest. *J. Sheppard, Woolverstone Park.*

THE
Gardeners' Chronicle.

SATURDAY, FEBRUARY 8, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, | Feb. 10 | Sale of Imported Orchids, at Stevens' Rooms. |
| | | Sale of Japanese Lilies, by Frotheroe & Morris. |
| TUESDAY, | Feb. 11 | Royal Horticultural Society: Meeting of the Fruit and Floral Committees at 11 A.M., and Scientific Committee at 1 P.M. Annual General Meeting of the Fellows at 3 P.M. |
| WEDNESDAY, | Feb. 12 | Sale of Liliun auratum, Roses, Fruit Trees, &c., at Stevens' Rooms. |
| THURSDAY, | Feb. 13 | Sale of Imported Orchids, at Stevens' Rooms. |
| | | Sale at the Nurseries, Taunton, by Frotheroe & Morris (two days). |
| SATURDAY, | Feb. 15 | Sale of Roses, at Stevens' Rooms. |

THE annual meeting of the ROYAL HORTICULTURAL SOCIETY, which will be held on Tuesday next, on the same day as the meetings of the three committees, is looked forward to with much interest by those of the Fellows interested in horticulture. It is known that the lease of the South Kensington garden has lapsed from non-fulfilment of the necessary conditions on the part of the Society, and the question on everybody's lips is, "What next?" Doubtless the Council will do something towards enlightening the Fellows at the meeting, and it would have been well if they had done so beforehand. What the general tenor of the report will be it is not difficult to guess. The financial state of the Society will probably be found to be no worse (if we except the Preston Show account) but rather better than before, and if all obligations could be wiped off the monetary condition would not be a subject for anxiety.

We shall probably be told that negotiations and *pourparlers* have been held more or less formally or more or less informally, with the landlords, Her Majesty's Commissioners, but without any definite result having been arrived at. The Society awaits the proposals of the Commissioners, the Commissioners want to know what proposals the Society is going to make. Possibly some more or less tempting project will be put forward, but on the whole we suspect that but little that is definite will be announced.

Turning to the horticultural part of the report we shall probably be told that the exhibitions have been quite equal, if not superior, to what they have ever been; that they have been honoured by the presence of Royalty; and that had it not been for untoward weather the financial results would have been better. We shall be told that the committees have done their work with their usual regularity and disinterestedness; that the experimental work at Chiswick has been well carried on by Mr. BARRON and his assistants so far as means have permitted. The Preston Show will have to be chronicled among the Society's failures, which will surprise no one who knew the circumstances under which it was organised and the untoward weather during its continuance.

So much we think we may venture to predict without being too rash; and even if our predictions should be falsified by the event, they will at least commend themselves as having so much of truth in them as to render them highly probable. As to the proposals for the future, and the policy the Council intend to act upon, we have not the most distant notion—perhaps not even the Council is much more decided. But that is just the most serious part of the whole question. Here is the Society apparently floating hopelessly on the surging waves of a troubled sea, out of sight of land or lightship, and for all we see without a captain on the bridge, a man on the look-out, or a steersman at the helm. The crew may be all there, and may be in a state of complete efficiency—and

we do not wish to intimate that it is not so—but if a doubt does arise the Council have themselves only to blame, for they have made no sound, and have left us utterly in the dark as to the state of affairs. Worse than this, they have suggested as new members of Council in place of those who retire as a matter of course two gentlemen who are utterly unknown as horticulturists. One of these names, we believe, either has been or will be officially withdrawn, and the name of Lord SKELMERSDALE substituted. This is in every way a wise change, and we trust that every horticulturist will record his vote for a gentleman who has proved himself so valuable an officer in a kindred Society—the Royal Agricultural.

To fill the second vacancy we beg to suggest that the votes of the horticulturists be given to Mr. KELLOCK. Mr. KELLOCK is one of those few energetic men who came to the rescue in the most troubled times the Society ever had, and who for that alone deserves our gratitude. He has been influenced neither by fear nor favour, but has under all circumstances doggedly and persistently upheld the cause of horticulture to the best of his judgment and ability, and he has proved a most efficient chairman of the Floral Committee. In so doing he has doubtless—as every strong-willed man must—given offence to some, but these are not times to quibble about personal grievances. The Council of the Society must be strengthened, it must be prevented from lapsing into paths non-horticultural, and the Society must be saved the degradation of becoming a mere resort of idlers and fashion worshippers, if even the latter can be induced to come.

It comes to this. Such are the relations of the Society to the Commissioners that public attention and that of Parliament must soon be drawn to them, and scant favour will be shown to the Society unless it can be proved to have been and to be true to itself. Its public utility must be made apparent at all hazards and at all cost.

Does any one believe that a Society which should be the national representative of horticulture is doing its duty by organising trade-bazaars in the shape of flower shows, furnishing bands and promenades for aristocratic ladies, lawn-tennis and skating-ponds according to season for the children of South Kensington? These things are well enough in their way—we do not decry them—but they are not horticulture; and when the inquisition comes, if the Society has little else to show, what mercy can it expect? This is why we want to see horticulture more strongly and efficiently represented on the Council. Every country gentleman who takes an interest in his garden should feel an interest in the Society—but is it so? Take the great patrons of horticulture and botany throughout the country, and see how very few of them take any concern in the welfare of the Society. These are the men who should form a large majority of the Council, but how difficult it seems to be to secure their services. Take the zealous amateurs, the active, energetic members of the suburban and provincial horticultural societies, and see how small is the number of those who feel any active interest in the Society and its doings. All this is beyond contradiction. To remedy it we want a keen-sighted guiding spirit, with a strong Council behind him; we want the active support of every gardener, high or low, in the kingdom; and in so far as the Society fails in these things it will fail to attract the sympathy of the public, and it will bind tighter the fetters of South Kensington.

— ROYAL HORTICULTURAL SOCIETY.—At a meeting of Fellows of the Royal Horticultural Society, held at the Horticultural Club, January 29, it was resolved to recommend that at the election, on February 11, the names of Lieut.-Col. MAKINS and Mr. ASPINALL be erased from the blue balloting

paper, and those of Lord SKELMERSDALE and Mr. W. B. KELLOCK be inserted in their stead. All that voters have to do is to strike out from the list, on the blue paper, those names of which they disapprove, and to insert those of whom they do approve, and who have been duly nominated. We may also state the meetings of the Fruit and Floral Committees will on this occasion be held in the conservatory.

— BOTANIC GARDEN, PALERMO. — Botanic gardens where botanical science alone is the *raison d'être* of the establishment, are apt to be ugly enough. There is really no reason why this should be so. The pursuit of science need not be hindered or interfered with by artistic grouping of noble or graceful forms of vegetation or harmonious combinations of colours; on the contrary, much may be done to promote the diffusion of knowledge by presenting it before the public in an attractive manner. Even the element of cost need prove no bar, as the public would not grudge a little extra outlay when they can "see something for their money," and have something put before them which they can appreciate. In a botanic garden the first essential is a well selected, well named collection; and next, that the arrangement be such as to be at once useful and pleasing. In a garden a rigid scientific arrangement as regards minute details is impracticable—general principles alone can be acted on. As a strictly linear sequence or accurate grouping according to affinities is impossible, there is the more excuse for artistic arrangement. Moreover, one very important function of a botanic garden is to serve the purposes of practical gardening by displaying to the best advantage plants likely to be useful in any way in gardens of the ordinary character. The avenue of Date Palms in the Botanic Garden at Palermo, of which, through the kindness of Professor TODARO, we give a woodcut (fig. 26), may suffice as an illustration of our remarks. Here we have noble forms and bold foliage supplying grateful shade and sheltering elegant Cycads and Palms of lower growth. Agaves and succulents furnish a marked contrast in form. The "vases" in which the plants are growing are in themselves a lesson—it would be a desecration to call them "flower-pots." The elegant form of these vases is one of the first things that strikes the eye of the British gardener when he finds himself on the further side of the Alps. An ugly flower-pot, such as is the almost universal rule here, is there equally exceptional.

— THE ORIGIN OF EXISTING FLORAS.—Baron ETTINGSHAUSEN, in a report to the Royal Society, says that all the existing floras of the earth are the descendants of the plants constituting the Tertiary flora. The Tertiary strata contain the original species of the recent floras and plant forms of all parts of the globe. Moreover, in each of the recent floras are to be perceived the elements of their common origin. They have, however, been more or less changed, and have developed into manifold forms. The fossil plants, according to the Baron, vary more than the living ones, the varieties of the fossil plants corresponding with what are now regarded as species. The varieties, for instance, of the fossil Pine, called *Pinus paleo-strobilus*, so entirely correspond with many of the recent species of *Pinus*, that the former must be recognised as the original forms of the latter. The Eocene flora of Great Britain, to which the Baron has given special attention, is remarkable for a series of Ferns of tropical character. These have been discovered at Bournemouth, Bovey Tracey, and elsewhere.

— FERNS FROM THE NORTH OF BORNEO.—To the current number of the *Journal of Botany* Mr. J. G. BAKER has contributed a report on the collection of Ferns made for Messrs. VEITCH & SONS in the north of Borneo by Mr. F. W. BURBRIDGE, which includes an enumeration of above fifty species, which, so far as the author is aware, had not been gathered in the island before. Some of the species are new to science, and of these Mr. BAKER gives descriptions of *Gleichenia circinata* var. *borneensis*, *Alsophila Burbridgei*, *Davallia Veitchii*, *Lindsaya Jamesonioides*, *L. crispa*, *Asplenium porphyrorachis*, *A. xiphophyllum*, *Nephrodium nudum*, *Polypodium minimum*, *P. Burbridgei*, *P. streptophyllum*, *P. taxoides*, *P. stenopteris*, and *P. holophyllum*.

— THE NATIVE PLANTS OF VICTORIA.—The energies of Baron VON MUELLER seem never to flag, and while constantly endeavouring to further the progress of botanical knowledge, he keeps steadily in view the requirements of amateurs, and of those who are specially interested in the productive resources of the vegetable kingdom. We have before us a few advance sheets of a work on the native plants of Victoria, which seems to us calculated to be very useful. Indeed it frequently happens that we are asked to recommend a work on the flora of the Australian colonies to amateurs and gardeners to whom the elaborate work of Mr. BENTHAM, in seven octavo volumes, is not suitable. The present book, when completed, will supply the want. The work is in English, clearly printed, and the descriptive para-

very short distance; and the conclusion which is arrived at seems to be that the whole plain will at least increase this number tenfold. The wood of these trunks is well preserved, but has assumed, through the long influence of water, a thorough black colour: it is quite sound and compact, and seems well fitted for the sculptor and cabinet-maker's work. The size is somewhat enormous. One of the smaller ones, measuring 18 m. in length (59 feet), and 1.50 cm. in diameter, has been dispatched by rail to Berlin, to be placed in the National Museum of Geology.

— THE CLASSIFICATION OF GARDENERS FOR EXHIBITION PURPOSES. Those who have to deal with the compilation and revision of schedules of prizes of horticultural societies that carry on their

"single-handed gardeners' classes," but it has hardly worked well in practice. It has been found that some gardeners having only occasional help, possess not only a larger quantity, but better glass accommodation for growing plants, than others having more assistance in the shape of labour, and derive decided advantages in this respect. Some gardens, circumscribed in extent, have three or four houses that can be pretty well managed by one man, because there is so little of outdoor garden to tend, while others have a large quantity of outdoor garden and a paddock or two, but little glass. The latter is at a decided disadvantage in the matter of the growth of plants; and further, though he may have the assistance of an under-gardener constantly, yet his time is likely to be taken up in tending a cow and pigs, or other work not



FIG. 26.—THE PALM WALK IN THE BOTANIC GARDEN, PALERMO. (SEE P. 176.)

graphs arranged so as to secure easy reference and speedy comparison. Some orders usually placed in the incomplete, or apetalous group, are here placed with those hypogynous exogens to which they are indeed most closely allied. Some sort of key or *clavis* to both genera and species might with propriety have been added. A few illustrative woodcuts are given.

— AN ANTEDILUVIAN FOREST DISCOVERED IN GERMANY.—The geological investigations which Dr. MOESTA of Marburg made last summer in the district of Rothenburg on the Fulda, have led to the discovery of a subterraneous Oak forest. It is submerged in a depth from 7—8 feet along the plain of this river-valley, and evidently belongs to an early epoch of our globe. The estimated number of trunks is 2000 to 3000 between Hersfeld and Melsungen—a

operations within a restricted area, are compelled by force of circumstances to attempt some method of classification that will equalise the competition as far as possible. There are gardeners and gardeners; that is to say, there are degrees of them, taking into account the extent of their glass accommodation chiefly, and the assistance received in the way of labour. It is obvious that some are much more favourably circumstanced than others (apart from the possession of cultural skill and an adequate knowledge of plants) in the direction of producing good exhibition specimens; and how to equalise these conveniences and opportunities is a matter requiring some consideration. In the case of one suburban society a distinction has been drawn between gardeners having constant assistance and those having occasional help but no constant assistance. The making of this distinction led to the formation of what are termed

strictly related to a garden. It is in the suburbs of London, and other great centres of population especially, that practical difficulties of this kind present themselves to the managers of flower shows, especially in cases where the payment of an annual subscription gives the right to compete. How can a distinction be best and most justly drawn? is the practical question, and it is one that might be discussed with advantage. It may be pointed out that some such equality among competitors differently circumstanced could be brought about by bracketing certain classes together—say one for six and one for four Fuchsias or Pelargoniums, but restricting competitors to one of these classes only. But this does not meet the case by any means, as the exhibitor most favourably circumstanced might—and indeed does very often—prefer to exhibit the smallest quantity to the largest, thinking a certainty in the one case is

preferable to an uncertainty in the other. There is yet another class of gardeners—those having the care of gardens where there is little glass accommodation save a frame or two, or a cold greenhouse. This is not an uncommon occurrence, and how such an one has fared with tender plants during the past winter can better be imagined than described. These almost require a division by themselves; but that leads to an undue extension of schedules of prizes, and a complication of the arrangements of a show. Then there is the amateur pure and simple—the cultivator who actively superintends and in a great measure grows his own plants—a class of exhibitor that has been defined in schedules as one who does not constantly employ a gardener, though he may have occasional help. There are many such who spend the best part of their days away from their homes, engaged in business, and can give only a portion of their mornings and evenings, and occasional holidays, to their gardens. These also claim a division to themselves, and it is difficult to resist the demand. It is in connection with purely local societies that these difficulties of classification arise, and any suggestions towards an equitable arrangement of these difficulties would be gladly welcomed by many managers. At first sight they may appear to be of a very superficial character, but an intimate acquaintance with the working of flower shows demonstrates that they become grievances of a somewhat perplexing nature. Their assumed comparative insignificance must not be suffered to detract from their importance; and with the rapid growth of small exhibitions, the area of the difficulties increases. We therefore invite discussion; but only on this condition—that the grievances are matters of principle and not of a personal or sentimental character merely; and they who set themselves to discuss them in a serious spirit will be those most likely to suggest practical remedies, and conclusions based on common-sense arrangements.

— THE NATIONAL FLORISTS' SOCIETIES.—A circular has just been issued conjointly by the Rev. F. D. HORNER and Mr. S. BARLOW convening a general meeting of the members of the National Auricula (northern section), the Royal National Tulip, and the National Carnation and Picotee (northern section) Societies, to be held at the old "Bull's Head" (off the Market Place), Manchester, on Wednesday, February 19, at 3 o'clock P.M. The business set forth is to arrange the dates of this year's exhibitions, to prepare the schedules of prizes, to decide on the plan of judging, and to take up any other matter and work that may present itself connected with the management of the National Florists' Societies. Members of either of the above societies are earnestly requested to attend.

— RHODODENDRONS OF THE MALAYAN ARCHIPELAGO AND NEW GUINEA.—In the third part of the *Malesia*, Dr. BECCARI describes a number of new species of Rhododendron, including several from New Guinea, and gives a list of all the known species, reproduced below:—

| | |
|--|-----------------------------------|
| R. javanicum, Bunn., Java, | R. acuminatum, Hook. f., Borneo |
| „ Brookeanum, Low, Borneo | „ durionifolium, Becc., Borneo |
| „ Lowii, Hook. f., Borneo | „ retusum, Bunn., Java, Sumatra |
| „ Teijsmannii, Miq., Sumatra | „ papuanum, Becc., New Guinea |
| „ Konori, Becc., New Guinea | „ buxifolium, Low, Borneo |
| „ malayanum, Jack., Malacca, Sumatra, Java, Borneo | „ Lampongum, Miq., Sumatra |
| „ celebicum, DC., Celebes | „ multicolor, Miq., Sumatra |
| „ Arfakianum, Becc., New Guinea | „ gracile, Low, Borneo |
| „ hatamense, Becc., New Guinea | „ subcordatum, Becc., Borneo |
| „ variolosum, Becc., Borneo | „ citrinum, Hassk., Java, Sumatra |
| „ longiflorum, Low, Borneo | „ ericoides, Low, Borneo |
| „ velutinum, Becc., Borneo | „ salicifolium, Becc., Borneo |
| „ verticillatum, Low, Borneo | „ album, Bl., Java, Borneo |
| „ rugosum, Low, Borneo | |

Some of these Rhododendrons are amongst the most beautiful and distinct of the genus, but they may be difficult to cultivate as they are of epiphytal habit, although this objection does not apply to the epiphytal kinds already introduced. *R. ericoides* has small crowded heath-like leaves, and an undescribed species in the Kew herbarium bearing the manuscript name *R. stenophyllum*, Hook. f., is like *Sciadopitys* in the shape and arrangement of its leaves.

— WEIGHT OF SEEDS.—In an interesting essay on the geographical distribution of *Nepenthes* (*Malesia*, i., p. 213 to 238) Dr. BECCARI gives the average weight of a few seeds. To give an idea, he says, of the lightness of some of these seeds, "I re-

quested Dr. GRATTAROLA to weigh some of them in the chemical laboratory of the Florence Museum. He found by weighing a mass of a certain number of seeds of *Nepenthes Phyllamphora* that they averaged each the weight of 0.000035 gramme; seeds of *Rhododendron verticillatum*, 0.000028 gramme; those of an *Æschynanthus*, 0.00002 gramme; finally, an Orchid, the *Dendrobium antennatum*, Lindl., of New Guinea, on an average 0.00000565 gramme." A gramme = 15.4 grains.

— PRIMULA SINENSIS FIMBRATA.—We have received from Mr. W. BULL samples of his prize strains of fringed Chinese Primrose, which are of excellent quality, and afford considerable choice of variety. The ordinary forms, alba and rubra, are equal to any which have been sent to us, being large, stout, and finely fringed, the crimson high-coloured and the white pure, each with a distinct yellow eye. Similar in size and quality is *kermesina splendens*, the colour of which is of a very attractive carmine-rose shade. One called *lilacina albo-marginata* is a deep lilac with pale eye and narrow white border, very distinct, as also is *alba luteo-oculata*, which is remarkable for its substance, and has the yellow eye extending over half the diameter of the flower, giving an entirely novel character. Both these are quite outside the usual types of Chinese Primulas. One named *Village Maid* is a fine pale sort flushed with pink, and here and there striped with rosy carmine. Two doubles complete the batch, these being especially desirable to cut from, as they do not drop their flowers like the single ones; they have a corolla of the usual form, with a tuft of petaloid bodies springing from the eye; one called *rubra flore-pleno* is of a bright magenta-rose; the other, *kermesina splendens flore-pleno*, of a brilliant carmine-red. They are altogether a remarkable fine lot.

— THE TRADE IN FLOWER-POTS.—We learn from Mr. JOHN MATTHEWS, of Weston-super-Mare, that the actual number of flower-pots made at his pottery last year was 1,187,521, equal to an average turn-out of 22,833 per week, which, as compared with the number made in 1877—1,383,000—shows that the demand in 1878 fell short of that of the previous year to the extent of 195,479. Such being the condition of affairs with one manufacturer alone, who shall say that horticulture is not suffering with most other branches of industry from the great depression in trade? However, Mr. MATTHEWS speaks hopefully, the demand in January having proved larger than usual, the number sent away being close upon 200,000, 74,000 of which went to one customer.

— M. COURANT'S CACTUSES (see p. 758 of our last volume).—We are requested to state that, as M. COURANT is an invalid, he cannot be troubled to put up and send cuttings to any who may ask for them. We much regret that M. COURANT should have been put to any inconvenience through a statement made in these columns by a French correspondent.

— THE LIME GROVES OF MONTSERRAT.—The little island of Montserrat, one of the most charming and salubrious of the British West-Indian colonies, with an area of but forty-seven square miles, or considerably less than that of London, contains the most extensive and best cultivated plantations of the Lime-fruit tree in the world. These "orchards," according to *The Colonies*, are the development of a small plantation established but a quarter of a century ago by a Mr. BURKE, when the virtues of the juice of the Lime fruit were not so universally recognised as they are now. The cultivation of the plant, which involves a large outlay of capital, with no immediate return, was not at first attended with any commercial success; but the Montserrat Company now owns 600 acres of land, bearing 120,000 trees, from which a crop is gathered nearly all the year round, the heaviest harvest extending for three months, from September to January. The appearance of the trees, with their dark green leaves growing thick and bushy, and relieved at one and the same time by the bright fruit in different stages of ripeness, from green to a rich ruddy yellow, and by the fragrant white flowers, resembling Orange blossoms—is one of extreme beauty, and a Lime tree orchard is perhaps unequalled by any other similar plantation. The very leaves of the tree emit a delicious perfume, and are largely used in the West Indies for the purpose of scenting water for toilet and

other purposes. The trees do not bear fruit till they are seven years old, and during that period they require careful attention and pruning; they are otherwise easy of cultivation, flourishing best in light soils near the sea. The production of fruit is very large, and the process of extracting the juice is easy, the fruit being simply sliced and pressed, and the juice at once placed in casks ready for exportation. A secondary product is citric acid, which is procured from the inferior fruit, and by a subsequent manipulation of the refuse from the first process of squeezing. There is room for a large extension of the industry, and many of our colonies besides the little Leeward Islands might turn their attention with advantage to the cultivation of the Citrus limetta.

— IMPERIAL AVERAGES.—Mr. ALLNUTT, 6, Fetter Lane, Fleet Street, E.C., has issued a diagram showing the fluctuations in the imperial average price of Wheat weekly during 1878—which was 46s. 5d. The average for Barley was 40s. 2d.; and Oats, 24s. 4d. The highest price realised during the year was 52s. 3d., in the week ending May 11; and the lowest 39s., in the weeks ending October 26 and November 2.

— THE NURSERY AND SEED TRADE ASSOCIATION have issued their second annual report, in which they state that during the past year debts to the amount of over £1400 have been recovered and paid to the members, many of these debts having been previously considered as "bad debts." This sum represents a great improvement on last year's business. Information has been applied for and afforded to various members, which has proved most useful in protecting and advancing their interests. Great advantages have been also obtained by channels of communication derived through the Society, by supplying the names and addresses of debtors, and by the correlation of reports. Members have also been collectively represented by the Secretary in cases of bankruptcy, &c., by which their interests have been fully protected, dividends obtained, and their own time saved. The Secretary is Mr. GEO. C. COOKMAN, 14, Henrietta Street, Covent Garden, London, W.C.

— NEW ZEALAND FERNS.—The New Zealand *Country Journal* for October, published at Christchurch, New Zealand, contains, *inter alia*, an interesting notice of the Ferns of that country.

— THE COMMON PASSION-FLOWER AND THE FROST.—There is reason to fear that the common Passion-flowers, *P. cœrulea*, growing about London, have suffered severely through the recent keen frost. Many a villa residence in the suburbs of London had its sunny side clothed with this beautiful climber during the past summer, trained up into and along the front of balconies, and formed into festoons about windows, porches, and doorways. For two or three past years the plants have thriven amazingly well, bloomed freely, and borne their orange-coloured fruits in autumn. An examination of plants grown under the favourable circumstances of a dry and warm position shows that the effects of the frost have been deadly in relation to the younger wood, and the larger portion of the plants will have to be sacrificed. Some plants, it is feared, are killed back to the ground-line. It is to be hoped, for the sake of the pleasing clothing of the walls the plants afford to many villa residences, that the main stems are not too far gone to break again into growth when the warm spring time, for which so many gardeners are longing, breaks upon the face of the land. Such a deadly frost may not happen for years to come, but the moral pointed by such occurrences is that it is true wisdom to afford protection, as far as it can be done, to plants of a somewhat delicate character—covering up the roots and placing bandages about the stems. "Fast bind, fast find," applies as much to gardens as to safes, &c.; the exercise of a little forethought and consideration may preserve to gardens during severe weather many things far too good and useful to be lost for want of a little attention.

— AMICIA ZYGOMERIS.—It is not often that we see this handsome old Mexican plant in use for conservatory decoration, but lately we saw specimens about a yard high bearing a profusion of its golden Pea-like blossoms on short axillary racemes, which,

combined with its elegant foliage, rendered it very attractive. For this purpose we were informed that it is advisable to plant the specimens out during summer, and about the middle of autumn to lift and divide if necessary, and so obtain useful sized plants. In the same garden a huge specimen has for many years thriven against a south wall, but seldom produces flowers.

— THE LATE MR. JOSEPH DALE.—“Templar” writing to the *Times* states that the widow of Mr. JOSEPH DALE, of the Middle Temple Gardens, aged 69, is left in straitened circumstances, with orphan grandchildren depending upon her; that a fund is being raised for her benefit, and that subscriptions will be gratefully received at Child's Bank and by the following members of the Bar:—Mr. WILLIAM WHITEFORD, 4, Elm Court, Temple; Mr. PEMBROKE S. STEPHENS, 5, Brick Court; and Mr. W. C. PETHERHAM, 2, Plowden Buildings.

— RUSCUS RACEMOSUS.—One of the most useful evergreens for cutting and mixing with cut flowers is this handsome old Liliaceous plant, known by some under the popular name of the Jerusalem Laurel. It is perfectly hardy, and forms very elegant specimens about 2 feet high, with slender arching stems clothed with small lanceolate foliage of a shining deep green colour, and lasts a very long time in a perfectly fresh condition when cut. It may be frequently met with in old-established gardens, but seldom in the more modern, yet certainly deserves more extensive knowledge either as a plant for ordinary borders, the margins of shrubberies, or for pot culture for the conservatory stages.

— MR. HILDEBRANDT'S ADDRESS.—Professor REICHENBACH writes to say that Mr. HILDEBRANDT's address was not given in our last with so much accuracy as it might have been, hence we desire to say now that letters should be addressed to Herr Rector RENSCH, 14, Nostitzstrasse, Berlin, S.W., by those who wish to procure any of HILDEBRANDT's introductions.

— LEE AND BLACKHEATH HORTICULTURAL SOCIETY.—The dates fixed for the shows of this Society are Wednesday and Thursday, June 18 and 19, and Wednesday and Thursday, November 19 and 20.

— TORQUAY HORTICULTURAL SOCIETY.—The spring exhibition of this Society is fixed for March 20; the summer exhibition and Rose show for July 1; and the Chrysanthemum, fruit, and vegetable show on November 11.

— READING HORTICULTURAL SOCIETY.—The usual spring show will be held in the Abbey gardens on Thursday, May 22; and the summer show in the same place on Thursday, August 21.

— THE WEATHER.—From the Meteorological Office Report for the week ending February 3, we learn that the weather was very dull, hazy, and gloomy in all the more southern districts, but fairer in the north, and occasionally fine and bright in some parts of Scotland. The temperature was again low at the commencement of the period, but rising somewhat decidedly during the last day or two; the average for the week being below the mean in all districts. The maximum was frequently below 32°, except in “England, south-west” and on the coast of “Ireland, south.” The readings were as low as 11° at Durham, 17° at Sillith, and 20° at Stonyhurst on the 28th ult., while on February 1 the sheltered thermometer at Glenalmond fell to 21° and that on the grass to 12°. The gradual rise noticed at the end of the week commenced in south-west and spread slowly over England; the maxima on February 2 being as high as 50° in “England, south-west” and 45° in “England, south,” but did not exceed 36° or 37° over the “Midland Counties.” The reading of 45°, reported in the district last mentioned, was registered at one station only (Oxford). The rainfall was more than the mean in “England, south-west” and “Ireland, south,” but less in all other districts. The amounts reported at the various stations in “Ireland, south” differ considerably; at Dublin, Kingstown, and Roche's Point they are greatly in excess of the mean, but at Parsonstown there is a slight and at Valentia a considerable deficit. The heavy amounts at the former stations appear to have accompanied

the south-easterly gales which beat upon the south-east coast of Ireland. The wind was rather variable at the commencement of the week; easterly breezes in the south and south-easterly in the north then succeeded, but at the close of the week south-easterly winds became general. Stiff south-east gales were experienced in the south-west and west on January 31 and February 1.

— GARDENING APPOINTMENTS.—Mr. ELLIS LEA has succeeded Mr. JONES as head gardener to Sir JOHN KELK, Bart., Bentley Priory, Great Stanmore, N.W.—Mr. THOMAS CARTER, late foreman at Ragley Hall, Warwickshire, has been appointed to succeed Mr. JAMES PINK as gardener to Lord SONDES, at Lees Court, Faversham, Kent. Mr. PINK, we believe, has been gardener at Lees Court for about twelve years, and has given up his situation with the intention of going to Australia.—Mr. J. P. LEADBETTER, late gardener to the Viscountess DOWNE, at Baldersby Park, Thirsk, has been appointed gardener to Admiral the Hon. A. DUNCOMBE, Kilnwick Percy, Pocklington.

ORCHIDS AT KEW.

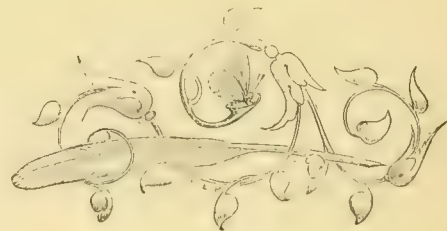
FIRST to meet the view from the porch, and one of the finest things now in flower, is a good variety of *Dendrobium Wardianum*; near it is a large *Odontoglossum bictoniense*, not, however, with the best possible flowers, which are produced as a rule on weaker growing plants. This species, more than any other, seems addicted to teratological phenomena, many flowers being malformed in different and curious ways, this happening yearly on different plants. The first flower we notice has the petals united to the column, and the labellum is reduced to a thread; in the next are two reduced segments, one sepal and one petal, the former of which is united to the column. The union of petals to column is quite a common occurrence, and so also is the reduction of parts to a thread, which sometimes happens symmetrically, but as often the reverse. On the right is an attractive plant of *Stenorrhynchus speciosus*, a terrestrial Orchid, which should be a favourite on account of its red bracts and flowers, the former being large and conspicuous, long in colour before the flowers. These are admirably adapted to show the *modus operandi* of cross fertilisation by insects; the segments are brought together, forming a tube, so that it would be a problem for any insect to enter without carrying away the pollinia, and similarly it is almost impossible to insert the point of a pencil without effecting the same result.

Of *Masdevallia* there are, to many of our readers, roughly speaking, two classes, the one ornamental and the other the so-called botanical; the first of these is represented by *M. amabilis*, and the latter, very attractively, by *M. melanopus*, and another very curious species, *M. gibberosa*. The free parts of the sepals of the latter are like legs, one of which (the lower) turns up, and across it sit astride the two others. *M. melanopus* has long been in bloom, and is quite charming in its profusion of pale-spotted flowers. Next is a beautiful piece of *Sophranites grandiflora*, splendid in colour, but too well known to need a word in its favour. Underneath on the shelf is *Oncidium serratum*, which takes another form of beauty in the crisped edges and undulations of its brown flowers, a relief to the bright colour of the last. *Restrepia antennifera* is extremely curious, and has several times been mentioned, so often is it in flower. The lovely genus *Odontoglossum* presents two species in particular: first there is a fine spike of *O. luteo-purpureum*, the flowers well-coloured and beautifully fimbriated; then comes *O. Pescatorei*, with white-spotted flowers, much admired for their chaste appearance. Besides these, *O. hastilabium* is also good, and of lesser merit are *O. Lindleyanum*, *O. cristatum*, and *O. gloriosum*. *Oncidiums* are numerous, and show considerable variety; *O. flexuosum* has thin panicles of neat yellow flowers, prettily marked with red; *O. ornithorhynchum* has a profusion of bloom, the colour rather unusual, being a kind of lilac; *O. cheiroporum* is charming, with numbers of tiny canary-yellow flowers, without other colour, and *O. aureum* is good, with a broad yellow lip. *Mesospinidium (Ada) aurantiacum* is noteworthy for its deep orange flowers, a colour not common among Orchids.

The warm division is no less rich with flowers than

the last. Much we admire the ivory-white flowers of *Angraecum eburneum*; they must be of value for mounting singly, and scarcely less the variety *virens*, but this, however, is of less purity. *Cymbidium sinense* is not showy, but possesses an exquisite perfume much like that of Violets. We believe that with the Chinese it is a great favourite, and doubtless on this account. *Cypripediums* may pass with brief mention; the chief are *C. Sedeni*, *C. Harrisianum*, *C. venustum* and *C. pardinum*. *Cirrhopetalum Medusae* is remarkable for the lengthy attenuation of its sepals, which, together, as it were, form a loose tassel. Extremely attractive, from numerous touches of rose, are the flowers of *Saccolabium violaceum*, while another, *S. Harrisonianum*, is without spots, and the flowers are of creamy white. Fine plants of *Ansellia africana* are in bloom, and there is also another kind, very beautiful, hitherto referred to the same species, but which at least deserves varietal distinction. The differences are easily pointed out; first of all the stems are very much shorter; it is true they have not long been imported, but they differ no less from imported stems of the ordinary form than from those of home growth, and further, the plant in question is without any evidence of changing character, which it already has had time to show by young growth. Then again the flowers are larger and differently marked, the spots are fewer but of greater size, so as to have a much bolder appearance. The flowers do not droop as in the common species, and they are conspicuous in having a wider expansion. Altogether the aspect of the plant is different, and it is quite worth growing in addition.

Again reaching the cool-house we find a nice plant with strong stems of *Dendrobium aureum*, which is so sweetly scented as quite to be worth remark. *Dendrobium crassinode* is beautiful in its flowers, and equally curious in the thickened nodes of the stems, which are depressed over the sides of the basket in rather a grotesque fashion. Another charming species is *D. moniliforme*, with flowers of rosy colour, and with the well-known *D. nobile* several of the highly coloured kinds are now in bloom. *D. tetragonum* is remarkable for its square stems which bear flowers of most curious structure. As showy Orchids we cannot fail to mention *Phajus grandifolius*, *Laelia anceps*, *Phalaenopsis Schilleriana*, *P. amabilis*, and the more modest *P. rosea*. These are in the warm division, and a reinspection leads our attention to the curious *Angraecum odoratissimum*, which, scentless by day, has a very fungus-like smell at night; the flowers as in some other species are peculiarly arranged, in this case the spurs are in a direct line with the spike, and point to its apex.



Home Correspondence.

The Damage Done by the Late Frost.—Some remarks on the damage occasioned to plants by the recent, and I fear I may say present, cold weather in the comparatively mild climate of West Somersetshire, in and about Taunton, may possibly be interesting. None of the ordinary evergreens, such as Portugal Laurel, *Arbutus*, *Laurustinus*, *Bays*, *Phillyrea*, *Berberis Darwinii*, common Laurel, and *Aucubas* (the latter carrying its berries well), appear to have suffered in the least. *Piptanthus nepalensis*, *Erica mediterranea* (large plants), *Magnolia grandiflora*, and *Berberis Bealii* are all uninjured. *Ceanothus punicus* some 10 feet high against a wall, and covered with a mat during actual frost, is not severely hurt; but *Plumbago capensis*, *Habrothamnus fasciculatus*, the sweet-scented *Verbena (Aloysia)* and *Coprosma lucida*, against the same wall, and covered in the same way, and which have stood out uninjured for the last three winters, are killed to the ground. *Eucalyptus globulus* has every leaf injured, but the stems do not appear to be killed. All the young shoots of *Hypericum patulum* and the yellow variegated Japanese evergreens are killed, but the stems do not appear much hurt. In some exposed situations the leaves of *Hypericum calycinum* are browned, but in sheltered spots the plants are uninjured. Even the variegated Japanese Honeysuckle has many of its leaves injured, and *Jasminum nudiflorum* can scarcely produce its flowers. Numerous *Pentstemons* and *Eurotia Lamarckiana* are killed to the ground. Both large and small-leaved Myrtles have the young shoots killed. A fine plant of *Benthamia fragifera*, which bore one good and perfect fruit last year, is

uninjured. The leaves of *Schizostylis coccinea* and *Tritoma Uvaria* are all destroyed, also those of several of the varieties of *Iris*. Of Bamboos I find that *Metake* (*Arundinaria japonica*) and *Bambusa tessellata* or *B. Ragamoski* are perfectly hardy, so also are *Phyllostachys viridi-glaucescens* and *P. aurea*. *B. Kumasnea* has some of the leaves injured, but these three last are growing and sending up fresh suckers, even in this cold weather. *Arundinaria Fortunei* and the tall allied species *A. Simonii* or *Maximowiczii* are slightly injured, but not severely hurt; *A. falcata* (true), sometimes cultivated as *Bambusa gracilis*, has every leaf destroyed, but the stem appears to be green and alive. I heard in Paris that this plant is not considered to be hardy there even in ordinary winters. *Thamnocalamus Falconeri*, often commonly called *Arundinaria falcata*, is, I fear, killed to the ground, although, as mentioned by Mr. Osborne in last week's *Gardeners' Chronicle*, its predecessors have stood for twenty-six winters unprotected. Of other grasses, *Arundo conspicua*, *Tripsacum monostachyum*, *Stipa papposa*, and the new grass, *Phænosperma globosa*, from North China, are uninjured; the latter is now one of the greenest plants in my garden. The *Pampas*-grass is much disfigured; *Eulalia japonica*, *Pennisetum longistylum*, and *Sorghum halepense* are killed. Of Ferns, *Onychium japonicum* has succumbed to the frost, but *Cyrtomium falcatum* is uninjured. *William Munro, Feb. 4.*

Bamboos.—I was much interested in reading of the behaviour of plants at Fota Island, and more particularly the Bamboos, which without exception are, I think the most graceful and ornamental shrubs in existence, that is, when viewed as regards their stems and foliage alone. The fine specimens we had of *Thamnocalamus Falconeri* are, I regret to say, quite dead, but their demise has not come about through the action of the present frost, as they never rallied after becoming defoliated and exhausted by seed bearing two years ago, and I fear many others elsewhere went in the same way. The small ones we at present have are protected round the base with dry leaves and bracken, and look as if they would pull through, but from present appearances *Arundinaria japonica*, the *Metake*, is the hardiest of the whole family, as a large plant of it having no covering whatever looks as fresh and green as a Laurel. Coming from Japan, it is quite likely it may endure our winters, and if so it will be quite an acquisition for planting and growing near the margins of lakes or in conspicuous places on lawns, where its graceful habit and pleasing colour are sure to make it a very attractive object. *J. S.*

Dendrobium nobile.—I saw a grand specimen of this good old plant last week at The Sycamores, Lowth, near Lincoln. It was growing in a basket suspended from the roof of the stove. I was much surprised to see that it was going to flower almost as well on shoots made the same season as on those made the season before. I do not remember to have seen one do it before. Is it a common occurrence when well grown? The young growth was of extraordinary thickness, plenty of them also being 2 feet long. *L. M.*

Culverwell's Telegraph and Carter's Telephone Peas.—I must beg you to allow me to say a few words in reply to Messrs. Carter's letter at p. 148. In the first place the Messrs. Carter assail my knowledge of hybridising the Pea. I am not going to quarrel with them about that, but let me inform them that I have had plenty of practice for the last ten years, as I have grown very many hundreds of seedlings carefully hybridised, and I have over a hundred to be tried this coming season. My impression was when I saw the Telephone Pea advertised, that the Messrs. Carter had—as my stock of Telegraph and the original stock was wrinkled more or less, and also varied in colour—picked the wrinkled Peas out and called them Telephone. If this was done it would certainly deteriorate the stock of Telegraph. I have just tried the experiment, and fledged my own stock of Telegraph in this way, and they make a good sample of wrinkled Peas, but what was left made, to my mind, a bad sample of Telegraph, and might be inferior to the original stock when grown. For this reason I claim that the wrinkled Pea ought to bear the name of Telegraph. Messrs. Carter & Co. also say "our manager... an expert in his craft, noticed in the growth that there were a few plants that showed what he thought to be an improvement," and I must say that he is an expert indeed, if he could grow sufficient stock for sending out from those few plants in the short space of two years. Messrs. Carter say any one of experience knows full well that one pod of Peas will produce types of marked variations. In this I agree. I said in my communication that every Pea in the pod produced a distinct variety, some tall and others dwarf growing—more it could not produce; they do not always fix themselves the first year, as I

have found them better the second year than the first. I grew Telegraph on for eight years, and I saw no variations whatever in that time. I beg to thank you for offering to grow the samples that have been sent you. What I would propose to do, is for Messrs. Carter to send the wrinkled Pea which they have named Telephone to Mr. Barron, of the Royal Horticultural Gardens, and I will send some of the original stock of Telegraph. The difference then, if any, can be pointed out there; I will also send samples of my Telegraph with Telephone to Mr. Clark, of Studley Royal, Ripon, also to Mr. Keetley, of Darley Abbey, Derby, as both of those gentlemen stand high in kitchen garden culture; they will, no doubt, kindly grow them, and report upon them. I beg to inform Mr. McDonald and Mr. Iggulden that I did not send my Telegraph Pea for trial to the Royal Horticultural Society. I have a great pleasure in watching my seedling Peas after they have been carefully hybridised, as they grow into flower and pod. I have grown many hundreds of seedlings, many of them really good sorts, but I never keep any unless they promise to be very large in the pod. I have every kind of cross that I thought likely put into the Monster Pea, which I showed at Bishop Auckland last August, and mentioned in your columns the first week in September. Although I have grown this great number I have only as yet put three before the public—the one in question, the others are Culverwell's Prolific Marrow and Sharpe's Invincible—and I think they are fair specimens of what Peas ought to be. My Prolific Marrow has been before the public some years, and is very largely grown at Middlesborough and Stockton-on-Tees by market gardeners on account of the continuous heavy crop of large Peas it bears, and the high price it brings in the summer when other sorts can hardly be sold. This information I got from several persons: one in particular was Mr. Nicholson, whom I met at one of the shows last autumn. He is a great grower. To use his own words, he said the people were fit to rive him to pieces for Prolific Marrow, at 1s. per peck, while others were selling for less than 1s. You will see by this that my selections in those I have chosen have been appreciated. *William Culverwell, Thorpe Perrow.*

—I think the discussion of the identity of these two Peas for the present would have been better left to Mr. Culverwell and Messrs. Carter until growers could have tested them side by side for themselves; they would then have been in a position to have given reliable information, as comparison in ripe seed is no real test. An example of this may be found in carefully examining the new Pea sent out by Messrs. Veitch—Marvel; this has wrinkled and non-wrinkled seed. Separate the wrinkled seed from the non-wrinkled and in appearance you have two distinct Peas; sow them side by side and they will prove undoubtedly one and the same. So it may be with Telegraph and Telephone, as Culverwell's Telegraph, as I saw it grown by the raiser and in samples sent by him for trial, like Marvel, had them both wrinkled and non-wrinkled seed, and when separated formed in appearance two distinct varieties—the wrinkled exactly corresponding in appearance with the so-named Telephone, the non or slightly wrinkled with that supplied by Messrs. Carter as Telegraph. Messrs. Carter, in advertising Telephone, state that it is selected from Telegraph, in which they mention it differs in the seed being wrinkled and of superior quality. Now the sample of Telegraph sent to me by the raiser contained wrinkled seed exactly like Telephone, therefore, as I have not yet been able to test the quality of Telephone, I think I may be pardoned for thinking the two varieties will prove to be one. *Thomas Keetley, The Gardens, Darley Abbey, Derby.*

History of the Schoolmaster Potato.—Mr. Edward Bennett, in his history of Schoolmaster Potato (p. 148), claims to have been its nurse, which claim I willingly allow, and also publicly acknowledge my indebtedness for the care with which he performed the duties of that office. But in alleging that I informed him "that the seed had been sent me by a friend, and that it was of no use to me," he is quite mistaken. The facts are these. In 1869 I obtained the seed by fertilising a flower of American Early Rose with pollen from Paterson's Victoria (therefore it was no fluke), and, warned by previous failures through not having heat in which to start the seed, I obtained the consent of Lord Stamford to have it sown in Enville Gardens. This sowing Mr. Edward Bennett did for me, and we agreed to labour together in the cultivation of the seedlings. It would be a difficult matter for me to prove to a stranger that this particular lot of seed was obtained by hybridisation, but happily I have many friends in this neighbourhood who can testify to my having been a dabbler in hybridising, and also a successful amateur gardener and exhibitor, for many years before Mr. Edward Bennett's advent at Enville. This assertion the Earl of Stamford and Warrington has kindly offered to substantiate to any one who will write to him. I next take exception to Mr. Bennett's saying the name

Schoolmaster was given by us to the bright crimson-lake seedling. He proposed to call that particular seedling Bennett's Lake, but the name Schoolmaster was never mentioned between us. It was a happy inspiration which only occurred to my mind after I had staged the seedlings at the first Alexandra Palace Show. Again, the seedlings were never planted on "the slip," nor handed over to Mr. Green, and no doubt Mr. Green can say what those particular Potatoes were which he was "requested" to give to me. I might add more, but I think I have said enough to prove that I am, as I always signed myself, the raiser of Schoolmaster Potato, and so I leave the matter in the hands of the public to judge between me and my namesake. As Messrs. Webb's name was mentioned in Mr. Edward Bennett's history, I think it but justice to that firm to say I know their stock of Schoolmaster to be true, though not at present "Improved." *Edwin Bennett, The School-house, Enville.* [Both sides having "had their say," we must leave our readers to draw their own conclusions from the statements made, as we cannot pretend to decide between the contending parties nor allow space for a continuance of the discussion. *EDS.*]

Cattleya Skinneri.—I have now at hand an inflorescence of this, forming a dense corymb of thirteen flowers, nearly intermediate between those of the very best varieties and those of the var. *parviflora*, Lindl. (see *Botanical Magazine*, tab. 4916—*Cattleya Dickeri*, Klotzsch). The plant is said to require more heat than the common one, and to flower always at this season, while the genuine one usually flowers later at this place. Regarded with florists' eyes it is decidedly inferior to the best varieties, which boast much larger flowers and a dark border around the lip, and I believe that one requires a rather cool temperature, and often flowers later with us. Yet it seems that even in its natal locality it flowers through at least two months. Its flowering in January is not surprising. It is called "Flor de San Sebastian" in Guatemala, owing to its flowering on the day of St. Sebastian, January 20, according to the lamented G. Ure Skinner. The majority of the labels of wild specimens in my collection give no date, in the usual careless manner; yet Warszewicz gives January for Costa Rica and Veraguas, and Veraguas is the connecting link for the most southern stations of Venezuela. Wendland, with his habitual accuracy, indicated January 26 at Guatemala, so that he came very near to the day of San Sebastian. Lately Dr. Gustav Bernoulli indicated February as the time of flowering for Costa de Guatemala, and gave me the name "Flor de Candelaria." It would be very desirable to know how far Orchids introduced from various altitudes or various spots keep or change their time of flowering with us under different treatment. I am afraid very often they do not keep their anniversary for flowering, doing it earlier, and this might be a hint that Orchids have not so much rest as they want. It is also known that by a sudden change of temperature one may sometimes hasten the flowering by weeks. The moral of this for those who hope to flower an Orchid the first time, is to keep the fact a secret, so that the natural pleasure of Englishmen for racing may not induce them to run the risk of losing the same flowers by trying to flower them earlier than their neighbours. The actually quoted variety flowered at Tredrea, in the garden of Captain Clark, under the well-known able management of Mr. J. Murton, I obtained it through the kindness of Messrs. Veitch. *H. G. Rehb. f.*

Wiring Garden Walls.—I notice that a correspondent says that although my plan of wiring garden walls is undoubtedly superior to the ordinary way, he thinks it entails too much labour in fixing to be adopted generally. Except the tying where the wires cross, I have with two handy men completed a stretch of 50 feet long by 10 feet wide under two days, but if it were to take double or treble the time the work pays well in the end, and there is always a feeling of satisfaction in having such permanent jobs, when they are about, carried out in a perfect manner. Fresh hands may not be quite so quick at starting, but they soon get in the way with a little help and proper direction into the mode of setting about it, and when once a beginning is made the whole thing is very simple, requiring no more skill than threading and straining so many strings. All there is in it is to get the wires perfectly tight, that the trellis when finished may be rigid, and this may be managed by the use of a strong pair of round pliers to get a grip and proper leverage near the end of each wire. We did this by putting a piece of thin flat iron about 3 inches wide against the stud, and with the aid of this a tremendous strain could be brought to bear, sufficient, in fact, to make each wire almost as tight as the strings of a harp. Unless for training such trees as Pears, Cherries, and Plums, for which horizontal wires 6 inches apart do very well, I should not now think of putting up any other trellis than that already described, as it just meets the

requirements of Peaches, Nectarines, and Apricots, that annually make fresh wood to lay in for fruit-bearing. *J. Sheppard.*

How to Destroy Ants.—I should like to make your readers acquainted with a simple and easy method of exterminating ants, which I have found extremely effectual. The *modus operandi* is to get a few small phials half filled with olive oil, into which the ants will go like wasps in a beer bottle, and where ants are abundant the phials will be found quite full every morning. *James Simpson, Dalhousie Nursery, Broughty Ferry.* [An equally good plan is to sink saucers, half full of oil, level with the soil. Eds.]

Vicar of Winkfield Pear.—I have noticed the difference in colour and quality of the Vicar that Mr. Fish alludes to, but more generally in the fruit from trees on the Quince than in that from trees on the Pear stock. The fruit from trees on the Quince are much smaller than those from trees on the Pear stock, and generally show a brownish cheek marked with small brown spots. The fruit last year was not much larger than Louise Bonne of Jersey, and may at a superficial glance be easily taken for that kind. The fruit from trees on the Pear stock is generally large and fine, the skin fair and smooth, and of a pale yellow. It is always a first-rate baking Pear, occasionally a second-rate eating Pear, and sometimes very good. The tree grows freely, and from its great productiveness, hardiness, and fine size, is deserving a place in the garden. With us it keeps until January and sometimes late into February. We had a fair crop last year of Pears of some kinds, some of them of good flavour, but others very deficient in flavour. *M. Saul, Stourton.*

—Is there a Vicar of Wingfield Pear as well as a Vicar of Winkfield Pear, as I observe recent mention of a Pear under the former name by Messrs. Saul and Fish, &c.? In the *Fruit Manual* I find evidently the same Pear described by Dr. Hogg as the Vicar of Winkfield, and I had always imagined that it was named after a former vicar of the parish of Winkfield near Ascot. As it may lead to the inference that another Pear is meant it is well that the matter should be cleared up. *D.* [We can clear up the matter at once by stating that "Wingfield" was a misprint for "Winkfield"—the Vicar of Winkfield being the Pear alluded to by Messrs. Saul and Fish. While the merits of the Pear in question are under notice, it may interest "*D.*" and perhaps others to know its history as given by the late Mr. Robert Thompson in our volume for 1843:—"It was found growing wild in a wood by M. Clion, a French curate, and hence obtained the name of Monsieur le Curé. Subsequently by French authors it was erroneously made synonymous with the Saint Lezin, which it resembles only in external appearance, the Saint Lezin being a firm-fleshed stewing Pear. Trees under both names were obtained from France by the [Royal] Horticultural Society; the Saint Lezin was correct, but that under the name of Monsieur le Curé proved false, being a small round Pear. The difference between the two was in consequence not ascertained till 1832, when M. Vilmorin sent specimens on purpose. With these, fruit from a tree then in bearing in the Society's garden, under the name of Dumas, was found to agree. In the meantime a tree of the sort in question had been imported from France by the Rev. W. L. Rham, to his garden at Winkfield, Berkshire; and some cultivators having obtained cuttings from this importation, the variety was propagated in the neighbourhood of London under the name of Vicar of Winkfield. For this, the familiar appellation of Vicar of Wakefield has been sometimes substituted." Eds.]

Bees in the Peach-Houses.—Mr. Miller's plan of taking a hive of bees into his Peach-houses to promote fertilisation may be, so far as the trees are concerned, a good one, and productive of the best results, but how does it fare with the bees?—are they benefited by this premature forcing into work, especially during a dull, cold season? That the result to the bees may be to the gardener of less moment than the benefit that may accrue to his fruit crops I can well understand, but the benefit or otherwise to the bees should of course be an element in the case. Is it probable that enough honey can be obtained for the maintenance of a stock of bees from the blossoms of one Peach-house? I think it is most improbable, as the counterfeit spring incites all the little denizens into action, and the production of young brood is increased. If enough food to supply these cannot be had in the house (and of course the bees cannot and must not go outside), then they will seek the satisfaction of their remaining needs on the winter stock of honey which, if they had not been excited out of the comparative torpidity into which they have fallen, would probably have remained untouched until genuine spring weather and spring flowers enticed them forth. Then the forcing of Peach-houses cannot go on for ever, and therefore when the hive is again placed in the open air the poor insects will be at a grave disadvantage should some cold, keen weather come. I am urging these

points entirely from an apiarian point of view, and not as it may affect the fertilisation of the trees—a question that hardly admits of doubt; still the little bees should be considered in this matter, and I invite consideration for them if it be shown that under the plan adopted by Mr. Miller they are the sufferers. *Apiarian.*

Tomtits and Sparrows.—Whether tomtits eat fruit-buds or not I am not in a position to state, but that they will destroy them wholesale, either in search of insects or out of sheer mischief I am quite certain, from having on many occasions stood and watched them at the work, and witnessing at the same time the excavation they had made by removing the centre. It was only last spring that I lost a crop of late Peaches through them, for during the bad weather, when there was a deal of snow on the ground, I found two or three of the smaller kind, as I thought, taking shelter under a wide glass coping, from which canvass screens were let down at night; but instead of being there for that purpose, they had a different object in view, and were in search of food, at which they must have worked hard, for they removed the pistil and most of the anthers from every one of the flowers. On a close examination of these I found that many of them contained very small aphides, a discovery these birds had made before me; but if they always conduct their foraging expeditions in the manner they did on the occasion mentioned, it will be necessary to have a very strict eye on their movements. The wren is quite a gardener's friend, and understands its business better, for although it will search buds diligently, I have never known it do the least harm. No doubt this case of the tomtits and the Peaches was an exceptional one, and arose in a great measure through the slow way in which the blossoms unfolded, which the birds in their hunger could not wait for, and therefore, to get what they wanted, they removed obstacles out of the way. The "tit" is a plucky little fellow, and exercises his ingenuity to get a living in a variety of ways, but if he would only keep to straightforward courses, and leave buds, green Peas, and ripe Pears alone, he would be much more welcome in gardens. As to house sparrows, they are becoming a perfect plague, and I am of opinion that as regards the destruction of insects, they are the most worthless birds in existence, for instead of searching for them, they are always loafing about farm premises and the residences of man or beast to get what they can in an easy indolent manner. Grains of corn that have passed the stomachs of horses, or any they can rob from their manger or stacks are sweet to them; but the mischief they do in summer, when they take more to the fields, is something incalculable. To vary their diet they eat buds wholesale, of which fact I have the evidence of my own eyes; but not having made a *post-mortem* examination, it may be said by the friends of these birds that I am mistaken, as was the clever young doctor who, because his senior happened to make a hit by taxing his patient with eating oysters, after he noticed some shells partly hidden, ventured on the same course when he saw part of a saddle projecting from under the bed, by asserting the man had swallowed a horse. This was jumping at conclusions; but I did not arrive at mine in the same way, for although I have repeatedly seen the remains of buds on the ground after the sparrows had left the bushes, I have likewise witnessed these feathered depredators engaged at the feast, and in matters of this kind my optics are too good to lead me astray. *J. Sheppard.*

—As Mr. Grieve appears to entertain doubts as to the bud-destroying propensity of the "tits," I may remark that some years ago I took charge of a comparatively new place, where we planted a considerable number of choice young fruit trees. In due time a few buds on most of the Pears presented themselves, but they soon disappeared. On watching we found the "tits" were the marauders; under our very noses they picked out the centre of the buds, and simply left the refuse behind them. A war of extermination began, and in the midst of hostilities an enthusiastic ornithologist assured me that it was impossible for "tits" to swallow fruit-buds, but that insects were their natural food. Doubting his pleading, we examined the crops of those we next shot, and in several found buds in plenty. I have not troubled to examine any here, but have seen enough of their handiwork among the Pears, Cherries, and Gooseberries. They are lively and bold at their work, caring little for the report of a gun. The bullfinches, on the contrary, are stealthy, and where they "take" are even more destructive than the "tits." Their favourite haunts, are, as "*J. S.*" remarks, among the *Prunus* tribe generally, and when they do "take" to the Gooseberry quarter they make short work with it. In the past year or two those gentry have carried their depredations to the black Currants, for which they appear to have a special liking late in the season; fortunately they are few in number, and a timely shot or two will soon send them to the "right-about." *J. J. B.*

The Disease in Verbenas.—In regard to the difficulty with Verbenas mentioned by "Wiltshire" last week, I imagine his case is by no means an exceptional one. Judging from the condition in which one sees Verbenas in many places, and large ones too, one cannot avoid the conclusion that his experience is similar to that of many others. For, although the Verbena will not work in very well for carpet-bedding, I am sure it is very far from becoming unpopular, so that its absence from many gardens may be safely set down to some such difficulty as the one in question. Unless good healthy cuttings are to be obtained in autumn, failure is inevitable. The miserable bits called cuttings that are often put thickly into store pots linger for a time, their numbers growing small by degrees and beautifully less, until when the spring propagating time arrives the survivors are not only few and far between but are individually so stunted and wretched that it is simply impossible to work up a good stock by planting-out time, and if Verbenas were required to play an important part in the bedding arrangements much disappointment and vexation must result. I was myself sadly bothered years ago, but you will see by the accompanying specimens that we are more fortunate now. I know that many thousands of plants are annually lost for want of a little prompt attention in the matters of mildew and greenfly, the fumigator and the sulphur distributor are resorted to very often when it is really too late, but this I feel sure is not the case with those of your correspondent and many others; their difficulty is a very subtle and perplexing disease. Now I think the best thing to do in such a case is to clear them right out and throw them away, or rather burn them, and if healthy cuttings are not to be had, just get a packet of seed, sow in heat next month, and prick off into boxes when the seedlings are large enough. This will furnish a batch of nice healthy plants, which if planted out in good rich soil will give satisfaction this summer and a grand supply of good clean cuttings in autumn. If separate colours are desired it will be a very simple matter to select and separate them when taking the cuttings, and there is always the chance of raising something new or some improvement on old varieties. According to my experience those who try this plan will not be troubled about their Verbenas for some years. *G. Duffield, Winchmore Hill.* [A strong, clean, and healthy sample. Eds.]

—I have found the same difficulty as "Wiltshire" in keeping Verbenas in a healthy state through the winter months. For the last seven or eight years, after I have rooted the cuttings in the autumn they have been perfectly healthy, but very soon a dark spot has come into the leaf, and gradually spread over the whole of the plants. I am fully convinced it is not the work of an insect, but the question is how to get rid of it. I think I may be able to help "Wiltshire" a little from my own experience. In the first place they require a good turfy loam, with a little thoroughly decayed manure and a good sprinkling of sand, and must not be too much crowded in the cutting-pots. Then a suitable place to winter them must be found. For some years past I have kept them in a Peach-house near the glass, where I use very little artificial heat and plenty of fresh air except in very severe frosts, and yet I could not get rid of the spot. This winter I have kept them in a warmer house on a shelf over the hot-water pipes, and the result is very satisfactory. The plants are healthy, free from spot, and show plenty of cuttings for the spring, which I always find do better than the plants rooted in autumn, and the less they are crowded in the summer the more healthy will be the cuttings in the autumn. How seldom we see a good collection of Verbenas at our local exhibitions? Perhaps the *Phlox Drummondii* is taking their place, but as I have been a successful exhibitor for the last ten years I shall still grow them for that purpose. *O. Orpet, Cirencester.*

Cocoa-nut Husks.—In addition to the many uses to which the fruit of the Cocoa-nut Palm has been put, there is another which, perhaps, may be of horticultural interest. A short time since we saw the severed husks used extensively for growing Orchids, Bromeliads, and Stag's-horn Ferns and such-like epiphytes. The husks were simply cut into halves, and the requisite compost placed in the hollow part, and the plant attached to it by means of fine copper wire, and judging by the specimens growing in them, they appear to thrive better under such treatment than by the usual mode of attaching them to wood, cork, &c. The reason is obvious, as the porous nature of the husk enables it to retain the necessary moisture required by the roots, whilst it is yet firm enough for the roots to revel among its fibres. And they are, moreover, very durable, lasting in good condition for a very long period. *W. G.*

Winter Dressing Peaches and Vines.—Of all the operations in forcing-houses during the winter months this is the most tedious, and with trees that have been free from insect pests the previous summer, the most useless. To coat a healthy tree over with a

mixture of clay is equivalent to placing it in darkness; and what would be thought of a gardener who had the courage to mat his fruit-houses up till the buds burst, and thus save a little firing? I fancy there would be some "knowing ones" ready to predict all sorts of disasters from such a practice, while it would be very similar in effect to covering the trees with a coating of clay that would take two to three months' syringing to remove. The finest and best-swelled Vine-roses I ever knew were never scraped—they were treated in winter in the following manner: the rods were first scrubbed with a mixture of soft-soap and hot water made to lather, after which a flannel soaked in a thick mixture of sulphur was pressed into the crevices of the bark. These Vines were under the charge of one man for thirty-five years, and red-spider and other pests were almost unknown on them; but their freedom from insects was never attributed to the winter dressing they received, though the fumes of sulphur rising from them doubtless had some effect in keeping red-spider at a distance. The secret of keeping fruit-houses free from spider and thrips is in moderate temperatures, and uniformly moistened borders, and keeping the atmosphere at all times in motion. This was the summer treatment to which the Vines noticed above were subjected, and the houses were seldom damped down in warm weather before 6 o'clock in the evening, and the back ventilators were never quite closed. In substance of foliage, in size of berry, in colour and in flavour, I have rarely seen these Grapes surpassed. To shut a fruit-house up in summer at 3 or 4 o'clock in the afternoon with the thermometer outside in the shade standing at 70° to 80°, is the way to get flimsy foliage and attenuated growth, which insects are not slow in finding out; far better allow the pure invigorating air to play about the foliage till 6 o'clock in the evening, when the house should be nearly closed, and every part of it well damped, and the damping should be repeated again at nine in the evening. This system is far more in accord with Nature than the prevailing one of closing houses early in the afternoon. Many of the puny, contracted Vines to be met with in this country, which never seem to put on a new layer of wood every year, but regularly get one taken off them at the winter dressing, fail from this cause to swell satisfactorily. In dressing Peaches the less done the better, as it is difficult to do much with a brush on the fruiting wood of a Peach tree without disturbing the buds. In cleaning Figs a soft brush should be used, as the young fruits are tender and easily scratched. *J. Roberts, Gimmisbury Park.*

—It was not my intention to refer again to this subject, but seeing that your correspondent "F. S." says "that the winter-dressing of Peaches and Vines is, under certain circumstances, beneficial, there cannot be the least doubt," I am induced to ask under what circumstances is it beneficial? Perhaps "F. S." means that dressing with a mixture of clay, &c., is necessary only when there are insects on the bark. If so I would certainly recommend washing with a little soft-soap or Gishurst Compound dissolved in the water in preference to any smothering process, believing that washing the branches is more healthy for the trees and will assist the buds to swell, while laying on a coating of clay retards the progress of the buds. "J. S." says, "I do not consider that a dressing impedes the progress of Vine or Peach buds." Here I think we have the key to the present discussion. As this is the point I hold to be of importance, I think that, as a rule, in the case of Peaches under glass, after being dressed, the buds will make very little progress until the mixture has been washed off by syringing the trees repeatedly. *W. H.*

Unprotected Vine Borders.—I have an early house with the roots entirely confined to the outside border, which I used to cover with leaves and manure, and then thatch it, and always had very good crops from the Vines. Seeing so much in the gardening papers to the effect that protection was not necessary, my master desired me, last winter, to leave the border unprotected, and the following crop of Grapes was a fair one, no great difference being noticed. This winter the border has been fully exposed to all the severe weather, but, I fear, with anything but good results. The Vines broke badly, the shoots being very weak and of a very bad colour; they move very slowly, and the show of bunches is very much below the average, most decidedly convincing me that protection of the roots is by far the best plan. I hope those who advocate non-protection have fared very much better. *G. W., Aldershot.* [It has been a bad time for Vines in protected borders, as well as in unprotected ones. *Eds.*]

Tanks & Pipes.—Have any of your readers ever tried tanks, instead of pipes, for heating vineries, stoves, &c.? As far as my experience goes, I think tanks, as constructed here, are far superior to pipes. In the first place they get hot much quicker; secondly, containing a larger body of water they keep hot much longer; and, thirdly, by having a steaming tray over their entire surface they are more beneficial to plants.

I may state that during the severe weather we have had lately I have had no trouble in keeping up the supply of heat in the forcing-houses, and that without touching the fires later than 10 p.m. The tanks are made of galvanised plates one-eighth of an inch thick, well riveted together; the flow and return are worked just the same as with pipes, and if well put together they will last equally as long. To give an idea of the time it takes to heat them I may state that our largest is 31 feet long, 20 inches wide, and 16 inches deep, with a tray on the top 1 inch deep. It has a 2-inch flow and return pipe, and with a good fire and the heat fully turned on it will be so hot in one hour that you cannot bear your hand on it, and will be far from cold in twelve hours. Altogether it is the most efficient apparatus I have ever had to work. *W. Wardle, Haris Hall, East Grinstead.* [The tank system of heating was the stock subject of discussion at the time this journal was founded, in 1841, and the *pros* and *cons* of the system were thoroughly discussed in our earlier volumes, with the result that the system of heating by hot-water pipes held its ground, and the tank system, as we had thought, had become universally discarded. *Eds.*]

Champion Potato.—I am surrounded on all sides by hundreds of acres of this variety, and its cultivation is increasing every season at a marvellous rate. The Rocks and Regents are being discarded for it; the latter was so badly diseased last year as to be scarcely worth taking up, whereas the Champion was hardly effected, and one very large cultivator assured me he firmly believed that he had one field of this variety that would yield 14 tons per acre. It is a very strong grower even in ordinary soil, and if planted in too rich a soil it is sure to come as G. F. McBeth describes. As a field Potato, and for poor moderately cultivated land it is invaluable, as its crops are enormous, and it is just the kind for newly broken healthy ground, where it comes of a better quality; it is apparently the best kind that can be planted in such places, particularly in a dry or a wet season, when the disease is prevalent, as it seems to resist the two extremes in a most remarkable manner. Its sure cropping qualities make it so generally liked in Kent. *H. Cannell, Swanley.*

—Mr. McBeth's criticisms upon the Champion Potato are perfectly justifiable. It was grown in several of the market gardens in West Middlesex during the past season, and the sample when lifted, was in no respect or in crop better than that of the old Scotch Rock; it was terribly uneven and ugly, and would fetch but the lowest price in the market. It is very late indeed, the haulm growth enormous and spreading, and is liable to disease as badly as any other late kind. I am sure that Magnum Bonum, as a late field kind, is worth a score of Champions, and our market growers think the same. *A. D.*

Primulas.—I have read Mr. Clew's description of his Primula flowers with much interest. They must certainly be very fine, and prove that he well understands the culture of these beautiful winter flowers; at the same time I should say that there is nothing extraordinary or unusual in the size of the flowers. I have at the present time about 100 plants in 6, 7, and 8-inch pots, which promise to be very good. I measured some flowers this evening both of alba and rubra, and find them to be exactly 2 inches in diameter, finely fringed and beautiful in colour; these are from Mr. B. S. Williams' strain; but there are many other strains supplied by our best seedsmen which will produce such flowers as these if properly treated. The method I adopt is very simple:—I will drain 6-inch pots, and fill them to within 1 inch of their tops with soil consisting of one part loam, one part leaf-mould and silver-sand; the pots are well watered with a fine rose, the seed is thinly sown, and just covered with silver-sand. A piece of glass is placed on the top of each pot, and they are then placed in the plant-stove on a shelf near the glass, and kept constantly moist and shaded from the sun in the middle of the day. As soon as the seedlings are ready they are pricked into pans an inch or so apart, and from these are transferred into 4-inch pots. As soon as the roots reach the sides of the pots they are shifted to the flowering-pots, which are 6, 7, and 8-inch. The soil used is one part loam, one part leaf-mould, well rotted manure, silver-sand, wood-charcoal, and a little bone-dust. The plants are then placed in a warm pit near the glass, and watered carefully, as well as sprinkled once-a-day with a fine rose in bright weather. The plants are at all times allowed plenty of room, to prevent a spindling growth. By this treatment we have nice plants, well furnished, and from 1 to 2 feet across. The time I like for sowing is March, April, and May, as this gives a long succession of bloom. *G. Ellis, The Gardens, Denzell, Bowden.* [Fine flowers, of an excellent strain, of which, as you say, there are many now grown; in fact, no one need have bad Primulas if he has the proper conditions for growing them at his command. *Eds.*]

Ash Disease.—In part vi. of the *Journal of the Royal Horticultural Society*, lately published, is a "Note on a Disease of the Ash" (accompanied by some excellent illustrations), by Mr. W. Wilson Saunders, in which he alludes to having only observed it on two trees in the neighbourhood of Torquay. It may be of some little interest to mention that it is not uncommon in the neighbourhood of Chepstow, Monmouthshire. Not having been resident there for a few years I do not know if the trees are still standing, but in 1872 a small plantation of Ash trees planted in ground which was generally damp and occasionally flooded, was much affected by it some little way up the stems, as was also a single tree growing on the cliffs at Sedbury Park (about two miles from Chepstow), at a spot where it was exposed to the full force of the winds up and down the Severn, and which very probably had its roots injured by springs of water in the cliff soddening the ground round it. Of this stunted tree there is a small sketch in case cxi. in the collection of economic entomology at Bethnal Green, taken in 1872. The late Mr. Andrew Murray was desirous of fully investigating the cause of the unhealthy growths, and at his request I furnished him with a large number of specimens from Sedbury, but, as in the case of Mr. Wilson Saunders' investigations, he could not find any reason to suppose that the disease which he mentions on the case as "Ash disease, called snail-bite in the south of Scotland," arose from insect injury. *O.* [The disease is very general. *Eds.*]

Foreign Correspondence.

SYDNEY, N. S. WALES: December 14, 1878.—I wish that many of your readers could share with us the pleasure of a stroll in our Botanical Gardens, which are at all times most lovely, and just now wonderfully so. They are situated in one of the beautiful bays of the unapproachably beautiful Port Jackson, Farm Cove, in which several fine men-of-war are now at anchor. They are laid out on a gentle and varied slope; the walks are well made and well kept, the lawns are close-mown, and as smooth as a carpet; here and there are massive bits of natural rockwork, adorned with large specimens of *Dendrobium speciosum*, *Platycerium alcinorne*, and *P. grande*, whilst luxuriant species of *Cereus*, *Epiphyllum*, and other Cactaceous plants scramble over them and the adjoining trees. On the margins of the lakes and in the shady dells are graceful Tree Ferns, Weeping Willows, and feathery Bamboos, 20 feet to 30 feet high. About the grounds are magnificent specimens of native and tropical trees; *Castanospermum australe*, several species of *Sterculiaceæ*, a pink *Hibiscus*, &c., are now in flower. Small trees of *Poinsettia pulcherrima* are shooting most vigorously, after being cut back. In the winter they are all ablaze with the most dazzlingly scarlet bracts; and those who have not seen these scarlet trees can form no conception of their brilliancy. The most gorgeous objects at this present time are grand shrubs of *Hibiscus Camdeni*, covered with very large semi-transparent flowers, of an indescribably brilliant scarlet colour, whilst profusely flowering bushes of double Pomegranates form a beautiful accompaniment. *Euphorbia splendens* is a lower-growing shrub, but equally brilliant. *Pleroma heteromalla*, *Habrothamnus elegans*, *Allamanda neriifolia*, *Tecoma velutina*, &c., *Bignonia*, *Gardenia florida*, &c., *Franciscea latifolia*, &c., *Erythrina*, *Bouvardia*, *Lantana*, *Russelia juncea*, interspersed with *Roses*, *Verbenas*, large bushes of double scarlet and pink *Pelargoniums*, *Zinnias*, *Petunias*, *Dahlias*, *Chrysanthemums*, all laden with flowers, render the borders wonderfully gay. Bulbs flourish to perfection; the spikes of *Gladioli* are very fine; *Diets*, *Iris*, *Crinum*, *Zephyranthus*, *Ismene*, all of various species, are profusely flowering, as is also the very graceful and lovely *Sparaxis pulcherrima*; *Alpinia nutans*, with its fine heads of curious flowers, is quite a weed on the margins of the lakes. *Cymbidium iridifolium* is thickly flowering alongside of *Dendrobium speciosum* on rockwork fully exposed to the sun. Luxuriant plants of different species of *Strelitzia*, *Canna*, *Yucca*, *Aloe* (with their lofty flower-stems), *Opuntia*, *Cereus*, and various *Palms*, *Dracenas*, *Bananas*, &c., add to the tropical aspect of the lovely scene. A very striking creeper is *Ipomoea Learii*, which is now one mass of rich purplish blue flowers; the Everlasting Pea is also a fine object here. We have had some bountiful rain lately, with a temperature of 70° to 80°; so it is no wonder that vegetation is so luxuriant. In June and July we had some cold nights, with occasional hoar-frost, yet *Poinsettia pulcherrima*, *Euphorbia splendens*, &c., were in full flower. *Boughton Kingston.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, Feb. 5, 1879.

| MONTH AND DAY. | BAROMETER. | | TEMPERATURE OF THE AIR. | | | | | HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|---------------------------------|---------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degree of Humidity. Sat. = 100. | | |
| Jan. 30 | 30.12 | +0.35 | 33.1 | 30.1 | 3.0 | 31.5 | -6.0 | 28.9 | 88 | E.S.E. | 0.01 |
| 31 | 30.07 | +0.30 | 32.4 | 23.2 | 4.2 | 30.5 | -8.0 | 24.7 | 77 | E. | 0.00 |
| Feb. 1 | 29.83 | +0.06 | 31.5 | 25.3 | 6.2 | 28.3 | -10.3 | 23.4 | 81 | S.E. | 0.07 |
| 2 | 29.59 | -0.18 | 37.5 | 30.5 | 7.0 | 34.0 | -4.7 | 33.5 | 98 | E. | 0.09 |
| 3 | 29.15 | -0.31 | 37.2 | 32.5 | 4.7 | 34.6 | -1.2 | 34.1 | 98 | E.N.E. | 0.29 |
| 4 | 29.82 | +0.05 | 34.8 | 29.4 | 5.4 | 32.1 | -6.5 | 30.6 | 93 | E. | 0.21 |
| 5 | 29.05 | -0.11 | 39.8 | 28.1 | 11.7 | 33.3 | -5.7 | 30.7 | 90 | S.S.E. S.W. | 0.00 |
| Mean | 29.70 | +0.02 | 35.2 | 29.2 | 6.0 | 32.1 | -6.6 | 29.4 | 89 | E.N.E. | 0.70 |

Jan. 30.—Overcast, dull and cold. Granular snow fell occasionally.

— 31.—Overcast, dull, very cold. Dry and frosty.

Feb. 1.—A dull cloudy cold day. Frozen rain fell at night.

— 2.—Overcast, dull day. Milder. A thaw. Thin rain fell after 1 P.M.

— 3.—Overcast throughout. Milder till evening. Temperature decreased after 8 P.M. Frozen rain fell at 8 P.M., and snow fell after 9 P.M.

— 4.—Overcast, a miserable day. Snow fell in early morning. A cold thaw. Very sloppy under foot.

— 5.—A dull overcast day. Cold and miserable. Temperature increased towards midnight.

Temperature of the air at 9 A.M. on 6th was 45°·3, and the snow which had been on the ground since January 18 (or nineteen days) disappeared.

Note.—The mean temperature of the air for the thirty-six days (Jan. 1—Feb. 5) was 31°·6, being 5°·7 below the average of sixty years.

LONDON: *Barometer*.—During the week ending Saturday, February 1, in the vicinity of London the reading of the barometer at the level of the sea increased from 30.09 inches at the beginning of the week to 30.44 inches by the evening of January 27, decreased to 30.27 inches by the evening of the 28th, remained nearly stationary at this reading till the afternoon of the 29th, increased to 30.32 inches by the morning of January 31, and decreased to 29.94 inches by the end of the week. The mean daily readings were above their averages on every day in the week. The mean reading for the week at sea level was 30.26 inches, being 0.31 inch above the average, and 0.17 inch above that of the preceding week.

Temperature.—The highest temperatures of the air observed by day varied from 34° on January 27, to 31½ on February 1; the mean value for the week was 33½. The lowest temperatures of the air observed by night varied from 25½ on February 1, to 31½ on January 27; the mean value for the week was 29°. The mean daily range of temperature in the week was 4½, the greatest range in the day being 6½ on February 1, and the least 3° on Jan. 30.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—Jan. 26th, 32°·6, —5°·3; 27th, 33, —5·1; 28th, 30°·9, —7°·4; 29th, 31°·2, —7°·1; 30th, 31°·5, —6°·9; 31st, 30°·5, —8°; Feb. 1st, 28°·3, —10°·3. The mean temperature of the air for the week was 31°·1, being 7°·2 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 41° on January 27, and 40° on February 1; on other days, the readings did not rise above 37°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 22½ on February 1, and 25½ on January 29; the mean value for the week was 27½.

Wind.—The direction of the wind was E.N.E. and N.E., and its strength gentle.

The weather during the week was dull and very cold; the sky was almost overcast throughout.

Snow fell on January 30 and February 1, and frozen rain fell on February 1.

Rain.—The amount of rain and melted snow measured during the week was 0.08 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, February 1, the highest temperatures of the air observed by day were 45° at Truro, 39½ at Plymouth, and 37° at Sunderland; the highest temperature of the air at Bradford was 33½, and at

Sheffield was 34½; the mean value from all stations was 36½. The lowest temperatures of the air observed by night were 21° at Sunderland, 22° at Bradford, 25° at Leeds, and 25½ at Blackheath; the lowest temperature of the air at Truro was 30°, and at Plymouth was 29½; the mean from all places was 27°. The extreme range of temperature in the week was the greatest at Sunderland, 16°, and the least at Cambridge, 6½; the mean range of temperature from all stations was 9½.

The mean of the seven high day temperatures was the highest at Truro, 39°, Plymouth 36½, and Hull and Sunderland, both 35°, and the lowest at Wolverhampton and Bradford, both 32½, and at Sheffield, 33°; the mean from all places was 34½. The mean of the seven low night temperatures was the lowest at Bradford, 26°, Wolverhampton and Sunderland, both 28°, and Blackheath and Liverpool, both 29°, and the highest at Truro, 32½, and Plymouth, 31½; the mean from all stations was 29½. The mean daily range of temperature in the week was the least at Cambridge and Sheffield, both 3½, and the greatest at Sunderland, 7°; the mean daily range from all places was 4½.

The mean temperature of the air for the week from all stations was 31½, being 4½ lower than the value for the corresponding week in 1878. The mean temperature of the air was the highest at Truro, 35½, and Plymouth, 34°; and the lowest at Bradford, 29°, and Wolverhampton, 30°.

Rain or snow was measured at Truro to the depth of 1.41 inch; at all other places the amounts varied from 0.02 inch to 0.40 inch; the average fall over the country was 0.20 inch.

The weather during the week was overcast, dull, and cold, with slight falls of *snow* and *hail*.

SCOTLAND: *Temperature*.—During the week ending Saturday, February 1, the highest temperatures of the air varied from 42° at Leith to 38½ at Aberdeen; the mean from all places was 40°. The lowest temperatures of the air varied from 14° at Perth, 15° at Paisley, and 19° at Edinburgh, to 25½ at Aberdeen; the mean value from all stations was 20½. The mean range of temperature in the week from all places was 19½.

The mean temperature of the air for the week from all places was 31½, being 3½ lower than the value for the corresponding week in 1878. The highest was 33° at Aberdeen, and the lowest 28½ at Perth.

Rain.—The amounts of rain or melted snow measured during the week varied from 0.45 inch at Paisley to 0.05 inch at Leith; at Edinburgh no rain or snow fell; the average fall over the country was 0.19 inch.

DUBLIN. — The highest temperature of the air was 43½, the lowest 16°, the range 27½, the mean 32½, and the amount of rain and melted snow was 0.55 inch.

JAMES GLAISHER, F.R.S.

Reports of Societies.

Scottish Horticultural Association: Feb. 4.—The ordinary monthly meeting of this Association was held on Tuesday, the President in the chair. Mr. John Caie, Inverary Castle Gardens, sent a paper which was read to the meeting, the subject being the arrangement of trees, shrubs, and climbers for pleasure grounds. Mr. Caie pointed out the main features indispensably necessary to be adhered to in the arrangement of pleasure grounds, leaving the details of it to be worked out according to the circumstances of each individual case. Before the ground was laid out or planted a thorough conception of its capabilities should be arrived at, otherwise the ultimate effect will be marred. After mentioning how and where trees should be grouped, he named the various trees, shrubs, and climbers most suitable for giving beauty to the landscape.

Mr. William Burns, Thingwall Gardens, also sent a paper for the consideration of the Association, entitled "The Acclimatisation of Plants in this Country." He stated that there were many circumstances with which plants were surrounded which had a most important effect upon their growth, viz., light, heat, moisture, and elevation. He described at length the various parts these properties performed in regard to vegetable matter, and compared with other countries some observations he had made upon these four essential elements conducive to plant existence and development. He also quoted some of the experiments made by the most eminent men on radiation and evaporation bearing upon the acclimatisation of plants. An animated discussion followed the reading of this paper, the opinion brought out being that plants could only be acclimatised to a very limited extent.

Mr. John Clark, Dysart Gardens, received a First-class Certificate for a new variegated ornamental Beet of his own raising, for decorative and bedding purposes. Mr. Alex. McMillan exhibited trusses of

Zonal Pelargoniums and Chrysanthemum blooms in excellent condition for this season. Mr. Charles Buchanan exhibited three large flowers of the *Clerodendron Balfourianum* taken from a plant with forty spikes. They were very fine, and equal to what is produced in the middle of summer.

It was intimated that the following were the successful competitors for the prizes offered by Mr. Downie for the best kitchen garden plans:—1st, Chas. Warrick, Dalkeith Gardens; 2d, Chas. Webster, Dalkeith Gardens; 3d, all equal—R. Parker, Hutton Hall, Guisbro'; W. H. Divers, Messrs. Veitch's Nursery; and William Taylor, 17, Frederick Street, Edinburgh.

Mr. McMillan, Broadmeadows, sent a few notes on the weather, stating that he had registered 35° frost on December 14, and that from December 4 to February 3 he had recorded 620° altogether. The President gave some of his observations at Dalkeith on the same subject. The most frost experienced there was on December 14, 22°. It was then intimated that the next meeting was the annual business one, for the election of office-bearers and the transaction of other business.

Obituary.

DEATH OF MR. GEORGE GALLOWAY. — We regret to observe in a Northern paper that Mr. George Galloway, seed merchant of Helensburgh, was found recently in the Athole Hotel, Dundas Street, Glasgow, with his throat cut. No reason is assigned for the act.

Enquiries.

He that questioneth much shall learn much.—BACON.

THE CONSTITUTION OF PLANTS.—Can you or any one else inform me why the Oak secretes tannin, and the Pinus turpentine, though both growing in the same soil, and with the same atmospheric conditions? Or, again, why does the *Laurus Camphora* secrete camphor, and the *Cinchona* quinine? I have not come across any explanation of these things, has any one else? *J. Croncher*. [We can only reply, Because "it is their nature to." EDS.]

PRIZES FOR ROSES AT BISHOP AUCKLAND: *An Anxious Enquirer* asks if it is true that, two or three years ago, a prize of £10 was offered for twelve cut blooms of yellow Roses, and ultimately awarded to a dozen blooms of *Gloire de Dijon*? but we are quite unable to tell him. Can any of our readers?

Answers to Correspondents.

FUCHSIA SERRATIFOLIA. — If the correspondent who was making inquiries about *Fuchsia serratifolia* will send me his address, I shall be happy to forward him some cuttings, as I grow it for winter blooming in a warm greenhouse—a purpose for which it is exceedingly useful. *J. Sheppard, Woolverstone, Ipswich*.

CHRISTMAS ROSES: *X. A.* As a rule the roots should not be disturbed too often, but they should be top-dressed at least once a year with well-decayed manure and leaf-soil. As yours appear to be dwindling away, it is probable that the cause is to be found in the poverty of the soil, and in that case we should lift and transplant them in a moderately moist soil, in a shady position.

COUNTY COURT: *X. Y. Z.* We think you should proceed against the Secretary. Your other question is a legal one, that we cannot pretend to answer.

CYCLAMENS: *E. Sandford*. Your rose-coloured seedling is one which is now commonly seen in all the good strains exhibited by the suburban growers, and not equal in richness of colour to such select varieties as Ruby, and others which have been named. A few years back it would have been thought quite an acquisition; and, being of good form, it is worth keeping apart and seeding from with a view to further improvement.

GRAPE FROM ITALY: *W. Crane*. The black Grape with a Strawberry flavour received by your employer from Italy is no doubt the American Fox or Strawberry Grape—a variety that has been known in this country for some years. The late Mr. Pearson, of Chilwell, crossed it with the Royal Muscadine, and so obtained the variety sent out in 1871 or 1872 under the name of Ferdinand de Lesseps.

GRAPES: *James R.* There is no better late white Grape than Muscat of Alexandria, but it requires extra heat to grow it well.

HEATING: *John Banks*. The Peaches will be quite safe if you use the stove with judgment, and it is powerful enough to heat the house, of which you give no idea of the dimensions. As regards the hot-water pipes in your conservatory that have been painted with gas-tar, we may say at once that to paint them again with black paint will aggravate the evil. You must have the tar all scraped off with the aid of some grease and hot water, then paint the pipes with a mixture of lamp-black and linseed oil.

NAMES OF PLANTS: *J. H.* 1, *Adiantum pentadactylon*; 2, *Phlebodium aureum*; 3, *Blechnum brasiliense*; 4, *Pleopeltis pustulata*; 5, *Polystichum*

capense. 6. *Lastrea quinquangulare*; 7. *Blechnum cognatum*; 8. *Asplenium bulbiferum*.—*H. M. F.* The Fern 1. *Onychium japonicum*, the other plant *Begonia sanguinea*.—*V. G. V. A.* *Pleopeltis*, near *crassifolia*, but it seems distinct. Can you send it in a fertile state? *H. H.* Your above climber appears to be *Thunbergia Hawtayneana*.

NEW GARDEN LAND. *H. F.* The best remedy you can apply for the suspected wireworm is to well roll the land two or three times with one of Crosskill's rollers. You may then plant Potatoes, or any other fill-up crop, till you get the ground into a regular routine of cropping.

PRIMULAS: *G. R. B., Wincanton.* The chief peculiarities of the Primrose referred to in our last issue consisted in its very large leafy calyx, and in the large 3-lobed and crenated petals, which were green and leafy in the centre, petaloid at the edges. The stamens were freely developed, but the pistil was perfect. There are the germs of an extraordinary race of Primroses in these flowers.

PRIMULA SINENSIS: *H. Cuthbert & Son.* Very fine in quality, and richly coloured.

QUANTITY OF FUEL: *J. H.* We are unable to give you an opinion as to the quantity of coal necessary to heat 2000 feet of 4-inch piping under the circumstances described, so much depending upon the quality of the coal, and the skill of the stoker. Short of actual experiment, it is impossible for a stranger to the apparatus to give a definite reply.

VARIATED BORECOLES: *Stuart, Mein & Allan.* The varieties forwarded are very prettily coloured, and no doubt have a good effect when growing. The markings, which include crimson, rose-pink, and white venation on the green ground, either with or without a broad coloured centre, are well defined and bright in colour.

INSECTS: *A Gardener.* So far as we can tell from the flattened specimen before us, the beetle so destructive in your stoves is none other than the well-known *Otiorynchus sulcatus* represented in the accompanying illustration (fig. 27). No. 1 is the perfect insect, somewhat magnified; 2, its larva, or grub, of the natural size; 3, the same, magnified; 4, the pupa, magnified; and, 5, another species—*Otiorynchus picipes*. The larva feeds at the roots of plants; and the perfect in-

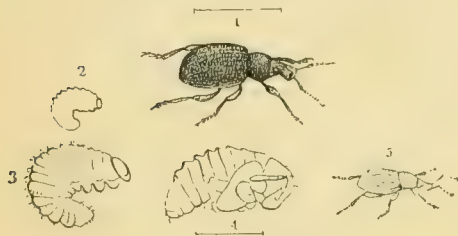


FIG. 27.—OTIORYNCHUS SULCATUS.

sects, when disturbed at night, sham death, and are easily captured by shaking the foliage of the plants over a cloth spread underneath.

COMMUNICATIONS RECEIVED:—*H. K.*—*F. F. N.*—*D. T. F.*—*W. T.*—*T. M.*—*W. Ross.*—*Chapman.*—*C. P.*—*E. B.*—*T. L. H. C.* (many thanks).—*R. D.*—*R. P. Kerr & Sons.*—*J. Scott.*—*J. W.*, Liverpool.—*T. C. C. Y. M.*—*W. E.*—*T. H.*—*E. M.*—*W. S.*—*E. S. D.*—*J. C.*, Reading.—*R. C.*—*W. W. R.*—*(F. Rosher & Co., Upper Ground Street, Blackfriars, S.E.)*.—*R. O.*—*E. G.*—*S. H.*—*D. R. Bridemann*—*J. W.*—*T. M. W.*

Markets.

COVENT GARDEN, February 6.

Business being still so dull, there is nothing that calls for any remark in our market. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|----------------------------------|
| Arum Lily, or Rich- | Euonymus, var., doz. 6 0-18 0 |
| ardia æthiop., doz. 9 0-18 0 | Ferns, in var., p. doz. 4 0-18 0 |
| Azaleas, per dozen.. 24 0-60 0 | Ficus elastica, each 2 6-15 0 |
| Begonias, per doz. 6 0-12 0 | Foliage Plants, vari- |
| Bouvardias, per doz. 18 0-24 0 | ous, each 2 0-10 6 |
| Camellias, per dozen 18 0-60 0 | Mignonette, per doz. 6 0-9 0 |
| Cinerarias, per doz. 12 0-18 0 | Myrtles, per doz. 6 0-12 0 |
| Cyclamens, per doz. 12 0-30 0 | Palms, in variety, |
| Cyperus, per dozen 6 0-12 0 | each 2 6-21 0 |
| Dracena terminalis 30 0-60 0 | Pelargoniums, scar- |
| —viridis, per doz. 18 0-24 0 | lets, zonal, doz. 6 0-12 0 |
| Epiphyllum, per doz. 18 0-60 0 | Primulas, per dozen 4 0-12 0 |
| —gracilis, p. dozen 9 0-12 0 | Solanums, per doz. 6 0-18 0 |
| —hyemalis, p. doz. 12 0-42 0 | Tulips, per dozen 8 0-12 0 |

CUT FLOWERS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|--------------------------------|
| Abutilon, 12 blooms 0 6-1 0 | Lily of Val., 12 spray 2 0-6 0 |
| Arum Lilies, 12 blms. 4 0-12 0 | Mignonette, 12 bun. 12 0-18 0 |
| Azaleas, 12 sprays 0 9-2 0 | Narcissus, paper- |
| Bouvardias, per bun. 1 0-4 0 | white, 12 sprays 2 0-6 0 |
| Camellias, per dozen 3 0-12 0 | Pelargoniums, 12 spr. 2 0-4 0 |
| Carnations, per dozen 1 6-4 0 | —zonal, 12 sprays 1 0-2 0 |
| Cyclamen, 12 blooms 0 6-1 6 | Primula, double, per |
| Deutzia, 12 bunches 6 0-12 0 | bunch 1 0-2 0 |
| Epiphyllum, 12 blms. 1 0-3 0 | —single, 12 bunch. 6 0-12 0 |
| Eucharis, per doz. 4 0-12 0 | Roses (indoor), doz. 3 0-12 0 |
| Euphorbia, 12 sprays 3 0-6 0 | Tropeolum, 12 bun. 2 0-6 0 |
| Gardenias, 12 blms. 12 0-24 0 | Tuberose, per dozen 3 0-6 0 |
| Heliotropes, 12 spk. 0 6-1 0 | Tulips, 12 blooms 1 0-3 0 |
| Hyacinths, 12 spks 4 0-12 0 | Violets, 12 bunches 4 0-9 0 |
| —Roman, 12 spks. 1 0-3 0 | |

FRUIT.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|------------------------------|
| Apples, 1/2 basket 1 6-5 0 | Oranges, per 100 4 0-8 0 |
| Cobs and Filberts, lb. 0 9-1 0 | Pears, per doz. 4 0-8 0 |
| Grapes, per lb. 3 0-8 0 | Pine-apples, per lb. 1 0-2 6 |
| Lemons, per 100 3 0-10 0 | |

VEGETABLES.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|--------------------------------|
| Artichokes, English | Horse Radish, p. bun. 4 0-.. |
| Globe, doz. 2 0-4 0 | Lettuces, Cabbage, |
| —Jerusalem, bush. 4 0-.. | per doz. 1 6-.. |
| Asparagus, Fr. sprue, | Mint, green, bunch.. 1 6-.. |
| per bundle 1 6-.. | Onions, per bushel.. 4 0-.. |
| —Eng., per 100 1 10 0-.. | —young, per bun. 0 4-0 6 |
| —Fr. giant, p. bun. 30 0-.. | Parsley, per bunch.. 0 4-.. |
| Beans, French, p. 100 2 0-.. | Peas, per quart 12 0-.. |
| Beet, per doz. 1 0-2 0 | Potatoes, new, basket 1 0-.. |
| Brus. sprouts, bush. 10 0-.. | Radishes, per bunch 0 1-0 3 |
| Cabbages, per doz. 1 0-2 0 | —Spanish, doz. 1 0-.. |
| Carrots, per bunch 0 4-0 6 | —New Jersey, doz. 2 0-.. |
| Cauliflowers, per doz. 2 0-5 0 | Rhubarb, doz. 10 0-.. |
| Celery, per bundle 1 6-2 0 | Shallots, per lb. 0 6-.. |
| Chilis, per 100 2 0-.. | Seakale, per punnet 2 6-.. |
| Cucumbers, each 0 9-1 6 | Spinach, per bushel 4 0-5 0 |
| Endive, Batav. dozen 1 6-.. | Sweet Potatoes, per lb. 0 6-.. |
| Garlic, per lb. 0 6-.. | Tomatoes, per dozen 2 6-3 0 |
| Herbs, per bunch 0 2-0 4 | Turnips, p. 12 bunch. 3 0-6 0 |

Potatoes:—Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

SEEDS.

LONDON: Feb. 5.—Our market was fairly attended to-day, and there was generally more request for farm seeds. In view of the low prices ruling for all varieties, and of the fact that in many districts scarcely any seed has yet been purchased, a good consumptive demand may shortly be expected. As regards home-grown Clover the principal inquiry runs upon extra fine seed, which, on account of its scarcity, is relatively dear. Medium qualities continue cheap and plentiful. Of new American there is hardly any in London, nor can any addition to the limited stocks on hand be soon looked for. There is no quotable alteration in either Alsike or white Clover. Trefoils met with attention at last week's rates. For imported Italian there is an improved sale at Monday's moderate currencies. Haricot Beans and blue Peas find buyers on former terms. Lentils also keep in good favour; about 200 q. of German have just arrived here. Any parcels of old Egyptian Lentils which might be forthcoming would realise remunerative rates for splitting. Spring Tares are dearer. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

On Monday, at Mark Lane, the best samples of English wheat were held at full prices, inferior at barely late rates. The market was well supplied with foreign produce. Millers operated with considerable caution. Choice barley realised full terms, but the market for inferior sorts was dull at barely late rates. In the malt trade there was no material alteration. Oats were fairly firm. Indian Corn was quiet at late rates. Beans and peas were in fair average request at late rates. The flour trade was very quiet on former terms.—Trade on Wednesday was quiet, and prices were without material change. The tone of business was perhaps a little heavy, the weather showing signs of relaxation. English Wheat was in limited supply, and fine qualities were steady. Foreign Wheat was in good supply, and prices were with difficulty supported. Oats and Maize were about the same in price, and the market was nominally unchanged as regards other kinds of produce. Average prices of corn for the week ending Feb. 1:—Wheat, 38s. 4d.; Barley, 36s. 9d.; Oats, 19s. 5d. For the corresponding period last year:—Wheat, 51s. 11d.; Barley, 44s. 6d.; Oats, 23s. 11d.

CATTLE.

At the Metropolitan Market on Monday prices for beasts gave way somewhat and a considerable proportion remained unsold. The trade in sheep was excessively dull, and prices on the average scarcely so good as last reported. Choice calves were in demand. Quotations:—Beasts, 4s. 4d. to 4s. 8d., and 5s. 2d. to 5s. 4d.; calves, 5s. 6d. to 6s. 6d.; sheep, 5s. to 5s. 6d., and 6s. to 6s. 10d.; pigs, 3s. 4d. to 4s.—On Thursday the cattle trade ruled quiet in tone. Supplies were moderate, and beasts changed hands at Monday's reduced prices. For sheep the inquiry was limited, at about late rates, but calves were firmer.

HAY.

At Whitechapel on Tuesday there was not much demand, and prices were without change. Prime Clover, 95s. to 102s. 6d.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 35s. per load.—On Thursday there was a moderate supply of hay and straw on sale, but trade very dull, and prices unchanged.—Cumberland Market quotations:—Superior meadow hay, 80s. to 88s.; inferior, 63s. to 70s.; superior Clover, 100s. to 110s.; inferior, 70s. to 88s.; and straw, 33s. to 35s. per load.

COALS.

The market on Monday was active for house coals, at former prices in most cases; seconds, however, were quoted 6d. higher. Business on Wednesday was steady, at the following quotations:—Beaside West Hartley, 14s. 3d.; East Wylam, 17s. 6d.; Springwell West Hartley, 14s. 3d.; Walls End—Hetton, 19s.; Hetton Lyons, 17s. 3d.; Hawthorns, 17s. 9d.; Lambton, 18s. 6d.; Wear, 17s. 9d.; South Hetton, 19s.; Chilton Tees, 18s. 6d.; South Hartlepool, 18s.; Tees, 18s. 9d.

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WEBB'S TRIUMPH PEA (New).—A wrinkled marrow of fine flavour, very prolific, the best for main crop. Per quart, 3s. 6d.

WEBB'S CHAMPION BROCCOLI.—The finest variety grown; should be in every garden. Per packet, 1s.

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WEBB'S SUPERB CINERARIA.—The finest strain in cultivation, not to be surpassed. Per packet 1s. 6d. and 2s. 6d.

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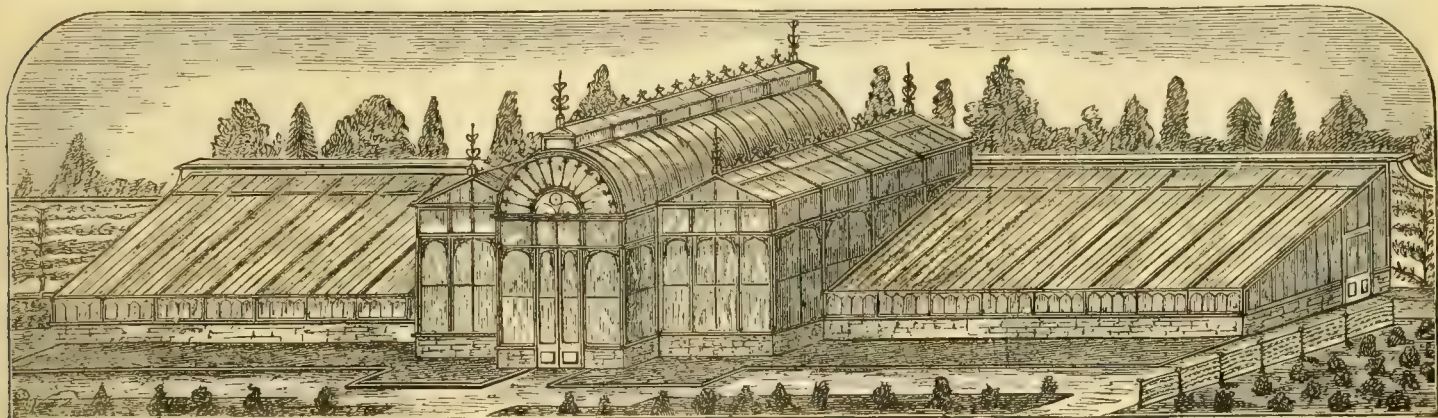
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Street, Ipswich, respectfully announces that the
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It comprises more than 2000 varieties, including many new,
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PRIMULAS—PRIMULAS.

"W. FOSTER.—Yours is a very fine strain, the flowers
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The Best Early Pea.

SUTTON'S EMERALD GEM.

From Mr. P. PIRIE, Gr. to the Right Hon. Lord Stanley of
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have grown. Sown with other early sorts it came in fully a
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This valuable New POTATO is an enormous cropper, and
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Price:—Per lb., 4½d.; per 14 lb., 4s. 6d.; per cwt. 30s.

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SUTTON'S MAGNUM BONUM, sample sack, 22s.

EARLY GODERICH, sample sack, 16s.

SUTTON'S REDSKIN FLOURBALL, sample sack, 20s.

The above were grown from Seed supplied by Messrs.

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—"Your Mushroom Spawn is the best I ever tried."

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FOR VEGETABLES LE FLORAL
increases the quantity.
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BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., 46 6s. per truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton. Delivered on rail at Blackwater, S.E.R., or Farnborough, S.W.R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
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CARTER'S FERTILISER FOR FLOWERS.
CARTER'S FERTILISER FOR POTATOS.
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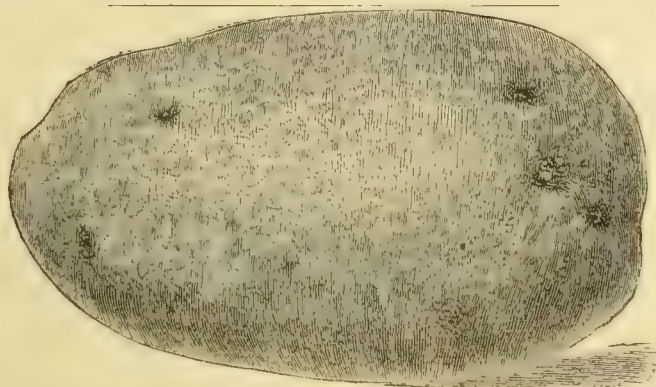
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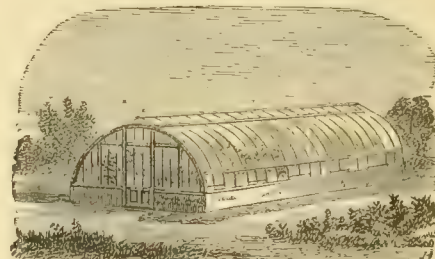
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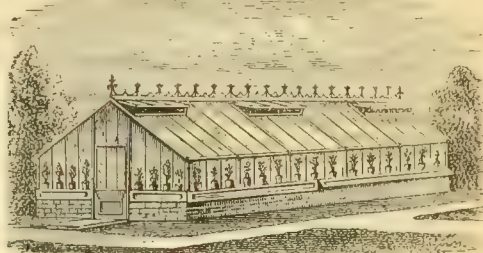
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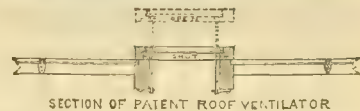
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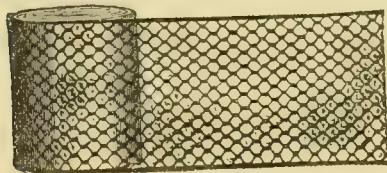
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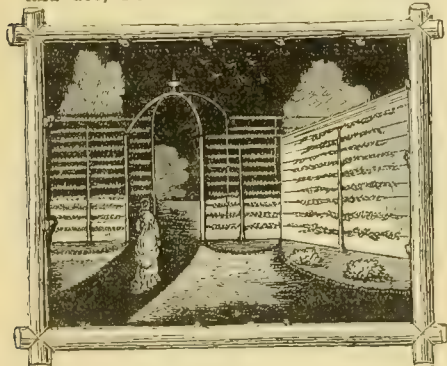
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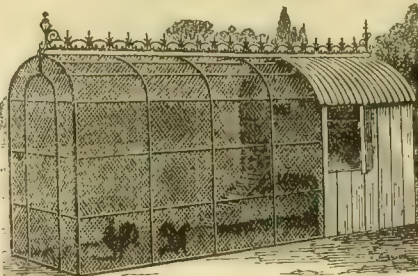
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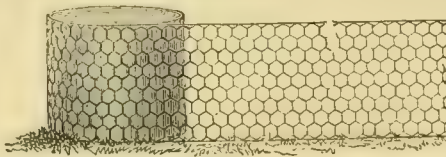
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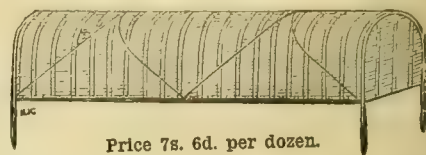
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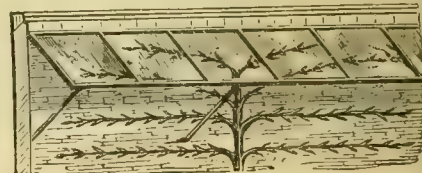
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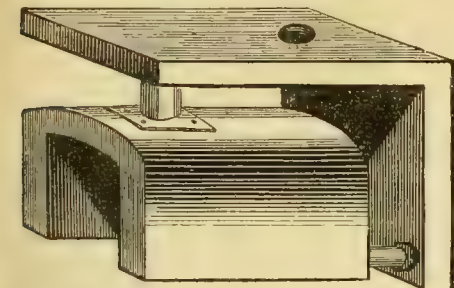
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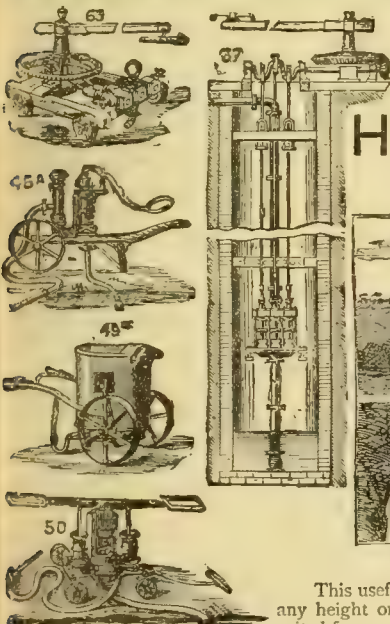
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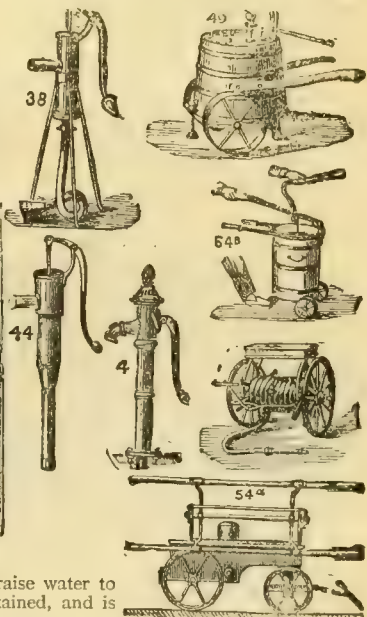


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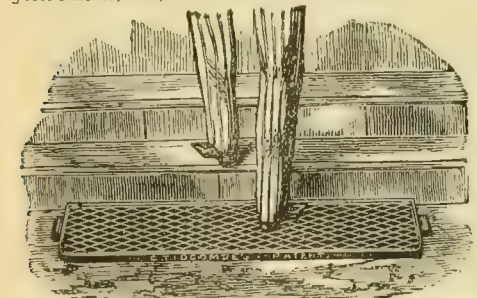
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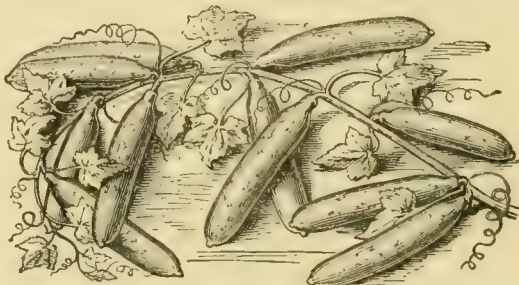
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Established 1841.

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No. 268.—VOL. XI. { NEW SERIES. } SATURDAY, FEBRUARY 15, 1879.

{ Registered at the General } Price 5d.
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VOLUME for JULY to DECEMBER, 1878.

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CRYSTAL PALACE.—FLOWER SHOWS, 1879.

SATURDAY, May 24, GREAT FLOWER SHOW of the
SATURDAY, June 28, GREAT ANNUAL ROSE
SHOW by the National Rose Society.

Schedules will shortly be ready, and will be forwarded to applicants and previous exhibitors.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
HORTICULTURAL MEETING at the Town Hall, Manchester, 18th of MARCH NEXT.

The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1879 will open in the Gardens, Old Trafford, MAY 30. For Schedules apply to the undersigned.

BRUCE FINDLAY, Curator and Secretary.

Royal Botanic Gardens, Manchester.

SHROPSHIRE HORTICULTURAL SOCIETY.—ROSE SHOW, July 3; GREAT SUMMER SHOW, August 20 and 21; CHRYSANTHEMUM and FRUIT SHOW, November 20. Schedules from the Hon. Secs., Messrs. ADNITT and NAUNTON, Shrewsbury.

WAKEFIELD HORTICULTURAL SOCIETY.—The TENTH ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUITS and VEGETABLES, will be held in the Grammar School Grounds on FRIDAY and SATURDAY, August 29 and 30. Schedules ready March 1.

ALFRED PICKARD, Secretary.

York Street, Wakefield.

To the Trade.

JAMES CARTER, DUNNETT, AND BEALE find it necessary to announce that, in consequence of the unfair use made in many instances (by re-naming, &c.) of the privilege they have granted by the sale of electros of Seeds and Plants, of which Messrs. CARTER are the Proprietors—they are reluctantly compelled to DISCONTINUE THEIR SALE from this date.

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On view morning of Sale, and Catalogues had.

Rare Lilies.

MR. J. C. STEVENS has received instructions from the New Plant and Bulb Company to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 17, at half-past 12 o'clock precisely, splendid LILIUM AURATUM, in magnificent condition; importation of rare INDIAN LILIES, a fine collection of the choicest Hardy LILIES, collection of Hardy American ORCHIDS, Disa grandiflora, rare Green-house flowering BULBS, the new SPIRÆA PALMATA ELEGANS, the splendid new Bulbous Plant FREESIA REFRACTA ALBA.

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Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, on TUESDAY, February 18, at half-past 12 o'clock precisely, DORKINGS, BRAHMAS, and AYLESBURY DUCKS, from Mr. Taylor; SPANISH and DARK BRAHMAS, from Mr. A. Heath; DORKINGS, from Mr. T. Bromwich; SPANISH, from Mr. Trounce; young CARRIERS, from Dr. Douglas; CARRIERS, from Mr. Palmer; also a quantity of other choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

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On view morning of Sale, and Catalogues had.

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MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 20, a magnificent specimen plant of VANDA CÆRULEA, the property of the late C. Lane, Esq., and grown by William Smith, which has been exhibited before the Floral Committee of the Royal Horticultural Society four times, and has been awarded three Cultural Certificates and the Gold and Silver Banksian Medals.

On view morning of Sale, and Catalogues had.

Odontoglossum Londesboroughianum (Rchb.).

MR. J. C. STEVENS has received instructions from Messrs. J. Backhouse & Son, of York, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 20, at half-past 12 o'clock precisely, 235 Plants of the magnificent new ODONTOGLOSSUM LONDESBOURGHIANUM (Rchb.) (see special advertisement in this week's *Gardener's Chronicle*). Also a quantity of fine plants of CYPRIPEDIUM IRAPEANUM, which has pure yellow flowers of the form of C. spectabile, and 4 inches across, as many as seven flowers being borne on one spike, nearly hardy; EPIDENDRUM FALCICATUM, a rare and noble Orchid, very distinct; LÆLIA PEDUNCULARIS, a rare and very distinct species recently received from their collector in fine healthy tufts. Magnificent masses will also be found of Lælia anceps, L. autumnalis, and L. albidia, Epidendrum nemorale, E. vitellinum majus, far exceeding that we have ever hitherto offered; several plants of the rare and charming BARKERIA ELEGANS, Odontoglossum Rossi majus, Cattleya citrina, &c. Noble established specimens will also be offered of Boelea celestis, Odontoglossum vexillarium, O. Phalenopsis, O. nebulosum, Dendrobium infundibulum, &c.: many of these are already showing bloom.

On view morning of Sale, and Catalogues had.

Valuable Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, February 21, at half-past 12 o'clock precisely, the valuable collection of established ORCHIDS, the property of R. O. White, Esq., The Priory, Lewisham, including fine and healthy plants of rare varieties. Grand importation of Epidendrum vitellinum majus, just received in splendid condition; Dendrobium superbiens, D. bigibulum, rare Masdevallias, Calanthes, Cypripediums, &c.; 6000 fine bulbs of Liliun auratum, just arrived from Japan in splendid condition; 5000 Gladiolus Brencleyensis, 500 double Italian Tuberoses, &c.

On view morning of Sale, and Catalogues had.

Consignment of Plants from Ghent.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, February 22, at half-past 12 o'clock precisely, a consignment from Ghent of choice double CAMELLIAS, with flower-buds; fine and new Indian AZALEAS, PALMS, YUCCAS, CONIFERS, hardy hybrid strong RHODODENDRONS, &c.; ROSES, FRUIT TREES, HARDY PLANTS, GLADIOLI, LILiums, ANEMONES, RANUNCULI, SPIRÆAS, LILY of the VALLEY, &c.

On view morning of Sale, and Catalogues had.

500 Odontoglossum Rossi majus.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, of St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 24, at half-past 12 o'clock precisely, an exceptionally fine lot of this fine cool ORCHID, in extraordinary large masses. The plant in flower comes from the same locality as those offered for sale.

On view morning of Sale, and Catalogues had.

Orchids from New Grenada, Mexico, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 24, at half-past 12 o'clock precisely, a varied collection of imported ORCHIDS, comprising Cattleya Mendeli, C. gigas, Epidendrum vitellinum majus, Odontoglossum Alexandræ, and a large number of other cool Odontoglots; Phalenopsis of several kinds, and a great variety of other Orchids, mostly cool.

On view morning of Sale, and Catalogues had.

Rare Hardy Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 1, at half-past 12 o'clock precisely, a first-class lot of HARDY PLANTS, consisting of Sparaxis pulcherrima, Senecio pulcher, Polygonatum, Anthericum, Daphne Blagiana, hardy Fuchsias, Lobelias, Hellebores in variety, hardy Dahlias, Spiræa palmata, Platycodon grandiflorum and others, Nerine japonica, Amaryllis lutea, Hemerocallis of sorts, "Geum, new double," Dodecatheons, several varieties; Primula denticulata, Primula Stuarti, and an entirely new species from Kashmir; Begonias, Stobæas, and many others. Also a fine lot of North American ORCHIDS, TRILLIUMS, and others; home-grown LILIES, consisting of beautiful bulbs of Wallichianum, californicum, Humboldtii, Washingtonianum, Brownii, eximium (true), and a number of other first-class varieties; an importation from the Cape, consisting of immense bulbs of Hæmanthus, Drimys, Ornithogalum, &c.; 6000 fine bulbs of Liliun auratum from Japan; Gladioli, Anemones, Ranunculi, and Spiræas from Holland.

On view morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale of Plants.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, EARLY IN MAY, the magnificent COLLECTION of PLANTS at Dangstein, and which for many years has been one of the most extensive and interesting in the country.

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MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, February 18, at 12 o'clock precisely.

On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Important Sale of Lilies from Japan, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard opposite the Bank of England, on MONDAY February 24, at half-past 12 o'clock precisely, an importation of 5000 unusually fine LILIUM AURATUM in splendid condition, also of LILIUM TIGRINUM PLENUM, L. KRAMERI, THUNBERGIANUM and LONGIFLORUM, also a consignment from the Cape of BRUNSVIGIA MULTIFLORA, and others; HYACINTHUS CANDICANS, ANOMATHECA, IMANTOPHYLLUM MINIATUM, AMARYLLIS, CALADIUMS, PANCRACTIUMS, NERINES, and other first-class PLANTS. Also good flowering BULBS of the beautiful Liliun neilgherrense, a magnificent collection of ENGLISH-GROWN LILIES of immense size, consisting of Wallichianum, Humboldtii, Washingtonianum, Brownii, giganteum, Szovitzianum, parvum, Kræzerii, and other superior kinds; a quantity of BEGONIA FREDELLI in flower, VEITCHII and other varieties; GLADIOLI in variety, 2,000 American TUBEROSES, 500 do. the Pearl; together with a collection of COOL ORCHIDS, such as Odontoglossum Alexandræ, O. cirrhosum, O. Rossi majus, O. madrense, membranaceum, and others.

Catalogues of the Auctioneers, 98, Gracechurch Street, E.C.

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In Liquidation.—*Re* Wm. Rolleston & Sons.
CLEARANCE SALE of the SECOND PORTION of the INDOOR STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to SELL by AUCTION, on the Premises, The Nurseries, Tooting, S.W., on TUESDAY, February 25, and three following days, at 11 for 12 o'clock precisely each day, the remaining portion of the extensive collection of ESTABLISHED ORCHIDS, comprising several beautiful specimens, many of them of the newest and most handsome species known, and including fine plants of Boelea celestis, strong plants of Odontoglossum vexillarium, fine specimens of some of the best Dendrobiums, such as crassinode, suavisimum, and thyrsiflorum, each with about thirty stems; the handsome Findleyanum, extra fine plants of D. bigibulum, also of the new and beautiful superbienis, Masdevallia towarensis, M. bella, M. Harryana, M. ignea, and M. Davisii; large plants of Oncidium ampliatum majus, O. macranthum and O. Papilio; Odontoglossum Alexandræ, O. cirrhosum madrense, Leopardium hystrix and citrosium; fine strong plants of the scarce Pescatorea Roezlii and Dayana alba, Cymbidium eburneum; several fine Cattleyas, including Dowiana exoniensis superba, and others; also a large and varied assortment of choice STOVE PLANTS, PALMS, and FERNS, including the new and beautiful Tillandsia caracasana (not yet in commerce), T. Rollestonii, a considerable number of Dracænas, a quantity of D. Haageana; thousands of Gloxinias, Tydeas, and Achimenes; several Aspidistra lurida variegata, Cocos Weddelliana, Areca Verschaffeltii, Pritchardia filifera, Kentia Wendlandii, Geonoma Portii, Dennstedtia davalioides Youngii; Adiantums, Marratias, several specimen Tree Ferns, including Cyathea dealbata and Dicksonia antarctica; a large collection of NEW HOLLAND and GREENHOUSE PLANTS, comprising thousands of Camellias and Azaleas, amongst which are several specimens and half specimens, hard-wooded Heaths, large quantities of the new Pultenæa rosea, Boronia elatior and megastigma, eighty Yucca filamentosa variegata, Daphne indica rubra, a quantity of young hard and soft-wooded Heaths, Epacris; together with a few lots of choice CONIFERÆ, RHODODENDRONS, planted in open ground, TEA ROSES, CLEMATIS, WALL TREES, &c.

May be viewed. Catalogues obtained on the Premises, of G. WHIFFEN, Esq., the Trustee, 8, Old Jewry, E.C.; of Messrs. LEWIS, MUNNS and LONGDEN, Solicitors, 8, Old Jewry, E.C.; and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

N.B. THE FREEHOLD ESTATE of 5 acres, with the Glass and other Erections, to be LET or SOLD. Apply to the Auctioneers.

West Ham and Plaistow, near Stratford, E.

CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Holmes' Nursery, adjoining the Vicarage, West Ham; also at McPherson's Nursery, High Street, Plaistow, on TUESDAY, February 25, at 12 o'clock sharp, the whole of the well-grown NURSERY STOCK, comprising large quantities of specimen Coniferæ and Evergreen Shrubs, 500 yards of Box Edging, thousands of Aucubas of various sizes, 2000 strong Irish Ivies, 6 to 9 feet in pots; 5000 bushy green Euonymus, 1 to 3 feet, fine stuff for potting; extra strong trained Fruit trees, choice Standard and other Roses, &c.

May now be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

The Royal Nurseries, Ascot, Berks.

PRELIMINARY NOTICE.

Important Four Days' Sale of remarkably well-grown NURSERY STOCK, in splendid condition for removal.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Standish & Co. to prepare for SALE by AUCTION, on TUESDAY, March 11, and three following days, many thousands of handsome CONIFERÆ and EVERGREEN SHRUBS of all sizes, also of choice AMERICAN PLANTS, a considerable number of FOREST and ORNAMENTAL TREES, TEA ROSES, and other Plants in pots.

More detailed particulars will shortly appear.

Preliminary Notice of

FORTHCOMING SALES of Nursery Stock, by Messrs. PROTHEROE AND MORRIS.

MARCH 5.—EXOTIC NURSERY, Tooting, S.W., by order of W. R. Parker. Annual Sale of extra thriving young Nursery Stock, Plants in pots, &c.

MARCH 7.—The NURSERY, Leigham Court Road, Streatham. Final Clearance Sale of the whole of the Valuable Nursery Stock. In good condition for removal.

MARCH 11 and 12.—The NURSERIES, Taunton, Somerset, by order of Mr. W. Hockin. Final Clearance Sale of the remaining Nursery Stock and Glass Erections.

Catalogues may be had at the Auctioneers' Offices, 98, Gracechurch Street, E.C.

Surrey (4560), 3 miles from London Bridge.

FOR SALE, a small FLORIST'S and JOBBING BUSINESS. Rental nominal. Price for Stock, six modern Greenhouses, 21 years' Lease, &c., only £400. Good cause for disposal. Details and orders to view of PROTHEROE AND MORRIS, as above.

Herts (4577).

TO SELL, a BUSINESS, in good position, near a Station. Dwelling-house and Shop, over 2 acres of Land, and over 3000 feet super of Glass. Rent £50. Price for Lease, some Glass Erections, and good Stock, £450. Orders to view of

PROTHEROE AND MORRIS, as above.

To Florists, Gardeners, Fruiterers, and Others.

TO BE SOLD, IMMEDIATELY, a thoroughly genuine BUSINESS, situate main thoroughfare, S.E. Incoming £220, or any reasonable offer. Proprietor having so much on his hands and illness sole cause of selling. Every facility given. Address, for fuller particulars, &c., A. B. Z., *Gardener's Chronicle* Office, W.C.

Nursery and Market Garden.

TO BE DISPOSED OF, a small NURSERY and MARKET GARDEN, with good connection, in a thriving neighbourhood. No other Nursery within 30 miles. For particulars apply to

H. W. HUMPHREYS, Seedsman, Bangor.

FOR SALE, 200 Acres of good LAND, being Lot 7 on the 8th concession of Vesper Township, with House and Barn, and 40 Acres of clearing, about thirty-four of which are under grass and six will be cropped. There is a good spring of water, which might be diverted for irrigating purposes. It would make a good Stock Farm when cleared. The timber consists of Cedar, Black Ash, Tamarak, &c., and suitable for fencing, railway ties, &c. The Mining Road touches the top corner of the Farm and the North Simcoe Railway the bottom corner. There will be a station close by, and two stores and several churches, and blacksmith and wheelwright's shops on the adjoining concession. The distance from Barrie, the county town, is about 8 miles. The price is £700, half of which might remain on mortgage at 8 per cent.

Apply to JOHN MORREN, Minesing, near Barrie, Ontario, Canada.

FOR DISPOSAL, a FLORIST'S and FRUITERER'S BUSINESS, doing a good trade at full prices. First-class West-end thoroughfare. Very attractive Shop, Large House and Garden. Rent nearly cleared. Only £150 required for Lease, Stock, Fixtures, &c. Owner taking a country nursery.

Mr. E. MORLEY, Auctioneer and Valuer, 27, Edgware Road, W.

Horticultural Valuations.

MR. EDWIN COOLING, LICENSED VALUER, undertakes the VALUATION of all kinds of HORTICULTURAL PROPERTY. Terms on application. Mile Ash Nurseries, Derby.

SUTTON'S PAMPHLET

on Laying Down and Improving LAWNS, CROQUET GROUNDS and CRICKET GROUNDS.

May be had gratis, post-free, of SUTTON AND SONS, The Queen's Seedsmen, Reading.

HEPATIC A TRILOBA, Double Blue.—

Strong plants, 36s. per 100. CUCUMBER, Rolleston's Telegraph, and ABIES DOUGLASII, true seeds, to be sold cheap. A. RIEMSCHEIDER, Nurseries, Brandenburg-on-Havel, Germany.

15,000 Irish Ivies in Pots.

W. FROMOW has the above, strong, from 2 to 12 feet high, and other Green and Variegated varieties, at low prices for Cash, delivered free within 6 miles of Nursery.

Sutton Court Nursery, Turnham Green, London, W.

The Finest Primula of the Season.
First-class Certificate, R. H. S.
Jan. 14, 1879.

SUTTON'S RUBY KING.—
"Most striking and magnificent in appearance."—*Gardeners' Chronicle*.
Price 5s. per packet, post-free.

The Finest Primula of the Season.
Large Silver Banksian Medal, R. H. S.
Jan. 14, 1879.

SUTTON'S RUBY KING.—
"Quite surpasses all the crimson Primulas we have hitherto seen."—*Gardeners' Magazine*.
Price 5s. per packet, post-free.

The Finest Primula of the Season.
Deep Blood Red. Perfectly distinct.
SUTTON AND SONS, The Queen's Seedsmen, Reading, Berks.

SUTTON'S RUBY KING.—
"The most beautiful of the Chinese Primulas."—*Garden*.
Price 5s. per packet, post-free.

HOOPER'S ROUND WHITE POTATO. Price 35s. per bushel, 10s. 6d. per peck.
HOOPER AND CO., Covent Garden, London, W.C.

HOOPER'S ROUND WHITE will please alike Gardener and Farmer.

HOOPER'S ROUND WHITE is handsome, prolific, and of UNEQUALLED QUALITY FOR TABLE. No coarseness, no earthiness, no disease.

CATALOGUES.—His Excellency Pierre Wolkenstein will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to
S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

CELOSIA PYRAMIDALIS PLUMOSA AUREA and RUBRA, saved from an extra choice strain. Per packet, 2s. 6d. and 5s. each.

EAST LOTHIAN INTERMEDIATE STOCK, in four colours, warranted true. Per packet 1s., 2s. 6d. and 5s. each. Trade Price on application.

IRELAND and THOMSON, 20, Waterloo Place, Edinburgh.

SCIADOPITYS VERTICILLATA (Sieb. and Zucc).—From this fine Coniferous plant I expect good Growing Seed from Japan in March, which I can offer at 10s. 6d. per ounce, with usual allowance to the Trade.

FRIEDRICH ADOLPH HAAGE, Jun., Nurseryman and Seedsman (Established 1822), Erfurt, Prussia.—January, 1879.

KENTISH FRUIT TREES, of every description, in 300 varieties, including some Dwarf Pyramid Fruiting APPLES, suitable for windy districts, at extraordinary low prices. Before purchasing elsewhere, send for SPECIAL LIST to
T. EVES, Gravesend Nurseries.—Established 1810.

Economy in the Garden.
TO LARGE CONSUMERS.
JAMES CARTER AND CO. being *bonâ fide* growers of the seeds they offer, are enabled to place PUBLIC INSTITUTIONS, HOTEL-KEEPERS, &c., on the most liberal terms. State quantities and sorts required to CARTERS, The Queen's Seedsmen, High Holborn, London.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers AZALEA INDICA of all sizes, AZALEA MOLLIS, and A. PONTICA; CAMELLIAS, DEUTZIA GRACILIS, DIELYTRA SPECTABILIS, SPIRÆA JAPONICA, PALMS for Table use, DRACÆNAS, FERNS, and YUCCA VARIEGATA. CATALOGUES free on application.

SELECTED SEED POTATOS.—50 tons CHAMPION, grown on new land on the banks of the Solway.
50 tons IMPROVED VICTORIAS.
50 tons REGENTS, and other sorts. Prices and LIST on application.
LITTLE and BALLANTYNE, Seed Growers, Carlisle.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to offer :—5000 LAURELS, Portugal, 3 to 4 feet.
5000 YEWs, English, 3, 4, 5, and 6 feet.
5000 FIRs, Spruce, 3, 4, 5, and 6 feet.
5000 HOLLIES, Green, 2, 3, and 4 feet. Price on application.

SCOTCH FIR, LARCH, Seedling and Transplanted, for sale cheap. Carriage paid to London. LEVAVASSEUR and SON, Nurserymen, Ussy (Calvados), France.

Seeds of Superior Quality.
W. M. CUTBUSH and SON beg to announce that their Illustrated CATALOGUE of Select Vegetable and Flower Seeds, &c., is now ready, and will be forwarded post-free on application.
Highgate Nurseries, London, N., and Barnet, Herts.

W. M. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf ROSES, FRUIT TREES of all sizes, Scarlet and other RHODODENDRONS well set with buds, CONIFERÆ and EVERGREENS, and DECIDUOUS TREES for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

VERBENAS, VERBENAS, VERBENAS.—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s. Terms cash.
H. BLANDFORD, The Dorset Nurseries, Blandford.

SEAKALE, RHUBARB and ASPARAGUS.—A quantity of extra fine for Forcing and Planting. Prices to the Trade on application to
J. COOPER, Market Gardener, Balfour Cottage, Fulham Fields, S.W.

Caution.—Sutton's Novelties.
MESSRS. SUTTON find it necessary to state that their Novelties can only be had direct from them. Every packet bears their Registered Trade Mark. Descriptive particulars on application.
The Queen's Seedsmen, Reading, Berks.

KING NOBLE.

THE FINEST FIRST EARLY POTATO.

"I obtained a splendid crop of KING NOBLE POTATOS, which are excellent for table. I think highly of it, and intend planting it next season."—W. ALLAN, *Gardener to Lord Suffield, Gunton Park, Oct. 11, 1878.*

THE MOST PROLIFIC FIRST EARLY POTATO.

"KING NOBLE is a most abundant cropper, and the tubers are of good quality."—JAMES PINK, *Gardener to Lord Sondes, Lees Court, Oct. 9, 1878.*

THE HANDSOMEST FIRST EARLY POTATO.

"Your Potato, KING NOBLE, which you sent me for trial, proved a very excellent sample, both in regard to its even, handsome, round shape, and cropping qualities."—WM. EARLEY, *Editor of "Villa Gardener," "Horticultural Record," &c., Oct. 7, 1878.*

KING NOBLE comes into use at the same time as the true Old Ashleaf, is of fine flavour, and cooks remarkably well. The tubers are medium sized, smooth, handsome, and shallow-eyed, and are produced in great abundance. KING NOBLE is of dwarf, compact habit (1 foot), and will be found most valuable for early frame work and market purposes.

KING NOBLE.

PRICE:

4s. per Peck of 14 lb.
14s. per Bushel of 56 lb.

CAN BE OBTAINED ONLY OF

DANIELS BROS.

Seedsmen to Her Majesty the Queen,
and His Royal Highness the Prince of Wales,
NORWICH.

EXHIBITION VEGETABLES and FLOWERS.—All who desire to win Prizes should send at once for CARTER'S STERLING NOVELTIES. It is a short Catalogue, profusely illustrated, and contains the best New Vegetables and Flowers of the year.

Gratis and post-free on application to
The Queen's Seedsmen, High Holborn, London, W.C.

Verbenas in Single Pots.

WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums.

WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

To the Trade.

OSBORN AND SONS can still supply a quantity of Dwarf Maiden PEACHES, NECTARINES and APRICOTS, and a few Standards.

Also the following FRUIT TREE STOCKS:—Common, Brussels, and Mussel Plum, Pear, Paradise and Quince. Prices on application.

The Fulham Nurseries, London, S.W.

YEWs.—3½ to 4½ feet, 90s. per 100; 3 to 4 feet, 84s. per 100; well adapted for hedges, &c.; also some prime well-rooted Green HOLLIES, 1 to 3 feet; in good condition for hedges; all recently moved in good condition.
JOSEPH SPOONER, Woking, Surrey.

STOCK SEED.—A quantity for Sale, of Scarlet, Purple and White, new seed.

Also about 30 bushels of Myatt's Ashleaf Kidney POTATO.

Price on application to
J. COOPER, Market Gardener, Balfour Cottage, Fulham Fields, S.W.

The Best Cauliflower.

SUTTON'S KING of the CAULIFLOWERS, dwarf, compact, very large, firm, beautifully white heads.

From Mr. JOHN CLARK, Gr. to the Most Noble the Marquis of Ripon.—"Your King is a very dwarf, good strain of Cauliflower, producing firm and beautifully white heads."

15s. 6d. and 2s. 6d. per packet, post-free.

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

To the Trade.

POTATOS.—Myatt's Prolific Early Kidney, 45s. 5s. per ton; Early Rose Kidney, 46s. 6s. per ton. Fine and good samples, to be sold for prompt cash. Free on rails. New 4 lb. bushel sacks, 1s. 2d. each.
W. W. JOHNSON and SON, Seed Growers and Merchants, Boston, Lincolnshire.

J. R. PEARSON'S CATALOGUE of NEW GERANIUMS, including the three beautiful NEW CAPE PELARGONIUMS which were certificated at the Preston Show, is now ready, and will be forwarded on application.
Chilwell Nurseries, Notts.

CHEAP ORCHIDS.—Good flowering Bulbs of Calanthe vestita rubra and Pleione Wallichii, 18s. per dozen, or 46s. per 100. Also a few good plants of Cologynue cristata. Apply to
S. WOOLLEY, Cheshunt, Herts.

Roses, Roses.

DOWNIE and LAIRD are now sending out the above, the Finest Varieties in Cultivation, at 9s. per dozen, selection left to D. & L.
Royal Winter Gardens, Edinburgh.

Special Offer.

W. M. AND D. STEWART have large quantities of fine transplanted LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Prices on application.
Ferndown Nurseries, Wimborne, Dorset.

WEBB'S PRIZE COB FILBERTS AND OTHER NUTS.

Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to
THE MANAGER, Calcot Gardens, Reading.
CATALOGUES post-free on application.

WEBB'S CHOICE POLYANTHUS AND OTHER SPRING PLANTS.

Early orders are solicited for the above choice plants. Apply to
THE MANAGER, Calcot Gardens, Reading.

Dahlia Pot Roots.

THOMAS BURY begs to offer the above, in all the leading varieties, at 18s. per 100. Cash with order,
The Nurseries, Osbaldeston, near Blackburn.

To the Trade.

SEED POTATOS.—Our SPECIAL LIST, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application.
H. and F. SHARPE, Seed Growers, Wisbech.

Genuine Seeds.

JOHN LAING AND CO.'S Annual CATALOGUE of Kitchen Garden, Flower and Farm Seeds and Implements, will be sent free to all applicants. Orders above 20s. carriage paid.
Stanstead Park, Forest Hill, London, S.E.

BLACKTHORN for Covert Planting, one million of strong transplanted, 10s. to 15s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

Planes and Limes.

WM. PAUL AND SON have a large Stock of PLANES and LIMES, from 3 to 20 feet high, from 20s. per 100, to 15s. each.

PAUL'S Nurseries, Waltham Cross, N.

SEED POTATOS.—

Snowflake and Late Rose, 10s. per cwt.
Red-skinned Flourball, 7s. per cwt.
Price per ton on application.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton

To the Trade.

CEANOTHUS DENTATUS.

JAS. GARAWAY AND CO. offer Strong Plants of the above, in pots, 6s. per dozen, 40s. per 100.
JAS. GARAWAY AND CO., Durham Down, Clifton, Bristol.

PHEASANT-EYED NARCISSUS.—Bulbs of this sweet-scented Narcissus, 10s. per bushel, 6s. per ½ bushel, 3s. 6d. per peck. Terms cash with order. Package free. Post-office orders payable at Vauxhall Cross to Mrs. J. E. ALDERSON, Langley Lane, South Lambeth, Surrey.

ASTERS, STOCKS, BALSAMS, &c.—Get your supply of the above direct by post from the best growers in Germany, and save from 20 to 30 per cent. on prices usually charged.

For particulars and Priced LIST (gratis and post-free), DURANT AND SONS, North Tawton, Devonshire

The Best Early Pea.

SUTTON'S EMERALD GEM.

From Mr. P. PIRIE, Gr. to the Right Hon. Lord Stanley of Alderley.—"Your Emerald Gem Pea is the earliest variety I have grown. Sown with other early sorts it came in fully a week before them, and is very productive and of good flavour."

Price 2s. 6d. per quart.
Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

Choice Herbaceous Calceolarias.

1s. 6d., 2s., and 3s. per dozen, post-free.

WM. POTTEN'S CATALOGUE of good Seeds at moderate prices. Post-free to all applicants. Camden Nursery, Sissinghurst, Staplehurst, Kent.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Three Really Good Things.

CUCUMBER.—New Improved Telegraph, 12 seeds, 1s. per packet.
GOURD.—Petition or Mammoth, 1s. per packet.
CELERY.—Dixon's XL, red, 1s. per packet.
1 packet of each for 30 stamps, post-free.
JOHN E. DIXON, Seedsmen, Gainsborough.

Special Cheap Offer.

To SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 12s. per quarter. Samples on application to W. BALL AND CO., Bedford Road Nursery, Northampton

STANDARD ROSES, 3 to 4 feet stems, with good heads, 75s. per 100.
J. IRELAND, The Nurseries, Rawleigh, Barnstaple, Devon.

MAHONIA AQUIFOLIA.—Transplanted, 6 to 12 inches, 12s. per 1000; 1 to 1½ foot, 20s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

STOCK PLANTS of VERBENAS.—We have at the present time a large stock of the above, which for vigour and freedom from disease cannot be surpassed; they are very bushy, and bear already large quantities of clean healthy cuttings. Price 16s. per 100, or 140s. per 1000.

LIST of 42 sorts may be had on application to

KEYNES AND CO., Salisbury.

A few good STANDARD and DWARF ROSES still unsold.

SCOTCH GROWN SEED POTATOS.—The following unsurpassed main crop varieties, genuine and sound, viz.:—Dalmahoy Early, Edinburgh or Red Bog Early, Fortyfold, Dunbar Regent, Paterson's Victoria, Walker's Early Regent, and Rintoul's Early White Don, 5s. per bushel. CHAMPION REGENT, true, 4s. per bushel.
TODD AND CO., Seedsmen, Maitland Street, Edinburgh.

To the Trade.

MR. H. BENNETT has Surplus Stock to offer of DWARF ROSES, Madame Rothschild, Marquise de Castellane, Etienne Levet, Duchesse de Valombrosa, and Madame Prosper Langier. Also TEA ROSES (on seedling Brier stock) of old Devonensis, Catherine Mermet, and Marie Van Houtte. Price on application.
Manor Farm Nursery, Stapleford, Salisbury.

ASPARAGUS, ASPARAGUS.—Strong roots, 2-yr. old, Conover's Colossal and Giant, 15s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

Cabbage Plants.

CABBAGE PLANTS.—Can now supply the following good strong healthy plants:—Early Battersea, Early Nonpareil, Early Enfield Market, Early Oxheart, Robinson's Drumhead, and Red Pickling Cabbage. Prices on application.
W. VIRGO, Womersley Nurseries, near Guildford.

Pure Seed Potatoes.

All Potato Growers, previous to making their purchases of Seed Potatoes, will do well to send for

D. BRINKWORTH AND SONS' Special SEED POTATO CATALOGUE, containing all the best English and American varieties grown especially for Seed, and of the choicest quality. Cheaper than any other grower. Post-free to all applicants.

D. BRINKWORTH AND SONS, Potato Growers, Reading, Berks.

CHOICE FLOWER SEEDS.



JAMES VEITCH & SONS,

ROYAL EXOTIC NURSERY,
KING'S ROAD, CHELSEA, S.W.

AQUILEGIA CALIFORNICA HYBRIDA.

Novelty, a very beautiful and distinct variety.
Per packet, 1s. 6d.

AQUILEGIA CÆRULEA HYBRIDA.

Novelty, a charming variety. Per packet, 1s. 6d.

BEGONIA.

Finest Hybrid, carefully hybridised, and saved from our celebrated collection. Per packet, 2s. 6d.

CALCEOLARIA.

International Prize Strain. Per packet, 2s. 6d.

CALCEOLARIA.

Dalkeith Strain. Per packet, 2s. 6d.

CELOSIA PYRAMIDALIS PLUMOSA.

A very choice strain, selected with great care. Per packet, 1s.

CINERARIA.

Veitch's Superior Strain. Per packet, 2s. 6d.

CINERARIA.

Covent Garden strain, fine habit, large showy flowers.
Per packet, 2s. 6d.

COCKSCOMB.

McLachlan's Glasgow Prize Dwarf Crimson. A remarkably fine variety, with very large combs of brilliant deep crimson. Per packet, 2s. 6d.

CYCLAMEN PERSICUM.

Finest Prize Strain. Per packet, 2s. 6d.

ESCHSCHOLTZIA CROCEA FLORE-PLENO.

Flowers of a bright orange colour. Per packet, 2s. 6d.

ESCHSCHOLTZIA MANDARIN.

Novelty, a beautiful and distinct variety. Per packet, 1s. 6d.

GLOXINIA.

From our superb collection. Per packet, 1s. 6d.

MIGNONETTE, MILES' NEW HYBRID SPIRAL.

A new and very distinct variety. Per packet, 1s.

MIGNONETTE, QUEEN VICTORIA.

An exceedingly fine stout-growing variety, of pyramidal branching habit, with large, rich, orange-coloured flowers.
Per packet, 6d.

PETUNIA GRANDIFLORA FIMBRIATA FLORE-PLENO.

New large-flowered, double fringed Petunias.

Per packet, 1s. 6d.

PETUNIA HYBRIDA.

Choice striped varieties, in superb mixture. Per packet, 1s.

PRIMULA SINENSIS FIMBRIATA.

Veitch's Superb Strain, Red, White, and Mixed.

Each, per packet, 2s. 6d.

Our Primulas were awarded a Special Certificate by the Royal Horticultural Society, for superior quality.

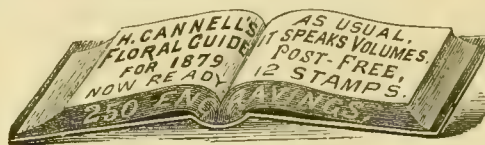
"Messrs. Veitch exhibited a group of Primulas which admirably represented their splendid strains of these flowers."—*Vide Gardeners' Magazine*, January 18, 1879, in their report of Special Primula Show, Royal Horticultural Society.

STOCK, EAST LOTHIAN.

A splendid variety, of dwarf compact habit, and very double. Per collection of three colours, Scarlet, White, and Purple.
Per packet, 2s. 6d.

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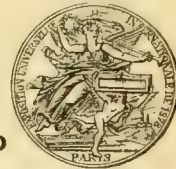
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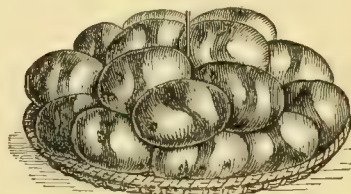


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| „ Fytchianum | 3 6 |
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| „ thyrsoflorum | 7 6 |
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| LÆLIA albidula | established 3 6 |
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| „ Perinii | 7 6 |
| LYCASTE Skinneri | 5 0 |
| MASDEVALLIA Davisii | 7 6 |
| „ Harryana | 10 6 |
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| ODONTOGLOSSUM cirrhosum | 3 6 |
| „ cordatum | 5 0 |
| „ grande | 5 0 |
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| „ hastilabium | newly imported 5 0 |
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| ONCIDIUM concolor | 10 6 |
| „ Forbesii | 7 6 |
| „ Kramerii | 5 0 |
| „ varicosum | established 5 0 |
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Larger plants of the above at proportionate prices.

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100,000 1-yr. cultivated Seedling **BRIERS**, extra fine stuff, 20s.
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Extra fine Dwarf-trained **PEACHES**, **NECTARINES**,
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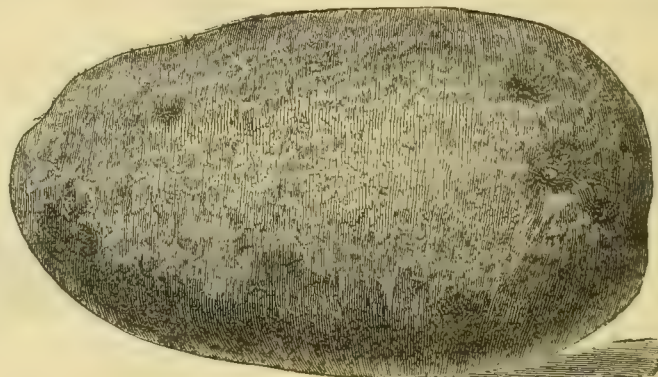
To Gentlemen, Builders, and the Trade.

ROBERT AND GEORGE NEAL,
Wandsworth Common and Garrett Lane Nurseries,
beg respectfully to call attention to their large and varied Stock
of **HARDY ORNAMENTAL FOREST FRUIT TREES**
and **SHRUBS**, which are grown at their Nurseries, especially
those Trees, &c., which are most suitable for growing in or near
large towns. An early inspection invited. All goods delivered
free on rail in London, or at own residence, within five miles
of the Nurseries.

CATALOGUES free by post on application.

NEW SEEDLING POTATO FOR SPRING, 1879.

THE
FINEST
MAIN CROP



POTATO
EVER
RAISED.

JOHNSTON'S DOWNSHIRE.

This variety is of Irish origin, raised by Wm. Johnston, Esq., M.P., Ballykilbeg, and
selected by him from a large number of Seedlings, after repeated trials, for its extra fine Culinary,
Disease-resisting, and Late-keeping qualities, being beautifully white, dry, and mealy when
cooked, and of the most delicious flavour—keeping good for cooking from early Autumn till
following June.

As a food producer this Potato must be placed in the foremost rank.

Grown for trial by us last season, under ordinary cultivation, with some 500 other kinds, it
produced at the rate of upwards of 400 bushels per acre of sound, marketable tubers, of an
Improved Victoria type—eyes rather fleet, skin roughly netted and of a light red colour.

Stock very limited. Can be obtained only direct from us.

Price 2s. per lb., 7 lb. 12s.

No Customer will be supplied with more than 7 lb.

DANIELS BROS.,
SEEDSMEN TO THE PRINCE OF WALES,
NORWICH.

WEBB'S IMPROVED SCHOOLMASTER POTATO—This splendid new round Potato is of extraordinary flavour, and unequalled for general purposes. It is a great cropper, producing tubers of large size, uniformly round and handsome, with shallow eyes; skin white and rough, flesh snowy white and very mealy. It is free from disease, and a superior exhibition variety. Price 6s. per peck of 14 lb., or 21s. per bushel of 56 lb.

WEBB AND SONS being probably the largest growers of Seed Potatoes in the kingdom, can offer the above and other excellent varieties in large quantities on advantageous terms.

Potatoes of 20s. value carriage free; 5 per cent. discount for cash.

WEBB AND SONS, The Queen's Seedsmen, Wordsley, Stourbridge.

New Verbenas for 1879.



MR. WILLIAM BULL will send out about the MIDDLE of APRIL NEXT the following six NEW VERBENAS, which are a Selection made from the handsome Varieties raised by J. F. Mould, of Pewsey. These Verbenas have attracted considerable attention in the West of England, and a notice of them appeared in the *Gardeners' Magazine* of October 19, 1878. They are remarkable for the size and fine form of their flower-pips, their huge trusses, freedom of growth, distinct colours, and profusion of bloom. They are good and desirable both for bedding purposes and for exhibition.

CLEOPATRA, waxy cream white, suffused with pink; a fine, round, well-formed flower. 3s. 6d.

CYPRUS, bright scarlet-crimson, with white eye; very large, finely-shaped pip; immense truss. 3s. 6d.

EARL OF BEACONFIELD, delicate flesh colour, suffused with magenta-rose; bright centre. 3s. 6d.

HOGARTH, deep velvety crimson, shaded with chocolate; small white eye, surrounded with magenta-purple. 3s. 6d.

LORD SALISBURY, lively plum colour; a fine flower, of good form; very rich and distinct. 3s. 6d.

VANDYKE, fine deep velvety crimson, shaded with maroon; purplish magenta centre; immense pip and truss. 3s. 6d.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

"A Catalogue without Padding."

W. THOMPSON, SEEDSMAN, 34, Tavern Street, Ipswich, respectfully announces that the twenty-fourth annual issue of his FLOWER SEED CATALOGUE is now ready, and will be sent free to any address. It comprises more than 2000 varieties, including many new, rare, and choice seeds.

Hardy Bedding and Decorative Plants.

ROBERT PARKER begs to announce that his New CATALOGUE is now published, containing select descriptive and Priced Lists of Hardy Aquatic, Bog, and Marsh Plants, Asters (Herbaceous), Chrysanthemums (early flowering bedding varieties), Delphiniums, Fruit Trees, Helianthemums, Iris germanica, miscellaneous Hardy Bedding and Decorative Plants, Pæonia sinensis, Phlox (Herbaceous), Pentstemons, Potentillas, Pyrethrums, Sweet Violets, &c. Exotic Nursery, Tooting, Surrey, S.W.

Sutton's Superb Primula.

SUTTON AND SONS offer New Seed of this fine strain. Red, white, and mixed, 5s. and 2s. 6d. per packet, post-free.

Mr. J. CLARKE, Gr. to Lord Hastings, in the *Gardeners' Chronicle*, December 21, 1878, says:—"Sutton's strain of Primula I can truly assert is the most carefully selected I have ever grown. The plants are one and all as true as possible. They have been greatly admired."

Send for SUTTON'S LIST of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

HENDER AND SONS' Strain of PETUNIA GRANDIFLORA, the Finest in Cultivation.

Mr. W. Paterson, *Gardener* to Her Majesty the Queen, *Balmoral*, says:—"Your Petunias are very fine, indeed they are the finest lot of seedlings I have ever seen; and if their merits were fully known to the public you would be sure of a good sale for your seeds. Please send me a packet."—Oct. 1875.

Per Sealed Packets, 250 seeds, 2s.

W. HENDER AND SONS, Bedford Nursery, Plymouth.

"Edelweiss."

G NAPHALIMUM LEONTOPODIUM (Jacq.)—Packets, containing 1000 Seeds, 4s. 6d., may be had of all the leading Seedsmen. Orders have already been received from the following firms:—

| | |
|-------------------------|-------------------------------|
| STUART & Co. | 5, Tavistock Row, Covent Gar- |
| CHARLES SHARPE & Co. .. | Sleaford. [den, W.C.] |
| SUTTON & SONS | Reading. |
| WM. THOMPSON | Ipswich. |
| ED. HOLMES | Whittington, near Lichfield. |
| E. G. HENDERSON & SON | Pine-apple Nursery, Maida |
| | Vale, and Wellington Road, |
| | St. John's Wood, London. |
| F. & A. SMITH | Nurseries, West Dulwich, |
| | London, S.E. |
| F. SANDER & Co. | St. Albans. |
| S. FINNEY & Co. | Newcastle-on-Tyne. |
| WM. TATTERSALL | Ashton-under-Lyne. |
| THOS. WARE | Tottenham, London. |
| JAS. CARTER, DUNNETT & | |
| BEALE | High Holborn, London, W.C. |

Just received, **CLIANTHUS DAMPIERI**, fine new Seed. COBSEA SCANDENS. Price on application.

FRIEDRICH ADOLPH HAAGE, Jun., Seedsman, Erfurt.

To the Seed Trade.

MALDEN AND SON have to spare from 5 to 6 tons of their far-famed CHAMPION YELLOW GLOBE MANGEL WURZEL SEED, and 2 to 3 tons of BERKSHIRE PRIZE. The above are nett crop 1878. Good sample and undeniable stock.

Also to spare, 10 to 12 cwt. WHITE GLOBE ONION SEED, nett crop 1878, grown from large selected bulbs: finest stock in England.

Also about 100 bushels of THOUSAND-HEADED CABBAGE SEED, first-class stock, nett crop 1878. Also several hundred thousand of DRUMHEAD CATTLE CABBAGE PLANTS, and some quantity of EARLY ENFIELD and EARLY YORK, at 2s. 6d. per 1000, at Biggleswade Station; and several thousands of RED PICKLING CABBAGE PLANTS, at 3s. 6d. per 1000.

Early orders will have immediate attention. MALDEN AND SON, Seed Growers, Biggleswade, Beds.

SEAKALE for FORCING.—Extra fine large roots, none to excel the size of them in growth; 10s. 6d. per 100, and 1s. packing.

ASPARAGUS, RHUBARB, and Ashleaf Kidney POTATOS: price on application.

A remittance to accompany all orders.

ALFRED ATWOOD, Market Grndener, 8, Palk Road, Battersea, S.W.

One Penny Each

GLADIOLUS BRENCHELEYENSIS.—The finest scarlet Gladiolus in cultivation, also FLORIBUNDUS, nearly pure white, fine sound Flowering Bulbs, any quantity, from 1 to 10,000, at the above price. A few thousand Smaller Bulbs, mixed, at 5s. per 100. Also HOLLYHOCKS, fine seedling plants, at 3d. each, 2s. 6d. per dozen, 5s. per 100. Double DAISIES, Red, White, and Hen-and-Chickens, 5s. per 100; Double dark Crimson, 6s. per 100.

CATALOGUE for 1879, containing 500 Illustrations, post-free for 1s.

BIDDLES AND CO., The "Penny Packet Seed Company," Loughborough.

Lily-white Seakale.

STUART, MEIN AND ALLAN, knowing the above to be a great improvement on the old variety, have grown it extensively, and are prepared to offer it at a cheap rate, viz., 20s. per 100.

Shirley Hibberd says:—"When I saw your dozen roots in the forcing-pit, by the side of our own, I was astonished at the distinction . . . and was white as snow." See also *Gardeners' Magazine* of January 11.

Kelso, N.B.

W. M. CLIBRAN AND SON'S

PLANTS for the GARDEN and CONSERVATORY are unsurpassed for correctness of nomenclature, lowness of the prices, high quality of the varieties grown, strength and hardiness of the plants.

All lovers of hardy FLORISTS' FLOWERS, such as Carnations, Pinks, Picotees, Pansies, Phloxes, Delphiniums, Pyrethrums, Potentillas, Pentstemons, Antirrhinums, Pæonias, &c., and of Herbaceous and Alpine plants, Roses, &c., should read our CATALOGUE and compare our Prices before ordering elsewhere.

All growers of beautiful SPRING FLOWERING PLANTS, Hepaticas, named and seedling Polyanthus, Double and Single Primroses, and all other Spring Flowering Plants or Bulbs, should look over our LISTS of above.

All who possess Conservatories, Stoves, or Greenhouses, and require STOVE or GREENHOUSE PLANTS, beautiful tuberous Begonias, the finest old and new varieties of Fuchsias, Chrysanthemums, Geraniums of all classes for winter or summer bloom, or any indoor plants, may read our CATALOGUE with the certainty of finding almost, if not quite, all they require, at reasonable (not fancy) Prices, and select from LISTS comprising the choicest sorts of their respective classes, and not surpassed by any offered in this paper.

FLOWER SEEDS of all kinds for pot culture and garden decoration of the choicest strains, as good in quality as can be bought.

CATALOGUES of Seeds, Florists' Flowers, Bedding Plants, Spring and Carpet Bedding Plants, Stove and Greenhouse Plants, Herbaceous and Alpine Plants, for home growing or exhibition, on application; also of Roses, Fruit Trees, Evergreen and Deciduous Shrubs and Trees, &c.

The Oldfield Nursery, Altrincham, Cheshire.

ODONTOGLOSSUM LONDESBOROUGHIANUM (Reichenbach).

On the 20th inst. we propose to SELL, at STEVENS' ROOMS, 38, King Street, Covent Garden, W.C., 235 Plants of this magnificent NEW ORCHID. Our Collector has sent all that he could find, and we have decided at once to offer the GREATER PORTION for Public Sale. We reserve some for home-growth, and may, from time to time, offer a limited number, along with other Orchids, but we wish it to be clearly understood that *no future Sale will, so far as we are concerned, offer any opportunity for purchase like the present.*

The Plants are in very good condition. Our Collector states that this noble species makes arched, branching spikes, bearing as many as forty flowers on one stem. The individual blossoms are large and showy, pure yellow, heavily and richly barred on the sepals and petals with concentric bars of crimson.

At the same time we shall offer fine Plants of the rare

Mexican "Lady's Slipper,"

CYPRIPEDIUM IRAPEANUM,

Which has pure yellow flowers of the form of *C. spectabile*, and 4 inches across—as many as seven flowers being borne on one spike. Nearly hardy.

EPIDENDRUM FALCATUM,

A rare and noble Orchid, with massive, fleshy, pendent leaves, and ivory white, each 4 inches across. Very distinct. Established plants.

LÆLIA PEDUNCULARIS,

A rare and very distinct species, recently received from our Collector in fine healthy tufts. Bears eight to ten lovely mauve-pink flowers with darker centres, on stem 1½ to 2 feet high.

Magnificent Masses will also be found of

LÆLIA ANCEPS, AUTUMNALIS and ALBIDA,

Epidendrum nemorale and *E. vitellinum majus*

(far exceeding any that we have ever hitherto offered). Several plants of the rare and charming

BARKERIA ELEGANS,

ODONTOGLOSSUM ROSSII MAJUS, CATTLEYA CITRINA, &c.

Noble Established Specimens will also be offered of

BOLLEA CELESTIS, BATEMANIA BURTII, PESCATOREA ROEZLII, MASDEVALLIA BELLA, ODONTOGLOSSUM VEXILLARIUM, O. PHALÆNOPSIS, O. NEBULOSUM, DENDROBIUM INFUNDIBULUM, &c.

Many of these are already showing bloom.


JOHN BACKHOUSE & SON, YORK NURSERIES.—Feb. 1879.

CARTER'S FLORAL NOVELTIES.

ESCHSCHOLTZIA "MANDARIN."

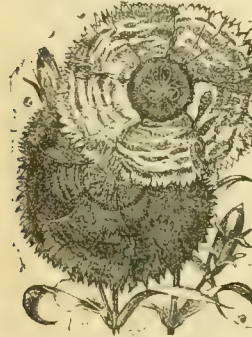


"Messrs. CARTER exhibited Eschscholtzia 'Mandarin,' the buds and exterior of the flowers being scarlet and the interior orange. It is the greatest advance in Eschscholtzias that has been yet seen, and will prove one of the most gorgeous of hardy annuals."—*Journal of Horticulture.*

 Mr. W. PATERSON, Head Gr. to Her Most Gracious Majesty the Queen, says:—"Eschscholtzia 'Mandarin' is a great improvement on the older sorts."—*Bul-moral.*

Price, in sealed packets, 1s. 6d. per packet, post-free.

CARTER'S NEW JAPANESE DIANTHUS.



Eastern Queen and Crimson Belle.

"Messrs. JAMES CARTER & Co. exhibited cut blooms of two varieties of Dianthus Heddewigii, named Crimson Belle and Eastern Queen. The size, substance, and richness of the flowers were remarkable. These varieties will be valuable for garden decoration, especially as they have been proved after some years of trial to come quite true from seed."—*Journal of Horticulture.*

The Collection, one packet each (sealed), price 2s., post-free.

CARTER'S NEW "EMPRESS" COCKSCOMB.



Unquestionably the finest strain in the country. Unrivalled as regards size by any we have ever seen. The comb of the specimen sent measured 3 feet 2 inches in length and 1 foot 4 inches across."—*The Garden.*

In sealed packets, Price 1s. 6d. per packet, post-free.

SWEET PEA. CARTER'S "VIOLET QUEEN."



"It is dwarfier in habit than the other varieties, and the seed is also quite distinct in appearance, the flowers ranging in colour from deep mauve of the keel to light violet of the guard petal, suggestive of the beautiful Bougainvillea.

Price, in sealed packets, 1s. per packet, post-free.

GILIA TRICOLOR RUBRO VIOLOCEA.





A charming annual with pretty puce or mauve-coloured flowers, very distinct.

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The Queen's Seedsmen,
HIGH HOLBORN, LONDON, W.C.

**TREE FERNS and PALMS.**
THE LARGEST AND BEST STOCK IN EUROPE.
ALSO MANY OTHER
MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,
Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.
WILLIAM BULL, F.L.S.,
Respectfully invites the Nobility and Gentry to an inspection of the above.
ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

EPIDENDRUM VITELLINUM MAJUS.

MESSRS. JAMES VEITCH & SONS
Having received a very fine importation of the above, in excellent condition, are enabled to offer good pieces at the following low Prices :—
First Size £1 10s. per dozen.
Second Size £3 0s. „
Third Size £8 0s. „
Many of the stronger pieces are showing flower.
ROYAL EXOTIC NURSERY, CHELSEA, S.W.


NOW READY, GRATIS AND POST-FREE,
DICK RADCLYFFE & CO.'S
PRIZE MEDAL SEEDS.

ILLUSTRATED CATALOGUE
OF

VEGETABLE, FLOWER, AND AGRICULTURAL SEEDS,
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D. R. & CO.'S COLLECTIONS OF VEGETABLE SEEDS.
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FLOWER SEEDS, in Collections, 42s., 21s., 10s. 6d., and 5s. each, post-free.
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ILLUSTRATED CATALOGUE OF SELECT VEGETABLE, FLOWER SEEDS, &c.,
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Many Seeds are home-grown, and all are selected with the utmost care from the most celebrated stocks at home and abroad, in order to secure their Customers the best quality that can be obtained.
IMPORTANT.—Observe Christian Name—
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WALTHAM CROSS, LONDON, N.

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B. S. WILLIAMS' NEW AND CHOICE SEEDS FOR 1879.

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GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per pkt.
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GIGANTEUM, 5s. and 2s. 6d. per packet.
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finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.
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finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.
WEATHERILL'S CINERARIA, extra
choice mixed, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.
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BRIATA COCCINEA, new, 5s. and 3s. 6d. per packet.
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BRIATA, red, white, or mixed, 5s., 3s. 6d., 2s. 6d. and
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WILLIAMS' BEGONIA, New Bedding,
finest mixed, 2s. 6d. per packet.
WILLIAMS' SOLANUM HYBRIDUM,
Empress, new, 2s. 6d. per packet.
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ness, new, 2s. 6d. per packet.



COLLECTIONS OF CHOICE VEGETABLE SEEDS

FOR ONE YEAR'S SUPPLY.

- A COLLECTION, 10s. 6d.
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Illustrated Seed Catalogue,

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New and Choice

FLOWER and VEGETABLE SEEDS,

WITH

Beautiful Coloured Plate of the New
CYCLAMEN PERSICUM GIGANTEUM RUBRUM,
And numerous other Engravings,
POST-FREE.

All Seeds amounting to 20s. Carriage Free to any
Railway Station in England.

Flower Seeds Free by Post, except heavy kinds.

Victoria and Paradise Nurseries,
UPPER HOLLOWAY, LONDON, N.

PARIS EXHIBITION, 1878.



*The Medals of Paris for Vegetable
and Flower Seeds.*

EXCELLENCE COMBINED WITH ECONOMY.

Edw. Webb & Sons.
HOME-GROWN

VEGETABLE SEEDS.

PEAS.

WEBB'S TRIUMPH PEA (New).—A wrinkled marrow of
fine flavour, very prolific, the best for main crop. Per quart,
3s. 6d.

PEAS.

WEBB'S PERFECTION.—The earliest and most prolific.
Per quart 1s. 6d.

BEANS.

WEBB'S VICTORIA DWARF FRENCH.—A splendid
variety, remarkably prolific and of dwarf compact habit. Per
quart, 2s. 6d.

BEEF.

WEBB'S IMPROVED DARK RED.—Excellent for the
table. Splendid colour, very tender, and of delicious flavour.
Per ounce, 1s. 6d.

BROCCOLI.

WEBB'S CHAMPION.—The finest variety grown; should
be in every garden. Per packet, 1s.

BRUSSELS SPROUTS.

WEBB'S MATCHLESS.—A most excellent variety—unsur-
passed. Per packet, 6d. and 1s.

CABBAGE.

WEBB'S EMPEROR.—The best for general use. Very
hardy and early, with close, compact heads. Per ounce, 1s.

CAULIFLOWER.

WEBB'S EARLY MAMMOTH.—The best for main crop;
heads large, firm, and beautifully white. Per packet, 1s.

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WEBB'S MAMMOTH RED.—The hardiest Celery in com-
merce. A very large variety, of excellent flavour. Per pkt., 1s

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WEBB'S PERPETUAL BEARER.—Very free bearer, fruit
large, handsome, and of delicate flavour. Per packet, 2s. 6d.

LETTUCE.

WEBB'S SUMMERHILL CABBAGE.—The best summer
Lettuce that can be grown. It folds in quickly and is of
excellent flavour. Per packet, 1s.

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WEBB'S WOODFIELD.—An exquisite green-fleshed variety.
Per packet, 2s. 6d.

POTATOS.

WEBB'S IMPROVED SCHOOLMASTER.—A splendid
new round variety, great cropper, of excellent flavour. Per peck,
6s.; per bushel, 21s.

RADISH.

WEBB'S EARLY FRAME.—The best early kind for
forcing. Per ounce, 4d.; per pint, 1s. 9d.

For full Particulars, and of other Varieties, see

WEBB'S SPRING CATALOGUE

For 1879.

Post-free 1s. Gratis to Customers.

THE QUEEN'S SEEDSMEN,
Wordsley, Stourbridge.



SATURDAY, FEBRUARY 15, 1879.

SELF-DEFENCE AMONG PLANTS.

(Concluded from p. 170.)

THE presence of poisonous alkaloids consti-
tutes another means of defence. Thus ru-
minants will not eat such plants as Nightshade
(Belladonna), Monkshood (Aconite), Hellebore,
Thorn-apple (Datura), Pæony, Veratrum, and
Hemlock (Conium). Many plants are protected
by their poisonous milky juices, as the Spurge
(Euphorbiæ), Poppy, Chelidonium, and others.
In the Strychnos nux-vomica the poison strychn-
ia is contained in the seeds, its whole object
being to prevent them and the young plants
contained in them from being injured; the
fleshy parts of the fruit being quite harmless
and eaten by the natives. This eatable
part surrounding the seeds entices birds
to swallow them, that they may be distri-
buted after and by passing through the
creatures' bodies. Bitter Almonds are com-
paratively safe from the attacks of mice,
whereas sweet Almonds are much injured by
them. In addition to an almost endless series
of poisonous plants, there are those which con-
tain essential oils having a pungent aromatic
odour or taste. Thus the Fennel, Anise, Cara-
way, and others, have otherwise unprotected
seeds, which are safe from the attack of birds
on this account. In Brazil, the Lime alone of
all the Orange tribe is distasteful to the leaf-
cutting ants, probably owing to an oil, similar to
that which gives the strong taste and odour to
Orange peel; and this fact has decided the fate
of the tree, for it is the only species of the tribe
which has been able to establish itself beyond
the limit of cultivation, the Orange, Citron, &c.,
only growing where protected by man. Turpen-
tine in Fir leaves serves as a protection against
cattle. The aromatic flavour of Mint is a
defence against browsing animals, and as it is
frequented by a large number of insects it
affords an analogy to the Nettles and Thorns
which are resorted to by butterflies and birds to
rear their young. Flowers are usually more
acid than the plants which bear them, and are
thus protected from destruction by browsing
animals and other foes, by being uneatable.
Caterpillars will die of hunger rather than eat
the flowers of the plants whose leaves form their
natural food.

There remain to be noticed certain means
of defence which concern the welfare of the
species more obviously than that of the indi-
vidual plant. For example, the nectar secreted
by a flower is but a bait to attract certain
insects, which, in obtaining this nectar, become
dusted with pollen; and in carrying this pollen
to other flowers of the same species cross-ferti-
lisation is effected. Many flowers are so con-
structed that the nectar can only be obtained
when the visiting insect has helped to fertilise
the flower, thus becoming delicate traps adjusted
to certain sized insects. Herein lies a danger;
for where a bee or moth pushing his way to the
nectar gets dusted with pollen in the proper
manner, an ant or other small insect might creep
in and steal the nectar without benefiting the
plant. So that creeping insects are all very
unwelcome visitors, and are as far as possible
excluded by flowers. The adaptations by which
this is effected form the subject of a highly
interesting book by Professor Kerner, of Inns-
bruck, entitled, *Flowers and their Unbidden*

Guests, recently noticed in these columns, p. 48. In connection with this part of the subject ants appear as robbers, against whose thefts self-defence in plants becomes necessary. The flowers of plants growing in water are usually unprotected except by the water, and none of the means which land plants are obliged to adopt are needed by them. These are of several kinds. The leaves of the Teasel join together round the stem, forming a cup in which the dew and rain collects, and which is remarkable from the numbers of dead insects usually found in it. Thus every pair of leaves forms a pool of water, effectually barring the progress of honey-seeking ants, whilst the number of bees around the flower-heads shows the presence of nectar, and the necessity for this protection. Another common form of defence is shown by the milky juices of plants becoming sticky on exposure to the air. Thus Professor Kerner found, by placing some ants on a Lettuce, that their feet pierced the epidermis of the plant sufficiently to cause the milky juice to flow; this quickly hardened so as partially to glue the ants on to the surface of the leaves, their struggles to escape making matters worse, and resulting in many of them being firmly glued down and killed outright. The flower-stalks of some plants are furnished with glands which secrete a sticky matter, thus preventing the ascent of creeping insects. A striking example of the economy of Nature is seen in the development of these protective glands; thus the *Polygonum amphibium* (so called from its habit of living either in water or on land) bears sticky glands on the land variety, whereas the water-inhabiting kind is quite smooth and glandless, no protection but the water being needed. In many flowers arrangements of hairs form effective defences against creeping insects, and much curious and interesting information on the subject will be found in Professor Kerner's book.

Dr. F. Darwin reminded his audience that his subject naturally leads the observer to make a far closer study of the minute details of plant structure than botanists are usually in the habit of doing. For example, the systematic botanist or the pure physiologist would attach little importance to a tuft of hairs, a region of sticky glands, a system of thorns, spines, stings, or the presence of aromatic substances and virulent poisons; whereas the man who associates distinct functions with all these details, and who strives to understand their collective influence on the economy of Nature as well as their origin, will be likely to discover in every minute detail of structure a clue to the uses it is intended to serve, and to trace their development through the principle of natural selection. *Abstract from a Lecture delivered at the London Institution by F. Darwin, Esq., M.B., M.A.*

New Garden Plants.

LIMATODES LABROSA.†

A very curious novelty. Mr. Harry Veitch kindly informs me it has bulbs like those of *Calanthe Veitchii*, that is, long and jointed in the middle. I have at hand a raceme quite like one of *Calanthe vestita*, hairy, rather loose, with membranous oblong acute bracts half as long as the hairy pedicelled ovaries. The flowers, of course, are very distinct from those of the just-named well-known plant. The sepals are ligulate acute, light yellowish brown, tinted with purple inside. Petals broader, purple inside. Lip angulate with prolonged spur, with a cuneate base and a much dilated, wavy blade, cucullate around the short column, retuse at the apex. It is light purple, white in the throat, covered with small dark purple spots. The spur proceeds not out of the base of the articulate lip, but from the very base of the column, just over the base of the prolongation, which is exceedingly curious when regarded morpho-

logically. It is cylindraceo filiform, acute, covered with short hairs, shorter than the stalked ovary. The column is semiterete, short, plump, white at base, light purple above and at the back, and white in front, with four light purple lines under the stigmatic hollow. It was introduced by Messrs. J. Veitch & Sons from Moulmein. *H. G. Rehb. f.*

DENDROBIUM LEUCOCHLORUM, n. sp.*

This makes one think at first sight of that group of *Stachyobia*, of which *D. barbatulum* may be regarded the type; but the flowers are single. They grow in pairs in the wild plant sometimes, as I see from old remainders. It has thin cylindrical shining bulbs with pelliculose sheaths, whose vascular bundles are rather prominent. These bulbs have thin, shining, very hard woody stalks, and at the very base of the thick bulbous part appears the fresh bulb, also stalked; sometimes it also proceeds from the base of the joints, stalked once more. Then from the joints of the stalk appear short sessile bulbs. Thus, the species would appear to be very curious as to its buds; yet it is to be wished that these statements may be contrasted for their constancy with richer materials, though I was assisted in a very satisfactory manner by Messrs. Veitch. Of the leaves I know nothing, yet from some old vascular bundles I might of course believe, which is almost probable, that they are flat. The flowers are as great as those of *D. sphegidioglossum* and *barbatulum* and *chlorops*. The peduncular base is covered with several small sheaths. Colour of flower is white. The long acute extinguiser-shaped chin spur nearly equals the stalked ovary, and is angulate, as if it were broken in the middle. Sepals triangular, lateral one, of course, extended in their part of the chin spur. Petals a little broader. Lip three-lobed, side lobes oblong, abrupt in the middle, anterior lobe protracted, broad, retuse. Disk between side lobe with short muriculi, radiating red veins over side lobes, also outside, where the surface is greenish. Column very short, with the three teeth of the androclinium, green on the back. Stigma with six triangular lobes—whether constantly or not may be seen. I found the same case in *Dendrobium Cambridgeanum* once, and later I saw but common stigmas. Of course I controlled all the described *Stachyobias*, in case it might be a starved variety of one. But no species is coincident. It comes from Moulmein, and flowered at the Royal Exotic Nursery of Messrs. Veitch, from where it was kindly sent (January). *H. G. Rehb. f.*

MEXICAN AND CENTRAL AMERICAN ORCHIDS

(AN ALPHABETICAL LIST OF ALL THE SPECIES HITHERTO PUBLISHED†),

WITH A SHORT HISTORICAL INTRODUCTION.

ALTHOUGH the sources of new species seem to be almost inexhaustible, the Orchid element in the flora of the world is probably better known than that of any other of equal extent and importance—better known in the sense that a larger proportion of existing forms have been collected, described, figured, and, it may be added, cultivated—yet no general synopsis of the genera and species has been published since the appearance (1830-1840) of Lindley's *Genera and Species of Orchidaceous Plants*. In the absence of such a work it is difficult for amateurs, and even for botanists having access to large libraries, to find the descriptions of many of the species. Dr. Reichenbach, as almost everybody knows, is working assiduously and almost continuously at this family; but it takes a long time to marshal probably not less than 4000 species into their proper places. Meanwhile the following list, though doubtless incomplete as to published species, and imperfect as to synonymy, may be found useful for reference, though limited to the Orchids of one part of the world. The publication of this preliminary list, too, may lead to greater perfection in its final form, which will include exact localities, collectors' names and numbers, and other details.

We have set down the probable number of species of Orchids at 4000, which may be wide of the mark, though it will do for our purpose. In the first

edition (1763) of his *Species Plantarum*, Linnæus enumerates only ninety-nine species of Orchids, including European; and the thirty epiphytal species are all referred to his genus *Epidendrum*. These are now separated under about sixteen genera, including such widely different types as *Maxillaria*, *Stelis*, *Vanilla*, *Aerides*, *Vanda*, *Dendrobium*, *Phalenopsis*, &c. Lindley (*l. c.*) describes very nearly 2000 species belonging to 300 genera; and now probably not less than 4000 species are known, though the increase in the number of genera may not exceed fifty.

Turning to the history of the cultivation of Orchids, *Bletia verecunda* appears to have been the first exotic Orchid cultivated in England; at least it is the first of which we have found any record. There is a fine coloured figure of it in John Martyn's beautiful *Historia Plantarum Rariorum* (1728-1735), bearing the name of *Helleborine americana*. It would seem that Aiton was not able to refer to Martyn's work, for he simply states (*Hortus Kewensis*, ed. i., 1789) that this plant was introduced by Houstoun before 1733. According to Martyn, Peter Collinson received a dry specimen of it from Providence Island, Bahamas, in 1731, from whom it is not recorded. Collinson, not despairing of their being life in the tubers, sent them to the garden of one Wager, where they were placed in a warm bark bed during the winter, and recovering health, they produced flowers the following summer. In Martyn's words: "Hanc plantam a Providentia Americæ insule, anno 1731, exsiccatam accepit Petrus Collinson, plantarum cultor eximius. Ille autem, de radice non desperans, misit eam ad hortum clarissimi Wageri, ubi pulvino cortice calenti per totam hyemem commissa, convaleuit, atque anno proximo flores suos ostendebat." Miller gives a representation of the same Orchid in his *Figures of the Most Beautiful Plants* (1760), and in the *Botanical Magazine* it appeared at plate 930 as *Limodorum altum*. *Liparis liliifolia*, North America, was cultivated by Collinson in 1758. The beautiful *Calopogon pulchellus*, from North America, was introduced in 1771, by W. Malcolm, and again (accidentally) in 1788. It is figured in the *Bot. Mag.*, t. 116 (1790), under the name *Limodorum tuberosum*, with the following history:—"For this rare plant I [William Curtis] am indebted to the very laudable exertions of a late gardener of mine, James Smith, who in the spring of the year 1788, examining attentively the bog earth which had been brought over with some plants of the *Dionæa muscipula*, found several small tooth-like knobby roots, which being placed in pots of the same earth, and plunged into a tan-pit having a gentle heat, produced plants the ensuing summer, two of which flowered, and from the strongest of those our figure was taken." Soon after this, about the year 1778, *Phajus grandifolius* was imported from China by Dr. Fothergill, and a full-size coloured figure of it is given in the first edition of the *Hortus Kewensis*, with the name *Limodorum Tankervilleæ*.

The remaining Orchids enumerated in the work just mentioned are, exclusive of British species:—*Satyrium carneum* and *S. parviflorum*, Cape of Good Hope, Masson, 1787; *Platanthera fimbriata*, Canada, W. Pitcairn, 1777; *Nigritella angustifolia*, Continental Europe, Rev. S. Goodenough, 1779; *Serapias Lingua*, Southern Europe, Sir Francis Drake, 1789; *Arethusa bulbosa*, North America, W. Young, 1784; *A. ciliaris*, Cape, Masson, 1787; *Cypripedium album*, North America, W. Young, 1770; *C. acaule*, North America, 1786, W. Hamilton; and *Epidendrum cochleatum*, West Indies, Alex. Anderson, 1786; or altogether fourteen species. But this number was largely increased (mainly through the exertions of Masson at the Cape, and Rear Admiral Bligh and Sir Joseph Banks in various other parts of the world) before the publication of the fifth volume of the second edition of the *Hortus Kewensis*, in 1813. This contains eighty-four species belonging to thirty-nine genera. Sweet's *Hortus Britannicus*, second edition, 1830, contains, inclusive of British, 405 species referred to 110 genera. Loddiges' catalogue for 1825 contains thirty-one genera and eighty-four species. Now, some of our leading nurserymen offer from 700 to 800 species of Orchids, the collection at Kew embraces upwards of a thousand species, and we have been informed that Mr. W. W. Saunders' former collection at Reigate numbered nearly 2000 species.

* To be more intelligible we substitute the modern names.

† *Limatodes labrosa*, Rehb. f.—"Pseudobulbo elongato articulato constricto;" pedunculo piloso racemoso plurifloro; bracteis membranaceis oblongis acutis pilosis; ovario pedicellato piloso dimidio non æquantibus; sepalis triangularibus latioribus; labello a basi cuneato dilatato flabellato crispo retuso columnam involvente, linea media basos tabulari elevata; calcaris piloso in basi columnæ supra unguem ovario pedice lato breviori; tenui; columna trigona crassa. Sepala flava intus purpureo-lavata. Tepala intus purpurea. Labelli lamina aqueo purpurea; fundo albo guttulis purpureis. Ex Moulmein, imp. et col. cl. hort. Veitch. *H. G. Rehb. f.*

Dendrobium leucochlorum, n. sp.—(Eudendrobium).—Pseudobulbis cylindraceis canaliculatis crassiusculis longius stipitatis; racemo 1-2-floro; sepalis triangularibus, lateralibus in mentum extensoriiforme extensis; tepalibus oblongis acutis æquilongis; labello medio trilobo, lobis lateralibus obtusatis, lobo medio producto lato retuso, disco inter lobos laterales, muriculato; columna brevi, androclino tridentato. Perigonium album, calcaris viridis. Labelium album, extus viridula flavidulum, nervis purpureo lineatis in lobis lateralibus, florili Dendrobii sphegidioglossi æqualis.—Ex Moulmein introd. cl. hort. Veitch. *H. G. Rehb. f.*

† Condensed, by Mr. Godman's permission, from a more detailed enumeration drawn up for the Botany of Messrs. Godman and Salvin's forthcoming *Biologia Centrali-Americana*.

Passing to the Orchids of Central America and Mexico, there are, independently of any unpublished Reichenbachian hoards, about 1000 species, belonging to about 100 genera. With the exception, perhaps, of New Grenada, there is a greater concentration of Orchids in some regions of Mexico and Central America than in any other part of the world. We have names of upwards of 150 collectors, travellers, and residents in these countries, who have sent living or dried plants to Europe. Most of them sent Orchids, and many of them almost exclusively Orchids; indeed several collectors were dispatched from this country for that purpose alone.

Don Francisco Hernandez, who travelled in Mexico during the latter part of the sixteenth and the beginning of the seventeenth centuries, was the first to inform Europeans of the existence of the glorious Orchids of this part of the world, and of the veneration and admiration in which they were held by the native Indians. In 1825 La Llave and Lexarza, Mexican Spanish botanists, published imperfect descriptions of fifty new Orchids; and in 1845 A. Richard and Galeotti published brief diagnoses of 135 additional species in the *Annales des Sciences Naturelles*, which they intended to follow up with full descriptions and figures of many of them. But this intention was frustrated. Fortunately, however, for science, Dr. Reichenbach subsequently acquired the material, and has identified most of their species. The same botanists also published a brief though interesting sketch of the distribution of Orchids in Mexico. In 1831 the late G. Ure Skinner went to Guatemala, where he resided, off and on, for many years, and in 1835 he consigned his first lot of living Orchids to Mr. Bateman. This was the harbinger of numerous other consignments, consisting of the magnificent species which Skinner had the good fortune to discover. Most of these were epiphytes of the showier class, and the gorgeous terrestrial *Sobralia macrantha*. His name is connected with some of the finest of his discoveries, so we need not enter into particulars. Hartweg was the next in the field, having been sent out in 1836 by the Horticultural Society of London. He was speedily followed by many others, whose names alone would occupy too much space in this brief sketch. The result was an enormous importation of Orchids and a correspondingly strong impulse to Orchid culture. Mr. Bateman estimates that at least 300 species of Orchids, new to gardens, were introduced during the year of 1837. They were not all from the country in question, but a large proportion of them came from thence. A Frenchman, named Deschamps, actually chartered a shipload of Orchids from Mexico to this country, and this cargo formed the big sale at Stevens', of which we often hear.

Another outcome of these importations was Mr. Bateman's costly *Orchidaceæ of Mexico and Guatemala*, his *Μεγα Βιβλίον*, which enjoys the distinction of being the biggest book in the library at Kew, where there are six or seven thousand volumes. It may also be seen at Lindley Library. It is an "elephant" folio, containing forty coloured plates, representing some of the most showy Orchids. The first *Odontoglossum*, *O. bictoniense*, was introduced by Skinner in 1835, but by some mistake it was reported from Africa, and was first figured as *Zygopetalum africanum*. Purdie sent the first *Masdevallia*, *M. fenestrata*, from Jamaica, in 1843.

The Orchids of Central America and Mexico include some of the largest and most showy in the world, and some very small ones, though not so minute as the Australian *Bulbophyllum minutissimum*, recently described in the *Gardeners' Chronicle*. *Sobralia macrantha* grows in dense masses, and sometimes attains a height of 10 feet, whilst flower-spikes of *Lælia superbiens* have been found exceeding that length. Amongst miniature species we may name *Oncidium pusillum* and *O. crista-galli*—both formerly confused under *O. iridifolium*—and especially some of the species of *Lepanthes*.

With regard to their vertical distribution—in Mexico Orchids range from near the coast to an altitude of more than 12,000 feet. Galeotti states that the following species ascend to 12,800 feet:—*Habenaria prasina*, *Platanthera nubigena*, *Spiranthes ochracea*, *Malaxis gracilis*, and *Platanthera longifolia*. Altitudes for species in the following list are given in all cases where obtainable, but these often rest upon one observation, and should be regarded as rough approximations. *W. B. Hemsley*.
(To be continued.)

BOTTOM-HEAT.

MR. BAINES has discussed this matter with his usual caution and ability. Able as we all acknowledge him to be, he himself would be the last to assume that he had either exhausted or settled this vitally important subject. It is one of those crucial questions upon which the widest diversity of opinion and practice prevails among cultivators. So much is this the case that I believe the publication of Mr. Baines' papers will surprise many plant growers. Standing with admiration before some of his premier collections I have not seldom heard his skilful and liberal use of bottom-heat advanced as the solid foundation of his distinguished successes. Mr. Baines now tells us better. But doubtless many tried to imitate him on a hot bottom, and may have burned their fingers or their plants in consequence. And yet it seems to me there are not a few loose joints in Mr. Baines' armour as he goes forth so boldly to war against bottom-heat. The subject is so important that it can hardly be too fully discussed, for though it has often been brought before your readers, the theory and practice of bottom-heat are by no means clearly understood, far less threshed out.

It is not needful to travel beyond Mr. Baines' article in proof of this. He takes for granted, for instance, that the earth at the starting of plants into new growth is colder than the air. This is not the case in the tropics, and may not be so in our climate. It must be borne in mind that the earth is a great store-house of heat. If it conducts it slowly downwards it also parts with it rather slowly upwards. And this is especially the case when Nature is allowed to follow her own ways for the conservation of heat. The decomposition of annual plants, the fall of the leaf, furnish the earth with a natural covering almost impervious to the passage of heat. The dense shade of evergreen plants, the lighter spray of deciduous boughs, the stored up caloric in living trees, shrubs, plants, all tend in some measure to keep the earth warm, and thus prevent the loss of terrestrial heat. The power and efficiency of such natural protectors is amazing to those who have not turned their attention to the subject. During the trying frost of the last two months I have examined the ground under various Pinuses, shrubs, and trees, and have seldom found any trace of frost, though we have had as much as 25° in the open. Quite a thin layer of needles or leaves of such Pinuses as *excelsa*, *Sabiniana*, and *macrocarpa* has been sufficient to conserve the heat of the earth so as to prevent the roots of such trees from being frozen.

But doubtless I shall be told that this argument cuts both ways. If the shade of plants and their *débris* conserve the heat of the earth, they likewise shut out the heat of the sun, and so keep the earth, according to Mr. Baines, cooler than the air. The retort is far less cogent and logical than it seems, for time and circumstances work great changes upon the protective material; decomposition, &c., reduce such matters to the fineness of mere soil, the worms drag them underground—this is especially the case with the leaves of all the Firs. What do the worms want with these that they turn sextons in the spring, and drag them underground? The birds scrape up the leaves, and the March winds sweep them off bodily, leaving the earth not seldom bare for the sun to warm.

At p. 74 Mr. Baines states that the air is warmed by the sun's increasing force, while the earth is warmed less quickly. But how is the air warmed? Not certainly by the passage of the sun's rays through it—no, but by first of all heating the earth, and making that the warming-pan for warming the air. The earth, therefore, has the first pull out of the solar heat. Although it is quite true that heat travels slowly downwards, yet as the earth has never got cold to any great depth, and as there is a boundless reserve of caloric in the earth, and heat rises as freely as the smoke from a chimney with a quick draught, the chance, nay the certainty, is that the roots of plants will be as warm or warmer than the tops. If so, then bottom-heat—understanding by the term heat equal to or slightly in excess of atmospheric heat—being natural, may assuredly also be assumed to be necessary and best.

Mr. Baines, however, at p. 74, column *a*, assumes that bottom-heat is unnatural, and also in the next column reasons as if plants placed on stages and shelves in plant stoves not only had no bottom-heat,

but had their roots subjected to a lower temperature than their tops. Not only must the roots have no excess of—heat, and this is what is generally understood as bottom-heat by cultivators—but Mr. Baines asserts, p. 74, column *c*, "that to simultaneously subject the roots and heads of a plant to an equal heat at the time it is started into growth, unless the roots of the plant in question when in a state of Nature commence to extend at the same time with branch development, is to completely subvert the order of things. It is indisputable that a very large number of the plants that are forced, or that require heat to grow them, do not naturally begin to extend their roots until a considerable, or in some cases a large amount of shoot development has taken place, the roots during the interim merely acting the part of conveying food and moisture to supply the demands of the above-ground portion of the plant. In such the evident mistake is committed of setting both ends going—that is, top and bottom at once, where Nature says through her workings that the top must be in advance of the bottom."

This extract is somewhat lengthy, but it seemed needful to give the three sentences to render my criticism clear. I think, unless Mr. Baines treated his stove plants that did so much better on stages than in the fermenting materials to iced water, he must have had some difficulty in keeping their roots cooler than their tops. Unless the roots were cooler it is difficult to see how their growth could be arrested. Surely heat is also an important stimulus to roots in their most vitally important function of furnishing plants with food. And as to setting both ends of plants going at once, the more familiar we become with plant life and growth the more certainly it appears that the roots of plants never cease "going," unless when arrested by drought or cold. The mere extension of roots is of secondary importance, and naturally would not take place until the supplies of food within their reach were exhausted, for Nature is ever provident of force; but that heat at the roots helps them to forward food and moisture to supply the needs of top growth is almost as certain as that the glowing coals in the furnace of the locomotive moves the train. The conveyance of food is one thing, the ramification and extension of roots into new feeding grounds is another, and for both bottom-heat is indispensable. An excess of such heat has no doubt often proved injurious, but as for attempting to adopt means to keep the roots of plants cooler than their tops, when both must of necessity be grown in the same house, the effect would be as vain as injurious.

After all it appears from Mr. Baines' second article (pp. 105, 106) that it is not Nature, but art, or rather artificial exigencies, that demands the sacrifice of bottom-heat. The latter we are assured is not favourable to a great blaze of bloom, the travelling and exhibition of plants, and their keeping well in lower temperatures than those in which they were grown. This is easily understood, and of course is quite correct; but why call in Nature to aid us in mere matters of decorative effect or exhibiting convenience? Both these arts, necessarily perhaps, subject plants to many manipulations and conditions of which Nature knows nothing. Of course, the less heat either the roots or tops of plants are subjected to while growing, the better they will travel, and the longer they will be likely to keep in flower in lower temperatures; but Nature, while producing beauty with such a rare prodigality seems almost reckless of its conservation; and hence probably for this, among other reasons, she is careful to provide bottom-heat for all tropical plants. For mere cultural purposes we can hardly do better than follow her example; but as cultivators naturally wish to preserve the beauty of their plants as long as possible, bottom-heat in excess must be avoided, and the transition from warm to cooler temperatures, bottoms, or conditions be effected through gradual and easy stages.

Mr. Baines makes a wide distinction between bulbs and other plants, but on his contention that the earth through the earlier stages of growth is so much cooler than the air, and that it is heated slowly through being filled with stagnant air, and the natural disinclination of heat to descend, and bulbs being often rather deeply buried in the ground, and their roots springing from their base, it follows that bulbs in a state of Nature would have less bottom-heat than other plants. However, Mr. Baines' experience in the matter of tropical bulbs corresponds with that of most cultivators, and that is, that bottom-heat, espe-

cially through their earlier stages, is of the highest service to them.

My friend will, I am sure, accept these remarks in the same kindly spirit in which they are offered, and as my humble contribution to the discussion of a most important question. I have no doubt many readers will gladly turn away from the thick-ribbed ice and the cold snow, which have hugged or bound the earth so persistently as to threaten to exhaust its supplies of caloric, to the more cheerful and comfortable subject of bottom-heat; and should a little warmth result from the discussion it might help to solve the question, and dissolve the most persistent and provokingly severe frost of modern times. *D. T. Fish.*

BEEES AS FERTILISING AGENTS.

MANY of your readers who may have read Mr. Miller's very interesting communication on this subject (see p. 138) may feel inclined to adopt his practice, but, in the meantime, will you kindly allow me space in your columns to ask this question, viz., Is the introduction of hives of bees into early forced Peach-houses, when the trees are in bloom, really necessary to secure the setting of the fruit? If allowed to answer my own question, I should say, with all due deference to the opinion of Mr. Miller, that such is not the case, but that the desired effect can generally be secured by simpler means; and if this is the case, I must say that it appears to be a great pity to disturb the peaceful slumber of those interesting and industrious insects at so unseasonable a time of the year, unless it can be established beyond a doubt that there is really a decided advantage in doing so.

I have had something to do with the forcing of early Peaches and Nectarines in various parts of the country, and I must say that in all cases which have come under my observation, where the trees have been in good health, and the last year's wood thoroughly ripened, I have never known a failure in the setting of the fruit. Indeed, the formation of the Peach bloom is such (with numerous anthers in close proximity to the stigma), that if the pollen is in proper condition the latter can hardly fail to get fertilised. But if the pollen is unripe, which will be likely to be the case, if the former condition has not been secured (viz., the thorough ripening of the young wood during the previous autumn), then no number of bees or other insects will be likely to effect fertilisation of the blooms, and secure a satisfactory set of fruit.

Among the various simple methods resorted to of assisting in the dispersion of the pollen, is that of gently shaking the trees, the passing of a soft sweeping brush over the surface of the same, agitating the atmosphere of the structure by means of a pair of strong bellows, and the application of a slight syringing when the trees are in full bloom early in the afternoons of bright days, using rain-water at a temperature at least equal to that of the atmosphere of the house. But should the weather be favourable, "and the month of January is not always of the gloomy character that we have experienced during the last month," possibly all these methods of assisting in fertilising the blooms may very well be dispensed with. I have known the camel-hair pencil charged with pollen, to be applied to each individual bloom, but this I think unnecessary, unless it be in the case of using foreign pollen, with the view of effecting a cross.

Mr. Miller, however, deserves much credit for the skilful manner in which he appears to manage and conciliate the imprisoned insects, which are generally rather excitable when they find themselves confined under glass.

Great numbers of them usually find their way into a greenhouse here early in the spring, and during bright days, when it is necessary to open the lights more or less, being attracted by the presence of forced flowers of various kinds, which the structure contains, and where their agency as fertilisers is certainly not desired. And the worst part of the business is, that few of them are able to find their way out again, although the lights are left open longer than would otherwise be the case, in order to afford them an opportunity of doing so. But instead of profiting by this they become greatly excited, and beat themselves against the glass until they become exhausted, and ultimately fall into the cold passages and die, and have to be swept up in great numbers each morning. To prevent as far as possible this

vexatious loss of life, the spaces where air is admitted are sometimes covered with lace. And I should think that Mr. Miller must find something of this kind necessary (although he has not said so), otherwise many of his indefatigable little friends would doubtless find their way into the outer world, and few if any would return, as they would most likely draw towards the locality lately occupied by their hive, and of course perish. *P. Grieve.*

POT VINES FOR TABLE DECORATION.

AT p. 533 of our last volume we gave an illustration of a pot Vine grown as a standard for table decoration by Mr. Sage, gr. to Lord Brownlow, at Ashridge, which we may now supplement with another illustration of the same gentleman's skill. Fig. 28, prepared from a photograph, shows the Vine grown in the form of a pillar or column for the purpose of creating variety. How Mr. Sage obtains such admirable specimens we have described at p. 528 in our number for October 26 last, so that the *modus operandi* need not now be detailed.

PLANTS IN FLOWER IN COMBE ABBEY GARDENS.

APPENDED herewith I send a list of plants in flower at Combe at the present time (without any pretensions whatever as to their being either very new or very rare), and with which our houses are very gay: which also enable us to cut plentifully to send to our family. These plants for the most part are propagated and grown on during the summer and autumn months with the same amount of care and attention bestowed upon their culture, as upon the culture of our Strawberry plants for forcing purposes. Greenhouses and stoves are filled with the larger specimens of the more permanent plants, such as Ferns, Palms, Azaleas, &c., but with the smaller class for cutting from during winter every available space is filled up, such as empty Melon and Cucumber-houses, so that without any non-utilised interval, except that of cleansing our houses, with these floral denizens in winter, in succession to the fruiting denizens of spring, summer, and autumn, present at all times, and in their turn, a most enchanting, bright, and cheerful picture of what the luxuries of vegetable life can be brought to with modern appliances and skilled cultivation. Not a pot being visible, all buried in leaves, the whole has quite the appearance of a natural bed, of which it may not inaptly be said, "a bank of flowers grown wild," whilst aloft on long shelves may be seen Strawberry plants in all stages from their first introduction, passing through all the states of flowering, setting and swelling off of fruit, though I cannot yet observe any of them colouring.

Orchids.

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| Cattleya Trianae | Oncidium sphecelatum |
| Cypripedium barbatum | " flexuosum |
| " Lowii | Phaius grandifolius |
| Cymbidium aloifolium | Vanda insignis |
| Dendrobium nobile | |

Stove Plants.

| | |
|----------------------------|-----------------------------|
| Anthurium Scherzerianum | Citrus vulgaris |
| Bilbergia purpurea | Euphorbia jacquiniæflora |
| Begonia hybrida multiflora | " splendens |
| " insignis | Eucharis amazonica |
| " manicata | Eranthemum pulchellum |
| " nitida alba | Epiphyllum truncatum, and |
| " rosea | " others |
| " Perkinsii | Gesnera exoniensis |
| " serrulata nigra | " velutina |
| " semperflorens | " zebrina |
| " Saundersii | Kaulfussia amelloides |
| Bouvardia Hogarth | Lachenalia tricolor |
| " Lord Craven | Libonia floribunda |
| " leiantha | " penrhosiensis |
| " Oriana | Pentas carnea |
| " Vreelandii | Sericographis Ghiesbreghtii |
| Centradenia purpurea | " ana |
| Chamaedorea Hartwegii | Thyscanthus ruilans |
| Cyperus alternifolius | Thunbergia Harrisii, lovely |

Greenhouse Plants.

| | |
|------------------------|--------------------------|
| Azalea, many varieties | Lapageria rosea |
| Cinerarias | Mignonette, Miles' new |
| Cytisus racemosus | " spiral |
| " Alceaeus | Roses, Teas, in pots |
| Cyclamens | Polygala cordifolia |
| Camellias | Primulas, many varieties |
| Carnations | Spiræa japonica |
| Coronilla glauca | Schizostylis coccinea |
| Deutzia gracilis | Statice Hoffmanni |
| Ericas | Veronica Andersoni |
| Epacris | Violet, Marie Louise |
| Eupatorium riparium | " Neapolitan |
| Lily of the Valley | |

Wm. Miller, Combe Abbey Gardens, Coventry, Feb. 5.

DRESSING FLORISTS' FLOWERS.

WHENEVER it happens that any palpably dishonourable act connected with exhibiting horticultural productions is detected, those who do not look with favour upon the doings of the growers and showmen of florists' flowers generally, point to the practice of the florists in dressing their flowers for showing as, if not something equally reprehensible, at all events such that the manipulations countenanced by the florists are scarcely distinguishable from the proceedings of the real delinquent, and to a certain extent should be looked upon as palliating his dishonesty. With the object of clearing away the mistakes upon which such false reasoning rests, it may not be out of place to look the matter in the face from a dispassionate point of view. To do this, without going minutely into the properties of florists' flowers, it will first be necessary to see what is the standard which the florists have held up and aimed at, the realisation of which is to give us, according to their views, the improved forms of flowers that have been and still continue to be the result of the labours of the hybridist or cross-breeder. The direction in which florists have laboured to secure a circular outline in the flowers they have taken in hand, is no doubt to a considerable extent opposed to the simple beauty and elegance naturally represented by a very large portion of the vegetable kingdom. In place of natural forms the florists have sought to bring into existence a race of plants that would produce flowers with broad massive petals, such as to fill the eye, possessing as they do a circular outline, the opposite of that which we meet with in Nature in a great many others. To attain this object repeated crossings, as well as what we may term in-and-in breeding, with high cultivation, has almost invariably been followed, the result of which in the case of many plants has ultimately been the production of double flowers, and these have often become still greater favourites, not only with the florists but even with the public who take a less interest in their origin.

As is well known to all acquainted with the subject, the continued reproduction of varieties from flowers already more or less double, results generally in an amplification of the parts, until often the flowers that come nearest up to the florist's standard are faultless, excepting that they produce a few more petals than admit of the whole lying in the symmetrical position necessary for the florist's requirements. Hence arose the practice of dressing, that is, removing such of the superabundant petals of the flowers as will allow those retained to lie in the most even effective position. In the case of such blooms as are not too full the petals are simply arranged so as to overlap each other and give the whole flower the imbricated form required. This is the sum and substance of the offence known as "dressing" flowers with which florists are so often charged as evildoers, and for want of a little reflection classed as not much different from or better than the delinquent in a recent case of Chrysanthemum showing, where the blooms exhibited were most of them composed or built of parts of several flowers.

This view of the question is clearly the result of not taking into account the wide difference that exists between surreptitiously adding to a thing that which it is deficient of, and which deficiency renders it wholly useless for the purpose required, and permissively removing from another thing a portion of that which it possesses in over-abundance. The woman who paints her face is justly held up to derision, but she who arranges her hair in a becoming manner is deservedly commended, and the two cases are perfectly analogous. Another point in favour of dressing florists' flowers, and one sufficient in itself to justify the practice, is that it is legalised by lengthened custom within well-known and fully recognised limits, to overstep which entails upon detection certain loss of position in the award of prizes. The fact of the dressing of some kinds of florists' flowers being so long fully recognised, one would have thought, would have been sufficient to stop cavil from those outside the ranks. Florists only legislate for florists, and those who do not choose to abide by their rules and regulations have neither right nor reason to complain.

Another matter in connection with florists' flowers, and dealing with another class of critics, may be here noticed. There are a good many who write or speak about florists and the flowers they cultivate, and inveigh against the absence of elegance in the blooms

individually and their disposition generally, as also the compact close habit of growth in the plants required in most of the subjects florists cultivate,

there are almost an unlimited number of species of plants that are equally, or often much more, devoid of—let us say, the reed or grass-like habit which

other matters, it is necessary to recognise that the fitness of things for the purpose required should never be lost sight of, and the subjects which the florists have undertaken to develop and improve—pardon me, ye botanists!—are possessed naturally of the only habit that renders their cultivation possible in the way, as well as for the purpose and within the means, of the great body of florists?

In fact the cry raised against the taste of those who cultivate any particular form or description of plants, is directly an evidence of the limited capacity of the individual to see and appreciate the beauty that exists in every form of vegetable life, from the Puff-ball to the loftiest Palm that rears its plume-like head in the moisture-charged regions of the tropics.

There are yet others whom florists would do well not to allow themselves to be influenced by in any way, although I do not think there is much room for supposing that they will. I allude to some self-constituted, would-be authorities on florists' flowers, who from time to time chide florists as being too straightlaced in adhering strictly to the standard they are ruled by. Such I hold to be nothing better than traitors in the camp. Let us see what were the three principal properties originally held as essential to a florists' flower. First, form; second purity of colour and markings; third, size—the last, an advantage when the two former are present, but useless without them. Now my decided impression is that whenever the florists cease to insist upon upholding the standard they have hitherto stood out for, they will cease to be anything worth notice; and this I feel must be the impression entertained by all who ever, at any time, were growers of florists' flowers, and have been imbued with the *esprit de corps* which the body of genuine florists has hitherto always maintained.

And who is to say that the work done by the florists has been useless in the general field of horticulture, or beyond their own immediate sphere? By their forethought and discrimination in the selection of the plants they have raised their seedlings from, by their observation as to the requirements of their plants, and the close unremitting attention to their wants indispensable to success, they have shown the raisers of plants of a more utilitarian character, the necessity of acting in like manner, if results alike successful are to be attained. Amongst their own immediate fellows, especially those of the most humble means, in the crowded manufacturing districts, the first growers of florists' flowers have been the means of disseminating a taste that has done something where it was most needed to elevate both mind and body; and the work of their followers continues to have a like result. T. Baines.

Forestry.

TAP-ROOTS: TRANSPLANTING.

1. In planting timber trees (as Oak, Ash, Elm, Larch and Firs) are the tap-roots cut off, or rather should they be?

2. The fine lot of Oak trees about the White Lodge, Richmond Park, where Prince Teck lives—do you think their tap-roots were cut off when planted?

3. I think I have heard and read also that the deeper the tap-root goes down the higher the stem—is it so?

4. Also, that if the tap-root is cut a bushy tree is the result, the height of the stem being lessened—is it so?

5. In a primeval forest seeds fell down, plants grew up into wonderful trees, their tap-roots were never touched and no transplanting took place, therefore cutting the tap-root and transplanting cannot be good.

6. So, if an acre were sown with seeds of the Oak, Ash, Elm, or the Fir tribe, why should the trees not grow up as well as if they had been planted?

7. Cabbages were formerly transplanted twice I think. In Thompson's *Gardeners' Assistant* it is recommended that they should be thinned in their seed-bed and then planted out: why should somewhat of the same plan not be applied to plantations? A portion of ground could be sown with the seeds of timber trees, as the young plants or trees grew up, those taken up for thinning could be planted in another portion of ground, thus 1 acre would supply young trees for 4 acres or more.

8. Would these young trees taken up for thinning



FIG. 28.—POT-VINE GROWN FOR TABLE DECORATION BY MR. SAGE. (SEE P. 204.)

Than this there can be nothing more insensate. It is simply an evidence of the absence of anything beyond the one idea such critics are possessed of, oblivious of, or ignoring the fact that in the vegetable kingdom

they have set up for the world, as the one single representative form of beauty in plants. Would it not be well for those who express themselves thus to bear in mind that in the cultivation of plants, as in

from the above ground have more timber in them than those which were left, which were neither transplanted nor had their tap-roots cut? X.

— 1. In planting trees of any species the more roots the better, and the more numerous and finer the fibres the surer the tree is of success. When, however, any of the roots are bruised, or so seriously injured as to predict decay of the part, such should be cut off with a sharp knife, but only to the extent of the injured part. The tap-root in the hard-wood species is usually reduced in length for one or more reasons, such as having been bruised in lifting, stubbornness preventing its taking its proper position in planting, or such-like reason. There is, however, no virtue or advantage gained by cutting the tap-root of any species of tree, and it is better not to do so unless it is expressly necessary for some such reason as those assigned.

— 2. I have no means of knowing this, but should presume their roots were not cut, as the practice might not then have been thought of.

— 3. The two circumstances frequently occur in the growth of the same tree, but the one is not dependent upon the other. Trees in a valley generally grow tall, and their roots in consequence of depth of soil go deep down, and requiring little anchorage against the wind in such situations the roots do not spread out, but take a downward direction, less or more according as the soil is congenial, and the exposure gentle or severe. The same class of trees in the same locality, but upon higher ground, grow more bushy and spreading in the top, and their roots correspondingly spread, partly on account of the soil being less deep, and partly on account of the wind shaking them and causing their roots to expand as an anchorage, which is their security against being blown down.

— 4. This is not the case, as has already been shown by many of the tallest trees having no central or tap-root at all, and others, whose main root is a tap one, being short of stem, spreading and bushy.

— 5. Transplanting is an unnatural thing, but so is almost everything subservient to man's requirements. Removing a tree at any stage of growth, less or more retards its growth; but in the case of very young plants the suspension of growth is scarcely perceptible, and, as found in practice, the advantages gained by far outweigh those that are lost by the operation.

— 6. Trees succeed better directly grown from seed than by any other means, but it is found that sowing in the forest is much more expensive than planting, and the expense thus incurred makes planting preferable to sowing. In the first place, seed cannot be sown without first breaking the surface, and rendering the soil fine and suitable, and the seed must either be sown so thick as to incur the risk of crowding the seedlings, to their destruction and uselessness, or so thin as to cause many blanks, requiring future filling up. Again, the innumerable enemies that attack and destroy the seed, as mice, rats, birds, and insects of various kinds, render sowing hazardous and disappointing, not to speak of rabbits and other vermin ready to nip off the plant as it emerges from the earth. Therefore, when the advantages are put in the one scale, and the disadvantages in the other, it is found that by growing the plants in the nursery, as now done, and transplanting them out when of a proper age and size to suit the soil, herbage, enemies, &c., far outweighs those of sowing as suggested.

— 7. Trees lifted out of unprepared ground, such as common forest land, are not so well rooted as those grown in finely prepared nursery soil, and therefore, more deaths occur, and those that succeed are so seriously interrupted in growth as to lose several years' growth by the change. The work, too, would be so much more difficult and expensive, that the price of the plants would be small in comparison with it.

— 8. Those trees undisturbed would certainly have the precedence in growth, and might maintain it to a certain age; but each class at their respective term of maturity might in the same soil and site be equal. Transplanting very young trees, we may again repeat, retards their growth imperceptibly, transplanting larger ones usually retards it more; but the simple act of transplanting can have no permanent injurious effects upon the health, development, and constitution of the tree. *C. Y. Michie, Cullen House, Cullen, Jan. 31.*



THE EFFECTS OF THE FROST IN PLANT-HOUSES.

— One effect of the severity of the continued frost has been to show the risk attaching to the wintering of tender plants in glass-houses destitute of means for artificial warming. In many cases, through the rapid appearance of the frost at its greatest intensity, it found many plants pretty moist at the roots, for, fancying the mild weather would continue till the opening of the new year at least, many Villa gardeners watered their plants as long as the weather kept mild and open. Then came with swift suddenness the howling wind from out of the north, flinging the white-robed storm over the face of the earth, and laying hold of every particle of soil it was free to fasten upon. Many plants have had to succumb to its pitiless attacks, and jobbing gardeners who had scraped together collections of bedding plants for the spring and housed them for the winter in all kinds of structures, many of them unfitted to cope against the terrible odds of damp and frost combined, have lost their all of plant acquisitions. This loss, followed by a lengthened spell of frost that has kept them out of employ, has made the opening year one of trial and sadness for many of them.

Plants have also suffered from excess of care. Some had allowed the soil about the roots of their plants to become dry on the approach of Christmas, and when the frost came they were found congratulating themselves that their forethought had aided them so far; but during five weeks or so no water could be administered, for it was unsafe to do so. There was also the baleful accompaniment of drying and shrivelling north and east winds with severe cold; added to these the use of paraffin lamps and other contrivances to hedge round with a cordon of safety the plants to be preserved, rendered the internal atmosphere drier still, and for want of moisture at the roots plants have been literally dried up, stem, branch, and leaves. Particularly has this been the case with large-flowered Pelargoniums that had made a free growth during the mild open weather that preceded December. Some of the more succulent zonals have suffered from the same cause, and berried Solanums, Indiarubber plants, *Rochea falcata*, *Hoya carnosa*, *Abutilons*, &c., show signs of the fierceness of the strife. The more matured and ripened the wood the better have they stood; the youthful ones, full of sap and vigour, have succumbed before such an onslaught. Let those who endeavour to winter a few plants in unheated structures remember this in the future, as a useful lesson taught by the frost—that the plants that are most matured by October stand the best chance of surviving the severity of the winter with comparative safety.

An examination of the large-flowered Pelargoniums shows that the leaves are dried up—they have withered while full of sap. The best thing to do is to plunge the pots in slightly warmed water and allow the balls to become thoroughly soaked and then permit the moisture to drain off as quickly as possible. This should be done only when the temperature without is above freezing point; and also during the morning, so that the soil may become as thoroughly drained as possible before evening. If the weather threatens frosty at night, these watered plants should have the warmest part of the house, and be afforded some extra protection by covering them with newspapers, or some such cold-resisting agency. It will not save the terminal shoots, but it may preserve the bottoms, and leave something from the wreck out of which plants may be built up in spring.

A certain mitigation of the effects of frost has taken place in the case of large plants standing on the floor of a greenhouse exposed to frost, being raised on inverted flower-pots. It is now customary to build Villa residences with basement floors, and as the first floor is raised some way above the ground level, the conservatory, so called, is placed on the same level also. To avoid the exclusion of light from the kitchen and other offices below, the conservatory is supported on pillars, leaving the floor open to the action of the elements. These are always wretchedly cold houses in winter, being open to the attacks of frost beneath as well as above. Anything therefore that raises the plants from off the floor during the times of frost is a certain step in the direction of mitigating its effects.

Garden Operations.

KITCHEN GARDEN.

The extent of the havoc which is caused by the late protracted frost in this department is every day becoming more apparent, for we now find whole plots of Broccoli entirely destroyed, midwinter Cabbages rendered perfectly unusable, and winter Greens, comprising Brussels Sprouts, Cottagers' Kale, and other kindred kinds of winter stuff materially injured; in addition to these we must also enumerate other subjects, as intermediate crops of Lettuce and Endive, early sown Peas and Cauliflowers, pricked out at the base of south walls, all of which have suffered most severely, so much so as to necessitate the replacing of a large proportion of them; but, however deplorable these results may now appear, we may nevertheless be assured that withal the very elements which have produced so much mischief will ultimately be productive of much good also by pulverising and ameliorating tentative and other soils. Further, it will be a means of destroying myriads of insect and animal pests in various stages of development, which, under other more favourable conditions, would in time become so numerous as to be positively almost ruinous in some respects. Amongst the subjects which have been very much injured, which will require immediate attention, will be the early sown crops of Peas. These are proverbially a precarious crop generally, and the appearance of them at the present time most surely confirms the truth of this maxim. Fortunately, however, this crop can be supplemented at this period without the ultimate issue being much delayed. For this end different modes of preparation for planting are usually adopted. Some sow in drills made on the under side of moderately fresh cut turf, others use boxes or pans, in which the seeds are sown moderately thick together, and some employ small pots, in which an individual seed is placed. We have occasionally done this ourselves with new or scarce varieties intended for exhibition purposes. Either of these plans can be recommended, providing that after vegetation is animated the plants are carefully managed to prevent them being drawn up weakly. To avoid such a condition let them be placed in a cool frame or pit near the glass, and ventilated freely. In planting out such plants, particularly those from boxes or pans, it is important that the roots be placed so as to run downwards at once. See therefore that the drills are made deep enough for this purpose, and, after being removed in this way, a little shelter should be afforded by means of Yew tree branches or those of Beech having leaves on them. Make successional sowings in drills out-of-doors as soon as the state of the ground will admit of drills being drawn. On this occasion sow amply of both early and second early kinds, and Marrowfat sorts likewise. See also that proper protection is provided for any crop which is just emerging from the soil. We find narrow nets to be most effectual for this, and these are fixed by means of forked sticks being placed at suitable distances, and heathers, such as are commonly used in making hedges, laid along them. At many places the soil will be in that state that some time must elapse before it can be prepared for seeding purposes; in the meantime, however, by the aid of a plank or two of sufficient length to go across the borders, many things may with propriety be advanced, such as planting the early borders of Potatoes, sowing advanced crops of Carrots, Radishes, and Peas likewise, if they are to occupy such a place, or any other matter, as planting out Cabbage, &c. The closer in hand all such matters can be kept now will prove to be very advantageous hereafter, when other matters, as the sowing of the general crops of Onions, Carrots, Parsnips, &c., will be demanding attention. These can be proceeded with at any time after this, when circumstances will admit of the seed being put into the ground properly. The operation of the late frost has materially loosened the soil about the winter plantings of Lettuce and Cabbage; as soon, therefore, as the surface soil will allow these beds should be gone over, and the soil about the plants made moderately firm again. In order to set at liberty as quickly as possible after winter is over the ground which is occupied by Spinach make sowings at once in quantities sufficient to meet the case.

FORCING DEPARTMENT.—Potatoes.—The sets of these which have been advanced in other places should be planted out when the growths have attained from 2 to 3 inches in length. Let such be carefully lifted and planted. Keep the frames close for a few days until the roots have taken to the soil; afterwards on all suitable occasions ventilate freely, to prevent the haulm being drawn up rapidly. Carrots.—Thin out early sown crops to about 3 or 4 inches apart, and without further delay get the secondary crops in, between which Radishes may be sown without doing much harm. As the crops of Rhubarb and Seakale become exhausted the roots should be removed and preserved for making future plantations. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

VINES.—Although the weather has become milder, the continued absence of sun is unfavourable to early forcing, and it is more than probable that well kept late Grapes will be in great request through April and May. To have these really good and thoroughly ripe by the end of September, the most economical way is to encourage Lady Downe's, Mrs. Pince's Black Muscat, Alicante, and other winter kinds, with fire-heat, aided by fermenting material from this time forward, in preference to running the risk of a contention with a cold summer, when double the amount of autumn firing will not compensate for the time lost in the spring, when forcing goes with, instead of against Nature. Assuming that last year's crop was removed from the Vines to the grape-room early in January, and that the internal borders have been top-dressed with fresh loam and crushed bones, a good supply of tepid water at a temperature of 90° may be given towards the end of the month. Let the temperature of the house range from 55° at night to 65° by day, with a rise of 5° more from sun-heat. Keep strong young rods in a horizontal position, and insure an even break by syringing three times a day. Attend to the disbudbing and stopping in succession-houses; tie down the young shoots before they touch the glass, and allow the first laterals to extend when it is thought desirable to cover vacant parts of the trellis with foliage. Remove all surplus bunches from free-setting varieties before they come into flower, and collect pollen for fertilising Muscats. This operation is very simple and interesting, taking up little time if performed with a good-sized camel-hair pencil. Pot Vines carrying full crops of fruit will now take liberal supplies of tepid liquid. If plunged where they are to remain until the Grapes are ripe, the roots may be allowed to ramble away from the pots, and the fruit will be fine in proportion to the number of clean, healthy leaves that can have exposure to sun and light. *W. Coleman, Eastnor.*

THE CHERRY-HOUSE.—Our artificial temperatures in this house during the late frost ranged from 35° to 45° at night, according to the state of the outward pressure; and at about 50° in the daytime regularly. The condition of the weather has now become the opposite extreme: under these circumstances we shall therefore extend the ranges of the temperature accordingly, and maintain at least 5° more constantly. This may be done without at all being detrimental to the satisfactory progress of the inmates. At the present time the trees here are in a satisfactory state of excitement; already the buds are rapidly unfolding, and ere long this compartment will present a beautiful aspect of soft silvery-looking flowers of the clearest whiteness. However, before this is actually the case, and without waiting to discover the least trace of insects, give the trees an application of clear and moderately strong quassia-water. By so doing at this period it will not only prove to be most destructive to their existence, but afterwards will be found to be both economical and wise. Let any alterations in the way of introducing fresh trees into this house be completed without further delay, and take precautionary measures beforehand so that shading may be applied to such trees whenever sunshine is powerful, and in order to promote the re-establishment of such trees as quickly as practicable they should be lightly sprinkled more frequently, and other surrounding surfaces moistened similarly. In connection with this matter, and for the purpose of having a supply of suitable trees on hand to meet emergencies of this kind, which surely happens at times more or less frequent, the importance of making provision for this object cannot be too strongly recommended. It is a very commendable practice to devote a wall exclusively to such purposes, where, by planting a few trees annually or every alternate year from which a supply may be drawn to meet any requirements which are needful under such an arrangement, the object would specially be to prepare the trees for removal elsewhere. For this end it will therefore be necessary to keep the roots as near the surface as possible, and to promote their extension flatly. This will necessitate having a perfect bed of drainage 18 inches or thereabout beneath the roots, to prevent these from striking downwards, and a mulching of surface litter should also be given to obviate aridity there, and to encourage surface root action. *G. T. Miles, Wycombe Abbey.*

ORCHARD HOUSE.—The forcing-house ought to be in a forward state now, and if the trees are in full flower the temperature at night should be 55°, rising by day in dull weather to 60°, or by sun-heat to 65° or more. Admit air early in the morning if the house has been shut up close, but if the nights are not cold the ventilators at the highest part of the house should be open a very little to cause a circulation—half-an-inch of space would be sufficient. It is the custom with some persons who have the charge of hothouses not to trouble about opening the ventilators until the temperature of the houses rises 5° or so. This, I believe, is mistaken practice; it is best in ordinary weather to admit a little air in all houses every day—excepting, of course, in very keen frost-winds, and

even then I would open the ventilators if it could be done on the side opposite to that from whence the wind blows. Much, too, depends upon the construction of the houses; some are so badly glazed that there is almost enough ventilation at the laps of the glass for ordinary weather. It is best to err on the side of dryness in the atmosphere for Peaches and Nectarines, and much more does this apply to Pears, Plums, Apricots, and Cherries. Artificial means must also be resorted to in order to get a good set. Some varieties of Peaches and Nectarines set much more freely than others. Take the pollen from a free-setting variety with a camel-hair brush and apply it to the stigmas of the finest blossoms of any sorts that are known to be shy. It has been under discussion whether foreign pollen as applied to blossoms is more potent than self-fertilising them; sometimes it is, and at others it is not. For instance, the pollen of Royal George Peach applied to the stigmas of the blossoms of Walburton Admirable would ensure a better set of fruit than merely self-fertilising them; but, on the other hand, no foreign pollen would be of any advantage to such sorts as Early York or Bellegarde. Barrington, and the fine yellow-fleshed variety Exquisite, are both shy in setting as pot-trees. The buds are now swelling in the late house; blossom-buds are abundant, and with careful management a good crop of fruit may be predicted. The weather is now very mild, and the ventilators, top and sides, are quite open. Those who have no heating apparatus would do well to keep the trees back as much as it is possible. I wrote in January about the treatment of trees one year from the bud that have been potted up to replace worn-out specimens; it is best to cut them down to within a foot or 18 inches of the union between bud and stock. Brown scale must be removed by hand, washing with soapy water. *J. Douglas, Ilford.*

ORANGE TREES IN POTS.—Little need be added to the remarks made two weeks ago as to atmospheric moisture and temperature. If the fruit is set on any trees, those will delight in frequent syringings with water that has been allowed to stand in a water-pot over the hot-water pipes. All the trees that remain in cool houses should now be placed into heat. If the blossoms open about the end of March, or in April, the fruit will set freely in a warm house. It is not desirable to remove the trees from a quite cool house to a stove temperature at once, and for that reason I have recommended placing the pots in Peach-houses or vineries about to be started. The trees ought to be taken out before they become shaded with the Vine-leaves. When treated as I have recommended the trees make very strong growths, and it is best to pinch them back during the growing season to induce fruitfulness, and keep the trees in good shape. See that all insect pests are destroyed, as previously advised; if this is delayed until the weather is warm, and time precious, the case is hopeless. *J. Douglas, Ilford.*

STRAWBERRIES IN POTS.—Now that the weather has so much improved all plants that have been covered up during the recent severe weather should be examined, removing all decayed leaves, and surfacing and top-dressing them at the same time. The condition of the soil in the pots should also be examined and the opportunity should be embraced of arranging the most promising plants for starting at stated periods with a view to have extra fine fruit for exhibition or for particular private requirements. We are forcing Black Prince and Vicomtesse Hélicart de Thury at present, and with the last batch of the latter we also start a limited number of that grand forcing variety, Underhill's Sir Harry; both these sorts started at the same time and handled judiciously give a constant succession of fruit, the size and quality of which I have never known to fail giving satisfaction. Such varieties as Sir Charles Napier and others of the same type are often ruined by being started too early in the season. The stock should therefore be so arranged as to work every individual variety under the most favourable conditions: which for the kinds under consideration are full exposure to air and light, abundant ventilation, and gentle forcing. All plants that are now being pushed forward will require increased attention in watering. New roots are being formed daily which will necessitate a more frequent use of the watering-pot; liquid manure should also be got in readiness for plants that have nearly set their fruits, and fertilisation will demand attention when the flowers are in a fit condition for that operation to be performed as referred to in our last Calendar. Demands may safely be anticipated in experienced hands by keeping a good succession in advance, it is so simple to retard the crops in their ripening stages. *W. Hinds, Otterspool.*

PLANT HOUSES.

ORCHIDS.—While gardeners on all sides who have fruit to set and swell are complaining of the dulness of the weather, Orchid growers may congratulate themselves that it is not altogether bad for

their plants. Owing to their long confinement in almost unaired houses, Orchids are now in a delicate condition, and less able to bear the sun than at any other time of the year. Nothing will so speedily resuscitate them as an airy, moist atmosphere which, thanks to the mildness of the weather, can easily be maintained at a proper temperature with but little assistance from the fires. The sun has been seen so seldom lately that probably but few have been reminded of the shadings which it will soon be necessary to use.

The Odontoglossum-house will be the first to require shading; where this house has any other aspect than north, it is now indeed time to have the blind put up, for after the middle of February the sun (when shining from 11 A.M. till 2 P.M.) has sufficient power to raise the temperature of this house too high unless the ventilators are well used. Often at this time of the year the external air is so harsh and cold that it would be far from wise to admit it at all freely even when the sun is shining, far better to let down the blind and give but little air. The best shading for this house and also for the Cattleya and intermediate houses, is an outside roller-blind kept 4 inches clear of the glass by means of strips of wood running parallel with the roof rafters, upon which strips the roller will run and rest. This plan allows of a free current of air to pass between the blind and the glass which will tend greatly towards keeping the temperature of the house down, and also insures perfect circulation through the roof ventilators. Houses thus shaded and judiciously ventilated will during the summer days contain an atmosphere several degrees below the outside air, a point which no one who understands cool Orchid growing will undervalue. I wish I could recommend a shading as suitable for the East Indian-house as the one above is for the houses named. I have mostly used an outside roller-blind, the blind when down resting on the glass. This shading has only one failing that I am aware of: it does not let through enough sun-heat. Nothing can be more vexing than to have let the blind down to prevent the sun scorching the foliage, and then have to put on more fire-heat to keep up the temperature, yet this is what often happens on bright and cold mornings during March and April when outside roller-blinds are used. Fixed inside blinds let in plenty of heat, and when the sun is shining are everything that could be wished for in the shape of shading for the East Indian-house; but on dull days, and during every hour of daylight before 8 A.M. and after 4.30 P.M., they are injurious, in that they reduce a light which needs no reduction. Nevertheless, for the house in question there is not much choice between the two methods of shading mentioned—one deals best with the light, the other with the heat. The much cheaper method of whitewashing the glass is not far behind either. I read with great interest Dr. Wallace's remarks on bamboo-shading, and I do not see the least reason why it should not answer: it is certainly worth trying on a small scale.

From this time to the end of March is one of the two periods of the year when cool Orchids should be potted; the other period is from the middle of September to the end of October. Any plant that will require more root-room before September should now be potted. As a rule, no cool Orchid should be potted during the hottest months of summer. Even when well established they find the heat as much as they can well put up with; it is, therefore, easy to conceive that a fresh-potted plant would run a great risk of coming to grief. Potted now, they have several weeks to establish themselves before the strain comes; moreover, our English climate from now till May is such, that it is quite an easy matter to maintain in cool Orchid-houses an atmosphere in every way suitable to the plants. The pots used for all Orchids should be quite clean, and should come in the first place from a maker who thoroughly burns them, otherwise when in use they get green so easily that they are a constant nuisance. The best drainage is charcoal and broken pots; the latter can be obtained from the pottery for a trifle over the cost of carriage. No crocks should be used more than once among Orchids, for however clean they may look they are seldom free from vermin, and are certainly neither so light or sweet as new ones. Cool Orchids should have their pots two-thirds full of drainage; they delight in equal parts of peat and sphagnum to root in, and do not care to be elevated much above the rim of the pot: when well rooted they will require pots two sizes larger than what they are shifted from. Masdevallias detest small pots, they are free, strong rooted plants, and delight in having plenty of root-room; for want of this they often look yellow and miserable. Small growing Odontoglossums, such as *O. Rossii*, *O. Cervantesii*, *O. roseum*, and *O. erubescens*, are best in baskets or pans suspended from the roof. The charming Cattleya citrina will succeed for nine months of the year with less water than almost any other Orchid, but now that it is finishing up growth and pushing flower, it should be liberally supplied with water. *J. C. Spyers, Burford Lodge, Dorking.*

THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 15, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

| | | |
|------------|--------|---|
| MONDAY, | Feb 17 | — Sale of Rare Lilies at Stevens' Rooms. |
| WEDNESDAY, | Feb 19 | { Sale of Roses, Fruit Trees, Palms, Camellias, &c., at Stevens' Rooms. |
| THURSDAY, | Feb 20 | { Meeting of the Linnæan Society, at 8 P.M. |
| | | { Sale of Orchids, at Stevens' Rooms. |
| FRIDAY, | Feb 21 | { Sale of Collection of Orchids, at Stevens' Rooms. |
| SATURDAY, | Feb 22 | { Sale of Plants from Ghent, at Stevens' Rooms. |

IN the lately issued part of the *Journal of the Royal Horticultural Society*, which we are glad to see appearing with more regularity than heretofore, is a notice, with illustrative woodcuts, of a DISEASE IN THE ASH, by Mr. WILSON SAUNDERS. Mr. SAUNDERS' paper was originally read as a communication to the Scientific Committee, and it describes a condition of the Ash which must be familiar to all observers. "It first appears," says Mr. SAUNDERS, "as an irregular crack in the bark with a raised rufescent margin. This crack soon assumes an open gaping aspect, widening and enlarging until it often surrounds the branch, although the branch be several inches in diameter. Within the gaping margin the bark is seen of a dark brown colour, and is very rugged and irregular, rising into all manners of shapes, and where solid, of a greatly increased thickness. The wood under the diseased bark is eaten away as it were, and cavities are formed, leading to the very centre of the stem in advanced stages of the disorder. These cavities are generally lined with the discoloured diseased bark, and are well defined, and have the adjoining wood of a healthy character, to all appearance." Mr. SAUNDERS' description is, as all who have seen the disease will recognise, a very faithful one, but he adds that while examining and drawing the specimens he sought for traces of insects without success.

Turning now to the eleventh volume of Mr. STANTON'S *Natural History of the Tineina*, published in 1870, we find at p. 3 a description of a moth known as *Prays Curtisellus*, and a coloured figure of the insect in its various stages on the first plate. In early spring, says Mr. STANTON, small heaps of excrement called "frass" may be seen on the twigs of the Ash, and these are traceable to a small whitish larva, or caterpillar, with a black head and black spots on the two terminal segments. In May the young Ash leaves may be seen blighted and spun together with white silken threads, and if the larva be now sought it will be found about half an inch long, of a greenish colour, marbled with reddish brown spots along the back. In June and July a moth may be seen hovering over the Ash tree, its whitish wings marked with blackish or brownish markings, the largest of which is triangular. This is the perfect insect. Its mode of procedure is as follows:—When the eggs are deposited and hatched the young larvæ, at this time about two lines long, mine the Ash leaves by burrowing in serpentine tunnels through the tissues, and quitting them for the smooth bark before the fall of the leaf. In January the larvæ, in their second stage of growth, may be found in the young shoots. When the leaves are expanded in spring, and the young shoots begin to grow, the larvæ emerge, attack the young shoots, check their growth, and spin some of the leaves together. At this time the larva is a handsome young grub of some half an inch in length; but it speedily spins a cocoon, becomes an inanimate pupa, analogous to a resting-spore, and after a rest of a few weeks the perfect insect appears in July in all its delicate bravery of apparel, to make provision

for the perpetuation of the species, and renew in its offspring the cycle of changes we have alluded to.

Here, then, we have the disease of the Ash well known, and the insect well known. Mr. SYDNEY WEBB at the last meeting of the Scientific Committee went a step further, and having, as it were, put two and two together, was in a position to assert from his own observations that these great, ugly, cankerous wounds of the Ash are the direct consequences of the injuries inflicted on the smooth tender bark of the Ash by these tiny tunnel-makers. Water penetrates into the apertures and cavities made by the insect, stagnates there, rots the tissues, whose vitality is already enfeebled by the voracity of the insect; frost and other contingencies add to the mischief, and so, from the "little rift within the lute," come these terrible disfigurements, the cause of which it is impossible to determine in the later stages. Mr. WEBB'S statement to the committee was a very neat piece of inductive reasoning, and it illustrated, among other things, the absolute necessity of beginning at the beginning in investigating plant diseases. Specimens of Cucumber disease and what-not are sent in their fullest stage of development for the inspection of experts, when all trace of the originating cause has become obliterated, and the experts can but shake their heads and describe in more correct and precise language what is already patent to less skilled observers. It is to gardeners and foresters trained to observe the beginnings of things that we should look for at least the clue to many of these maladies—a clue which they alone, as a rule, have the opportunity of discovering.

The second point to which we would allude is the value a Scientific Committee may be to a Horticultural Society by bringing to bear on a given subject the collective wisdom of experts in various subjects; but, as we have said, it is very rarely that members of such committees have the means or opportunities of examining diseased conditions in the early stages and of tracing step by step their history.

— BOTANIC GARDEN, PALERMO.—Through the kindness of Professor TODARO we this week lay before our readers an illustration (fig. 29) of the aquarium in these gardens. A glance will suffice to show the more than semi-tropical character of the vegetation which flourishes in this favoured clime. In the foreground are the large heart-shaped leaves of the *Colocasia esculenta*, of which the foliage is eaten as Spinach in the tropics, while the tubers yield a vegetable like our Potatoes. To the left is a fine clump of *Nelumbium luteum*. Quite in the centre of the illustration, bristling like a porcupine, is a plant of some interest—the *Dovea tectorum*, or *Restio tectorum* of LINNÆUS, from which thatch for huts is made at the Cape, and which might possibly with other species of the same order be utilised for paper-making. The plant generally met with in European gardens as *Restio tectorum* is not true to name. Specimens kindly furnished by M. TODARO show, however, that at Palermo they have the correct plant, and that when seen in a mass or clump it is singularly striking and effective, but not so much so as some of the species of *Thamnochortus*, which are so handsome that the wonder is they have not long since been introduced. The background of the illustration is filled up with Papyrus, Sedge, Bamboos, and the like.

— ROYAL HORTICULTURAL SOCIETY.—The annual meeting of the Royal Horticultural Society, as will be seen from the report in another column, passed off very quietly. Every one seems to have felt that in such a critical state of affairs anything like division would be extremely prejudicial. The main point turned on the election of new councillors. Mr. GROTE and Lord SKELMERSDALE were elected, as it were, *nom. con.*; but an attempt to supersede the nominee of the Council, by the substitution of Mr. KELLOCK, failed. We do not suppose that such an attempt would ever have been made if the names of two gentlemen entirely unknown as horticulturists had

not been proposed, and if it had not been for the fact that the Council made no response at all to a memorial presented to them by a large proportion of the Floral Committee. This may have been a pure inadvertence, but it had the look of a discourteous, high-handed proceeding, and roused the jealous fears of those who dread, and not without ample reason, any drifting towards the South Kensington policy. It is not very easy to define the latter, but its general drift is well enough known, and at any rate, whatever it may be, it is not horticulture. The Council should do its utmost to promote and improve the real work of the Society at Chiswick and at the three committees respectively, and having done that and so proved its public utility, it will be in a better condition to confront any inquiry that may be made by Her Majesty's Commissioners or by Parliament. A recreation ground for South Kensington is not the main object of the Society, though owing to untoward circumstances it cannot at present be wholly neglected by the governing body.

— THE NATIONAL FLORIST SOCIETIES.—A meeting of the Southern section of the National Auricula and National Carnation and Picotee Societies was held on the 11th inst., for the purpose of appointing judges for the ensuing shows, and for considering the question of ways and means. The honorary secretaries reported that a fair response had been made to the applications for continuation of subscriptions, but that to place the respective committees in a position to meet the sums offered as prizes, and the necessary working expenses, which by the way are very reasonable, each Society stands in need of further help to the extent of £10. The lovers of these flowers will no doubt at once supply the deficiency, and relieve the working members from any anxiety on this matter. We may say that even those who are not specially connoisseurs of these particular flowers will be doing good work by lending a helping hand, as the societies quoted have been doing floriculture a real service by holding together their little bands of followers, at a time when there has been great want of cohesion amongst horticulturists generally. We are glad to note that this year both societies hold their show at South Kensington. Subscriptions may be sent to either of the honorary secretaries:—Mr. E. S. DODWELL, II, Chatham Terrace, Larkhall Rise, Clapham; or Mr. J. DOUGLAS, Loxford Hall Gardens, Ilford.

— OUR FRUIT PROSPECTS.—An estimate of the prospects of a successful fruit year so early in the season as this may be something akin to the proverbial "holloa" before getting clear of the wood—a cry which usually provokes more derision than sympathy for those who indulge in it when their expectations fail to be realised. But so far as present appearances go, in such places in the South of the kingdom as have come under our notice, it is some years since they were so favourable. Taking almost all the species of hardy fruits into account, there is existent the first essential for a crop, an abundance of bloom-buds. Apples, Pears, Plums, and Cherries, in addition to bush fruits, are well studded with fine healthy well developed buds that still further hold out the likelihood of a plentiful fruit season by being more than usually late, so much so that unless the weather were to continue from the present more than ordinarily mild and sunny, the time of flowering will be later than usual, giving a better chance of escaping spring frosts. Added to this, the trees of both Apples and Pears have been rested by carrying in most places very little fruit during the last two summers. Thus, on taking all the conditions into account, we think we are justified in looking forward to a plentiful fruit season, always barring spring frosts.

— THE DESTRUCTION OF PLANTS BY FROST.—The way in which frost effects the destruction of vegetable life is often, by the casual observer, looked upon as in a measure comparable with the action of the last feather represented in the old adage as breaking the back of the camel. Plants of any particular species not able to resist the influence of the severest frosts to which this country is ever subject may be reckoned as able to bear a depression of temperature down to a certain point, but not beyond, as a matter of course to some extent influenced by situation and season. Yet this in reality is not the case, as the present winter, more than any we ever recollect, affords evidence. The first spell of frost, beginning about

December 10, culminated in the north of London on Christmas Eve before midnight in the mercury descending to 7°, or 25° of frost. When the thaw came every one was agreeably surprised to see how little damage was done. Even the buds of Roses on walls, with no further protection, that had shown colour before the frost set in, appeared little the worse, and the young tender points of the shoots which had been growing up to the time under like conditions were in many cases uninjured. Numbers of flower garden plants that usually die or are injured by less frost than we had seemed not much affected. In the kitchen garden things were similar. Winter Broccoli of the kinds usually least able to bear a low temperature, was almost unscathed. Then came the return of frost: still there was never

— “ONE SHALL BE TAKEN AND THE OTHER LEFT.”—This is a scriptural saying, that now and then receives singular illustration. Just now, in the small forecourt gardens in the High Street, Feltham, may be seen two Araucarias, one 2½ feet high, healthy and uninjured, and within a few feet another, 5 feet in height, every branch of which is as brown as a berry, and the plant killed to the ground. Both were left unprotected during the severe weather.

— A REMINISCENCE OF THE TULIP MANIA. —At the end of last December, says the *Deutsche Gärtner-Zeitung*, two houses in the main street of Hoorn, about twenty miles from Amsterdam, were offered for sale for demolition. These houses were purchased during the Tulip trade which flourished

roots of leguminous plants cultivated in water, and he then proceeded to examine a number of them microscopically, and he thinks that there is no doubt that he saw a parasitical plasmodium in the still growing parenchymatous tissue: WORONIN observed the same thing.

— THE ORIGIN OF THE HOLLYHOCK FUNGUS, AND HOW TO DESTROY IT.—This destructive fungus, which has wrought great havoc some seasons amongst Hollyhocks in this country, appears to be more general and more unmanageable in Germany than it has hitherto been here. Professor DE BARY contributes an article to the *Deutsche Gärtner-Zeitung*, in which he describes the mode of reproduction of this pest, the history of its appearance in European



FIG. 29. AQUARIUM IN THE BOTANIC GARDEN AT PALERMO, (SEE P. 208.)

so much as at the first visit, not more than some 17° being registered, but the biting east and north-east wind which accompanied it night and day for the greater part of a week has left its mark unmistakably by killing or injuring many things that escaped altogether in the previous instance. The effects of the wind were evident, as in corners sheltered from it not many yards distant from others, exposed plants at all tender afford proof that it was the cutting current of frozen air that did the mischief, not the depression of temperature. In fact it is tolerably clear that though a certain measure of frost will destroy vegetable life proportionate in degree to the inability of different species of plants to withstand it, yet beyond this, cold affects them much as it does ourselves, when we often with a limited amount of frost and a driving wind, feel far more uncomfortable than during a much lower temperature when the atmosphere is still.

from 1634 to 1637 with the proceeds of three Tulip bulbs! The record of this remarkable purchase was preserved in a stone inserted in the gable of one of the houses.

— NATURE AND CAUSE OF THE SWELLINGS ON THE ROOTS OF LEGUMINOUS PLANTS.—The presence of fleshy swellings on the roots of many leguminous plants will be familiar to most practical men. Various causes have been assigned for their production, insect agency, hypertrophied growth of tissue, &c., have been offered in explanation of this phenomenon. Mr. KNY, as reported in the *Botanische Zeitung*, believes they are produced by an internal parasitical fungus similar to the Plasmodiophora Brassicæ of WORONIN, which is said to cause “clubbing” in the Cabbage tribe. KNY found that these protuberances were never formed on the

gardens, together with some remarks on the means of destroying it, or discouraging its growth. With regard to the origin of the Mallow fungus, DE BARY says it is uncertain whether it was first introduced into Europe from Chili, or *vice versa*; but there appears to be no doubt that it spread from Spain into the South of France in 1873. The only means of destroying it is to burn the plants affected, but DE BARY thinks sulphur may prevent or check it from spreading. As a matter of fact, a solution of soft soap and sulphur is very effective. With regard to the development of the Mallow fungus, the learned author states that moisture favours it, which we should have thought most probable, and consequently he recommends that Hollyhocks should be kept as dry as possible consistent with their good culture. Now, in our best text-book of practical gardening it is stated that “During times of drought it is particularly

destructive, and therefore plenty of moisture at the roots, and a vigorous growth should be maintained." According to the practical authority just quoted, the disease, as the fungus is termed, was particularly rife in this country in 1873 and 1874; "but during the summer of 1875, probably owing to the presence of moist weather, it was not nearly so destructive."

— **CULVERWELL'S TELEGRAPH AND CARTER'S TELEPHONE.**—We have received several letters on this subject since our last issue, including a long one from Messrs. CARTER & Co., seed growers, at St. Osyth, which, however, throws no additional light upon the point at issue; and under these circumstances we do not think it would be any advantage to our readers to prolong the discussion. One thing is clearly established—*i.e.*, that what Messrs. CARTER & Co. are sending out as Telephone is the most wrinkled seed selected from Telegraph; whether there will prove to be any great difference between this and the true stock of Telegraph remains to be seen. We have received a sample of Telegraph from Mr. CULVERWELL, and shall grow them all side by side.

— **EARLY OPENING OF KEW GARDENS.**—A public meeting in favour of the early opening of Kew Gardens will be held at the Castle Hotel, Richmond, on Wednesday, February 19. The chair will be taken at eight o'clock by Sir TREVOR LAWRENCE, Bart., M.P.

— **CHRISTMAS ROSES IN POTS.**—We have just seen some plants of these growing in 48-pots, and bearing fine heads of large pure flowers. They were grown and flowered in pots in the winter of 1877-78, and after they had done flowering the pots were stood out-of-doors on an ash-bed, and allowed to take all weather. Instead of being repotted at the end of the summer, as is usual, the plants remained undisturbed, and had the protection of a cold frame during the severe weather. The flower crowns began to swell in December, but remained quiet during the frost; since the thaw the growth of the flower-stems has been very rapid, and the plants, which are in a cold house, are carrying six and eight fine large flowers with more to follow. The soil is stirred occasionally on the surface, and a sprinkling of Clay's Fertiliser is given about twice a week just before watering. This appears to be of great assistance to the plants. Some cultivators that made a point of potting their Christmas Roses every year have confessed to failure: perhaps the plants are impatient of disturbance. Those under notice have done well without the usual annual shift, and this practice carried on for two or three years may in all probability prove much more satisfactory than shifting every year.

— **ORCHIDS IN FLOWER.**—The following Orchids are now in bloom at Messrs. JAMES VEITCH & SON'S, Royal Exotic Nursery, Chelsea:—

| | |
|------------------------------|---------------------------|
| Angræcum sesquipedale | Dendrobium Veitchianum |
| " giganteum | " Wardianum |
| Ada aurantiaca | " x Domini |
| Calanthe nivalis | Lycaste Skinneri |
| " Turneri | Masdevallia towarensis |
| Cattleya citrina | Lælia allua |
| " Trianae, several varieties | " x flammea |
| Cyclopogon cristata | Odontoglossum Alexandræ |
| Cymbidium chlorinum | " cirrosum |
| Cypripedium Boxalli | " constrictum |
| " Dayanum | " cordatum |
| " x Domini | " gloriosum |
| " x Harrisianum | " leucanthum |
| " insignis | " leopardinum |
| " Haynaldianum | " Phalaenopsis |
| " x porphyreum | " Pescatorei |
| " x Sedeni | " Rossi |
| " venustum | Oncidium aureum |
| " x vexillarium | " Cavendishii |
| " villosum | " cheiroporum |
| x Dendrobium Ainsworthii | " fuscum |
| " crassinode | Phaius grandifolius |
| " x Barberianum | Phalaenopsis Schilleriana |
| " Fytchianum | Pleione humilis |
| " nobile | Sophranites grandiflora |
| " pendulum | " violacea |
| x Endocharis | Saccolabium giganteum |
| Dendrochilum glumaceum | Vanda suavis |

— **RIVAL BRUSSELS SPROUTS.**—We have some correspondence before us with reference to a variety of Brussels Sprouts now being sent out by Messrs. R. P. KERR & SONS, of Liverpool, which, however, is much too long for publication in its entirety. We can therefore only state the case briefly, which is this:—The Messrs. KERR's catalogue contains the following paragraph:—"Aigburth Improved. This is the extraordinary variety exhibited by Mr. HINDS, of Otterspool Gardens, which has attracted so much attention both here and in Manchester, where a First-

class Certificate was awarded for the remarkable fine qualities both of crop and quality which it possesses. Stock very limited." Mr. HINDS, when calling our attention to this statement, asserted that the Messrs. KERR do not possess a single seed of the veritable Sprouts. We communicated with the Messrs. KERR, stating the nature of Mr. HINDS' complaint, and received a lengthy reply, tracing the history of the variety for the last twenty years, and concluding with the following statement:—

"In November, 1877, Mr. HINDS exhibited at the Chrysanthemum show six Brussels Sprouts as drawn from the ground, but made no claim to their being a 'new variety,' 'selected' or 'improved' by himself, and it was recognised by many of the gardeners from Aigburth and also by Mr. T. DAVIES, Jun., as 'SORLEY's sort.' [SORLEY being an old Scotch gardener who lived in Aigburth for some twenty years, and who introduced the variety from Aberdeenshire.] Last November, 1878, Messrs. T. DAVIES & Co. staged six plants which were grown by Mr. LOWNDES, and they called it Lowndes' Improved; later in the same month, at the Manchester Botanical Society's meetings, Mr. HINDS showed some plants of the same strain, for which he received a certificate. Now we have seen these lots growing, have handled them, and are positive that they are one and the same variety, *i.e.*, SORLEY'S. We find from Messrs. DAVIES' list, just to hand, that they catalogue it as 'Lowndes' Improved,' and that Mr. TYNAN calls it 'Selected Giant.' For ourselves we have had small quantities of the variety before, but not sufficient to enable us to offer it in our list, and we thought as it had been so long about Aigburth, and as SORLEY himself had never claimed any merit in it beyond keeping it selected and pure, that Aigburth Improved was the fittest name for it as identifying it with the locality in which it had been so long grown. We do not claim it to be a new variety, neither do we state that the stock is in our hands; we say it is SORLEY's sort, and we further state that it is the variety which Mr. HINDS staged, and that it was grown from his seed. In spring, 1877, MARK WOOD, gardener to WM. CROSFIELD, Esq., Annesley, a place close by Mr. HINDS, and the gardener of one of our M.P.'s whose name we do not give as we have not seen him on the subject, were at Otterspool, and Mr. HINDS gave each of them some of his Sprout seed; and from that seed, sown 1877, the best plants were seeded last year, 1878, and we have now the produce and are sending it out."

To this Mr. HINDS replies that in 1874 he had a few plants from Mr. SORLEY, and no notice was taken of the plants as being anything extraordinary till an old labourer in the garden drew his attention to three stalks, which were so distinct that he thought they ought not to be lost sight of. These plants were kept and seeded, and "every year since," writes Mr. HINDS, "I have kept selecting and improving upon the strain. I have the seed of those plants, and I am the only person either in England or out of it who has a pinch of that seed. I have taken care that Mr. MARK WOOD and the M.P.'s gardener have not had a seed out of my 'special sowing.' What they had from me was as I got it in its original form. I am quite willing to submit a sample of my Sprouts before the committee of the Royal Horticultural Society next November, and challenge Messrs. KERR to do the same." Here, so far as we are concerned, the matter must end, as, under any circumstances, the dispute cannot be settled until next autumn, when we think, for the reputation of all parties, samples should be submitted to the judgment of some independent body—say the Fruit Committee, as Mr. HINDS suggests. In the meantime the practice of wilfully given different names to the same things cannot be too severely condemned.

— **THE AMATEUR GARDENERS' COUNSELLORS.**

—The amateur gardener is a source of interest to many. Every one is ready to advise and direct him, and there is reason to fear this is much over-done. By many writers the amateur is looked upon as a person well informed in gardening matters, and the advice given to him is frequently suitable also for a large establishment. The amateur gardener, pure and simple, is one of the representatives of a very large class, generally imperfectly informed, making many mistakes, willing to be taught, but desiring and appreciating only that advice which comes down to the level of his attainments and circumstances. If his advisers would remember this a little more, his gratitude would be all the more warmly expressed. One of the amateur gardeners' counsellors has recently, in a monthly gardening publication, set about advising him as to matters affecting the kitchen garden. He

has set down for him a selection of seeds worthy of being sown; and the following is a selection of Peas, as representing what kinds to sow:—"Ringleader, Kentish Invicta, William the First, and Sutton's Emerald Gem, for first sowings; Dickson's Favourite, Daniel O'Rourke, and Taber's Market Favourite, for second; Best of All, Maclean's Wonderful, Champion of England (very tall), for third sowing; Veitch's Perfection, Ne plus Ultra, Lynn's Marrow, Williams' Emperor of the Marrows, Hairs' Dwarf Marrowette, and Maclean's Premier, for last sowings"—sixteen varieties in all. Enough to form a catalogue! This selection is made for gardens of a quarter of an acre! The amateur gardener has in this case some reason to say, "Save me from my friends!"

— **THE "TARO" PLANT IN CALIFORNIA.**—Mr. AGAPIUS HONCHARENKO informs the *Californian Horticulturist* that he is testing the Taro plant (*Colocasia macrorrhiza*), so common as a food plant in the tropics and especially in the Sandwich Islands. His location is in the foothills of Alameda County, and extremely well sheltered. The plants grew rapidly last year, and survived the cold weather of the winter months.

— **THE TREES IN KENSINGTON GARDENS.**—The *Pall Mall Gazette* states that the trees in Kensington Gardens are at last receiving that attention and—what is of even more value to them—that food which have so long been denied them. The carts which a few weeks ago were taking away the fallen leaves, are now engaged, in one part of the gardens at all events, in carrying fresh soil to be spread over ground which has hitherto resembled asphalt in consistency, and been about as well adapted for the support of vegetable life. During the coming summer, therefore, the roots will enjoy the unwonted pleasure of a surface which will not act as a barrier alike to air and moisture. They will once more know when the earth above them is warmed by sun or refreshed by rain. Of many of the trees, however, this last statement may be made with too literal truth. Their pollarded heads and withered branches show plainly that it is indeed "once more." They will receive the meal which Mr. NOEL has provided for them in a thoroughly Pagan temper, and murmur, by way of grace, "Let us eat and drink; for to-morrow we die."

— **CHANGE OF ADDRESS.**—We are requested to state that Mr. R. HOLLIDAY, formerly of 2A, Portobello Terrace, Notting Hill, has removed to The Pheasantry, Beaufort Street, Chelsea, S.W., where he has established his Horticultural Iron and Wire Works.

— **THE ELMS IN WINDSOR PARK.**—The *Times* reports that the decayed Elm trees in the Long Walk, Windsor Park, many of which are said to be nearly 200 years old, are being gradually removed and replaced by young trees.

— **LANDSCAPE GARDENING IN IRELAND.**—We understand that Mr. N. NIVEN, Garden Farm, Dublin, has retired from the arduous duties of his professional calling as a landscape gardener in Ireland, in favour of Mr. WILLIAM SHEPPARD, who is now engaged, at the instance of Sir ARTHUR E. GUINNESS, Bart., M.P., in carrying out the design for the improvement of St. Stephen's Green, in Dublin, as a People's Park.

— **MALDON FLORICULTURAL AND HORTICULTURAL SOCIETY.**—The annual exhibition of this Society will be held on Wednesday, July 9, in the grounds of Mr. HUTLEY, at Maldon Hall. This Society has now opened its operations to the county of Essex on the same terms as when it was limited to one district.

— **SHROPSHIRE HORTICULTURAL SOCIETY.**—The dates fixed for holding this Society's exhibitions are as follows:—Rose show, July 3; summer show, August 20 and 21; Chrysanthemum and fruit show, November 20.

— **WAKEFIELD HORTICULTURAL SOCIETY.**—The tenth annual exhibition of this Society will be held in the Grammar School Grounds, Wakefield, on August 29 and 30.

— **COVENTRY AND WARWICKSHIRE FLORAL AND HORTICULTURAL SOCIETY.**—The first exhibition of this Society is announced to be held at Whitley Abbey on Monday, June 16.

— THE WEATHER.—From the report issued by the Meteorological Office for the week ending with February 10, we learn that the weather was very fine in Scotland on the 8th and 9th, but continuously cloudy or dull in all other districts, with much rain. The temperature was rather low during the first day or two, but afterwards rising quickly, so that the average for the week is above the mean for the time of year in nearly all districts. The maximum at the commencement of the week was below 40° in all districts excepting "England, S.W." and "Ireland, N. and S.," but subsequently exceeding 50° in almost all places, and reaching 58° at Cambridge on the 9th. The minimum was about 32° over England and Scotland at first, but afterwards rising to above 40° at all Scotch stations, where the weather was rather cold, especially on the 9th, when frost prevailed. The sheltered thermometer at Glenalmond sank as low as 24°, and that exposed on grass to 18°. The rainfall was less than the mean in "Scotland, E.," but more in all other districts; the excess, however, being very small in "Scotland, W." and "Ireland, N." In the southern and south-western districts, *i.e.*, "England, S. and S.W." and "Ireland, S.," the rainfall was very heavy. The wind was generally easterly to north-easterly on the 4th, but southerly or south-westerly during the remainder of the week; blowing strong to a gale in many places on the 5th, 6th, and 7th, and again in the Channel on the nights of the 8th and 9th. On the 10th, however, easterly winds again began to appear in our northern districts, but were light.

Home Correspondence.

The Golden Champion Grape.—I had not intended to refer again to this subject, but as Mr. W. Thomson has done so at some length perhaps a few words in explanation and reply will only be courteous and may prove useful. No one has ever doubted that Mr. Thomson sent out the Golden Champion in good faith, a faith which it seems he still adheres to, as he informs us at p. 148 that he only grows two of the many new Grapes that have been sent out of late years, these two being doubtless the two brothers, the Duke of Buccleuch and the Golden Champion, which he names. Having enjoyed the friendship of the late Mr. T. Osborn for many years, it is also a pleasure to endorse and if possible to add to Mr. Thomson's high estimate of his many admirable qualities. No one has ever doubted that he purchased and distributed the Golden Champion believing it to be the best white Grape in existence. Its capricious conduct, however, in so many places forced him to alter his opinion, as many of his friends besides myself well know; and it was hardly considerate to recall his name, so dear to most of us, in connection with this matter. As to its being a mere matter of syringing, why comparatively few gardeners now syringe their Vines after they break, and the Golden Champion here never had a drop of water on its berries; besides in many places it absolutely refuses to grow, in others it grows like a weed, and altogether is too uncertain to depend upon. It pleases Mr. Thomson to have another hit at my account of forcing runaway branches into Grape-bearing ones by weighting them, and the practice is cited as a proof of irrationalism. Well, doctors differ. What Mr. Thomson calls irrational brought me a letter of inquiry and commendation from one of the greatest men of the age, and the practice itself under the circumstances described was no more irrational than the splints and bandages applied to a broken limb. No doubt limbs were not meant to be broken, nor bunches of Grapes to run into tendrils, but when either happens the safety of the limb and the recovery of the bunch of Grapes alike demand that we deal promptly with the effect, and not go round searching for causes that produced them. For example, it may have been an excess of whiskey that led to the limb being broken, poverty of soil and excess of water at the roots that sent the bunches off into tendrils; but a temperance lecture would not set a broken leg, nor lifting the Vines there and then have forced the runaway bunches into good Grapes. In conclusion, permit me to thank Mr. Thomson for his invitation to Clovenfords. I have been there and still would go, and may perhaps during this season, as I have the most grateful recollection of Mr. Thomson's courtesy and kindness, as well as the grand Dukes and Champions seen there: but as far as convincing me of how well Mr. Thomson grows both Grapes a visit is not necessary. All I have contended is that hardly one in a hundred cultivators can go and do likewise with the Golden Champion, whether he leaves off syringing or not, or cuts off the supplies by half-cutting the bearing branches through or not. Similar failures occur with the Duke of Buccleuch, which I made a special pilgrimage to Clovenfords to see, admire, and praise in your pages, as "having all the merits of the Golden Champion and none of its faults"—an opinion which the irresistible logic of facts has somewhat modified. But the praise was sincere, and far more

pleasant than the qualification, and rested on the solid foundation of a house of the Duke in splendid condition. *D. T. Fish.*

Orchids at Tredrea.—Tredrea, the residence of M. H. Williams, Esq., has long been famous for its Orchids, and its popularity has very much increased of late owing to the frequent additions to the collections, as well as the increased size of the plants. There is now a very interesting display of flowers; and, considering the earliness of the season, when there is so little out-of-doors to invite attention, they are all the more appreciated. On entering the show-house one can hardly fail to be struck with the beautiful effect produced by the *Calanthes*, &c., grouped near the door. There are now in flower three baskets of *Calanthe vestita* rubro-oculata with about thirty spikes; *C. Veitchii*, and a capital variety of *Limatodes rosea*; *Cattleya Skinneri*, 2 feet across, thirteen spikes; *Odontoglossum Inseayi tigrinum*, *O. biconense*, *Laelia autumnalis*, two plants of *Laelia anceps*, each 3 feet across, going off now, but must have been very fine; the distinct *Zygopetalum Mackayi*, with four spikes; *Bollea celestis*, a pretty little mass of *Bolbophyllum auricomum* on a block, *Dendrobium crassinode*, *D. moniliforme*, *D. Fitchianum*, *D. cretaceum* roseum, *D. longicornum*, *D. nobile*, still very effective; *Epidendrum selligerum* purpureum, a perfect thicket of spikes; *Cypripedium niveum*, venustum, insigne, and villosum; *Ansellia africana*, two spikes; *Angraecum sesquipedale*, with seven of its curious flowers, in the best of health; *Leptotes bicolor*, on blocks, very pretty; and the fiery little *Sophranitis grandiflora*, *Goodyera discolor*, *Saccolabium giganteum*, two lovely racemes; *S. violaceum*, *Aerides Huttonii*, *Ada aurantiaca*, *Phalenopsis amabilis*, two plants in flower. In another fortnight there will be a grand display of *Phalenopsis*. There are eight plants of *Schilleriana* showing flower; also *P. Parishii*, *P. Luddemanniana* and *grandiflora*, all in rare health, showing plainly that Mr. Murton has found out the secret of cultivating *Phalenopsis* successfully. There is here a wonderful lot of large specimen Orchids of various kinds that later on are bound to give faggots of flowers: perhaps a description of a few of the most prominent may be interesting, if it is not encroaching too much on your valuable space. *Vanda Batemanni*, 3 feet high, furnished to its base; *Vanda gigantea*, 3 feet high; *Aerides odoratum*, a fine specimen, no doubt will give twenty racemes; *Oncidium ampliatum majus*, 4 feet across, with leaves 20 inches long. I have seen this plant on a former occasion a golden mass of flowers worth going a journey to see. *Oncidium Lanceanum*, 3 feet diameter; *Cattleya crispa*, 5 feet across, fifteen or sixteen breaks; *Dendrobium albo-sanguineum*, two fine masses in baskets; *D. Parishii*, also a grand plant; *D. speciosum*, 3 feet across, flowers every year; *D. Falconeri*, and a host of other *Dendrobies*; a fine plant of *Anguloa Clowesii*, *Trichopilia suavis*, 2 feet; *Cœlogyne cristata*, a dozen spikes showing; *Odontoglossum citrosum*, 2 feet 6 inches across; *Epidendrum rhizophorum*, a dense mass 3 feet in diameter, will soon be in flower. This plant last year was in flower more than six months in a cold house, its dazzling flowers being very conspicuous. The plants generally are in the most robust health, and reflect great credit on Mr. Murton (the gardener) as a cultivator of Orchids. *R. Gill, Tremough, Cornwall.*

Effects of the Frost on Garden Plants.—There is a pleasant tradition that applies to the recent severe weather, to the effect that the harder the winter the speedier the reaction in Nature. There is both room and reason for the full exemplification of this charming idea this spring. The long spells of intermittent frost, rain, thaw, and snow, accompanied by bitter easterly winds, sunless days, and intensely cold nights, have been productive of immense mischief amongst garden plants, and myriads of seeming hardy things are as dead as if they had been boiled or scorched with fire. There is the *Myosotis dissitiflora* literally denuded of every bit of green except a few leaves about the base of the plants; the clumps are browned almost to death, and at no time since this pretty blue flower became such a garden favourite has it looked more wretched than now. Stocks of all semi-hardy kinds are killed wholesale; there is destruction and havoc everywhere; and few indeed will be the spikes of *Bromptons* and *Queens* available for cutting this season. Wallflowers have terribly suffered, although not beyond redemption; there will be no early bloom, as the oldest and most forward plants are the most injured. Last winter the late frosts terribly crippled the plants whilst in bloom, and as a result the seed crop was a general failure; now the plants are injured earlier, and will have to display wonderful recuperative powers if they are again capable of producing good heads of bloom. *Antirrhinums* are all killed to the ground; not a plant seems to be left alive. In past winters excessive moisture has been their most potent enemy, but now frost has slaughtered wholesale. *Pentstemons* look as

though killed, but the roots are alive, and the presence of green shoots about them make their case more hopeful. Honesty is fearfully cut up where exposed to the action of the wind; and on myriads of good hardy things there is not a green leaf to be seen. Pansies have not been much injured, and all the Primrose and Polyanthus family are looking well. Old plants of Golden Feather are useless in spring decoration, and can hardly recover to produce seed. It will require a marvellous reaction to recoup all these deaths and losses of our favourite old flowers. *A. D.*

— You will no doubt receive many lists of killed and wounded by the late severe and continued frosts. It is pleasant to record somewhat unexpected escapes. A large pan of the North American Pitcher-plant (*Sarracenia purpurea*), standing on the Wilson raft, in a tank on which the ice was 3 inches thick, is not in the least injured; a strong plant of *Abelia rupestris* in a fully exposed part of the rootwork has only the tips of the shoots cut. The spring flowers have come up with one burst, after the manner of those of colder climates. Snowflakes, Winter Aconite, and hardy Cyclamens, were up and out in three days. *George F. Wilson, Weybridge, Feb. 10.*

The Vegetables and the Frost.—The latter has almost made an end of the former. The frost of December harmed vegetables but little, but the piercing east winds and frozen driving dusts of January added to weeks of sunless frosts have cut vegetables down to the ground. Even Cabbages, old and young, have hardly been able to stand—Scotch Kale and Leeks were also laid prostrate, events unique in my long experience; Brussels Sprouts were severely cut, and as for Broccoli, most of it seems quite wrecked, while Turnips in garden and field have their tops quite killed and the roots frozen. Fields left late for ewes and lambs have not a green leaf and smell badly since the thaw, which shows that the roots are rotting fast. Lettuces in the open also seem ruined. Globe Artichokes, unless where well protected, are cut off level with the ground. Never in all my experience have I seen such havoc among vegetables. The east wind and the dryness of a few days, when the dust blew in clouds, seems to have done most of this most serious mischief. And most serious it is. Even the Brussels Sprouts and Greens left seem to have had all their sweetness and flavour frozen out of them, and it will be long before any fresh Greens can be grown. A facetious friend says the frost has cleared his garden of slugs: we only know at present it has killed or terribly crippled all our vegetables, and many gardeners will be severely tried to keep the pot boiling this spring. *D. T. Fish.*

Winter Dressing Peaches and Vines.—If "W. H." will read carefully what I wrote respecting the above, he will find that instead of being in favour of winter dressing Peaches and Vines, as he appears to wish to make out, that I condemned the practice, and stated that, except under special circumstances, it was a waste of both time and labour, and productive of no good whatever. Further than this, I remarked that were it not for scale that sometimes gets on Peaches, I should never dress at all, and that I had trees which for twenty years had never been touched in that way. Those done now are only coated on the main stems and trunk where some white scale had made its appearance, to dislodge which "W. H." or any one else would have had to scrub with soap and water for some considerable time, when I doubt not they would have left plenty for stock in some of the crevices or parts not easy of access. I never care to run risks in matters of this kind, and knowing the cleansing effect lime and clay has on the bark of trees in destroying mossy growth or conifers, I always use it in preference to any fiddling with soap and water, as I know it to be effectual for the purpose required. These, and when there are thrips lurking on the main stems of Vines, are the special circumstances to which I alluded; and as regards the remark that I did not consider a dressing impeded the swelling of the buds of Vines and Peaches, few I think will be prepared to say that it does; but seeing, as I have endeavoured to show, that the coating of them and that part of the tree is perfectly useless, why cover them at all? Whether it may retard their progress or not, which if it does not weaken them is not of much moment we all know—at least those who have had any experience in the matter—that the stem of a tree protected and kept moist, or even sheltered from the light, will swell much faster than others left fully exposed; which fact is borne out by a good deal in what Mr. Roberts says in regard to the Vine, the stems of which when annually stripped of their bark make little progress, and increase so slowly in size. The Quince unless buried refuses to keep pace with the Pear, and stunted stems of Peaches and such-like bound up with a hayband soon swell out with healthy rind, and lose the contracted look; which being the case, no one need hesitate to use the mixture I have mentioned whenever occasion requires. Insecticides call for very great caution in their application, as

when too strong they do more mischief than persons are aware of, but a little soft-soap, clay and lime are harmless, and at the same time powerful aids in imparting a healthy tone to the bark. I have known Gishurst and other mixtures affect this in such a way as to turn the inner part brown, and cause Peach-buds to fall off wholesale, and no doubt this has been observed by others, although I do not remember to have seen any mention of such a disaster before. *J. S.*

Trebons Onion.—At p. 148 Messrs. Laird & Sinclair, of Dundee, mention the Trebons Onion as being an excellent variety. This I can thoroughly endorse, having grown it ever since it was sent out with great satisfaction to myself and to many others, who get plants in spring to grow for competition; no other variety had any chance with it on the exhibition table. It can either be sown in spring or autumn; but those who want large Onions for competition should sow the second week of August, and transplant in spring in rich soil well firmed by the feet or roller. I generally transplant between the rows of newly planted Strawberries. In such positions, where they have plenty of room, they grow fine large, handsome, oval-shaped bulbs, and will keep fresh and firm till the following February. It is also perfectly hardy, and in my opinion ought to take the place of all the Tripoli section, being so much handsomer, and with better keeping qualities. I have not grown the Zittau; but, on talking over the different varieties with a neighbour practical, he told me that he grew it last year, and it turned out "a big soft lump," not worth growing beside the Trebons. *D. Doig, The Gardens, Rossie Priory.*

The Camellias at Tredrea, Cornwall.—Notwithstanding the severity of the winter the Camellias out-of-doors at this place do not appear to be the least affected. They are growing against a south wall, and have not had any protection beyond what the wall gives. They are bristling with buds, and some already in flower. One plant of elegans covering a space 21 feet by 10 feet, having thousands of buds, will be a grand sight in a few weeks. There are also fine plants of imbricata, Lady Hume's Blush, Donkelaari, Eclipse, Old Double White, fimbriata, tricolor, and Chandlerii. Camellias are rather plentiful out-of-doors in Cornwall, but I have seen a great many that have been more or less hurt with the severe weather this winter. *R. Gill.*

Cocoa-nut Husk for Growing Orchids on.—I have often used these, and they will do fairly for some kinds. My objection to them is, that they are not durable enough, and that when they begin to decay the roots of the Orchids are very apt to decay with them. *C. W. Strickland, Hildenley.*

Treatment of Bulbous Roots.—The pots of these are removed from the open ground (where they have been plunged well over the rims in some light material since October) into a glass structure from which frost is just excluded. The end of January or first week in February this season is the best time to house the collections that are not intended to have much or any forcing. Exhibitors are very anxious to have the plants under their immediate control, and are sometimes impatient to get them out of the ground, but the more roots they make out-of-doors the better. The question was asked me—How about your Hyacinths this weather? The plunging material and the soil in the pots were frozen together; but Hyacinths and Tulips are very hardy. We have just taken the pots indoors, which comprise Hyacinths, Tulips, Polyanthus, Narcissus, Ixias, and Tritonias. We have placed them in a span-roofed greenhouse at no great distance from the glass, and the whole of them are looking well, the Hyacinths perhaps rather stronger than last season. The treatment now is to allow as much light as possible to get at them, and avoid a temperature higher than 40° until it is seen that some growth has been made. If the pots are well filled with active roots they will do well with 45° at night, increasing 5° more by day. We get no sunshine at present, which is a great loss to the plants. Our earliest Hyacinths, Tulips, and Polyanthus Narcissus were placed into heat in December, and they are now, and have been for some time, in full flower. If placed in a cool greenhouse just as the flowers open they will remain fresh for a month at least. A succession is obtained by placing a few pots of each into heat at intervals of about two weeks. Success is obtained by placing them in a temperature about 5° more than the greenhouse, and raising it gradually, keeping the plants, if possible, near the glass, and admitting as much air as it is possible to admit without lowering the temperature more than is desirable. No one can admire a Hyacinth if it is necessary to tie a strip of matting round its middle to support the leaves; and what an undignified object it is with the leaves hanging over the support! You cannot ask any one to admire a plant if it has not healthy leaves. Well developed foliage and perfectly formed bells and

spikes must be found together before Hyacinths can be acceptable on the home stage, or find the highest place on the exhibition table. The leaves of Hyacinths, Tulips, and Narcissus, when perfectly healthy, are so brittle that they readily snap under a rude touch. Judicious watering is an important element in successful culture. Some persons fancy that because Hyacinths are sometimes grown with their roots in vessels of water that they cannot be over-watered when grown in pots; this is a grievous error, and the cause of many failures. The bulbs are usually potted in a rich soil, and if this is overcharged with water it speedily becomes sour, and the roots perish. At first it may not be necessary to water the pots more than once a week, and at no time are large supplies required. Fill the pots each time, but no more. I have seen young gardeners again and again watering plants and running the water over every time, wasting as much water as they were using, and that is sometimes the least evil resulting from such carelessness. A good workman fills his pots to the brim, but runs not a drop over. Young gardeners, take a note of this. Weak manure water should be used at every alternate watering. If the flowers are required by a certain date bear this in mind—that it is better to push them on with a little heat than it is to retard them. *J. Douglas.*

Vicar of Winkfield Pear.—Mr. Fish appears to be surprised that Mr. Saul should have this Pear in use so late as January 15: mine were still later, as I only sent my last dish to table of that and Winter Nelis on February 6. Ours are grown on espaliers worked on the Pear stock, and growing on a stiff soil with a clay bottom. These were planted about seven years ago, the fruit on the sunny side was quite rosy, but I cannot say if they were better flavoured than those not coloured, but they were all very fair, and I consider it a good and useful sort for late season use. Beurré Rance on the same aspect was not so good as usual, although Beurré Diel, of which we had a fine crop, was better than usual, but ripened a month earlier. *S. Taylor, Castlecroft, Wolverhampton.*

Peach Blossoms Destroyed by Ants.—During the whole of my experience in this way I have not hitherto been troubled by these pests in this particular manner; this season has, however, been an exception, as shortly after the flowers on the trees in the early Peach-house began to expand our notice was attracted by their diminished appearance, and a discovery made that these pests were greedily devouring not only the petals but the fructifying parts also. To remedy at once such fatal consequences as would naturally ensue from such a cause we forthwith rendered the flowers unpalatable by syringing the trees with strong quassia-water, and in the course of a day or two afterwards we supplemented its effects with a dose of moderately strong tobacco-water. These means had the desired end. *G. T. Miles, Wycombe Abbey.*

—We had a great quantity of Peach blossoms destroyed last year in our early Peach-house, just in the same way as "J. R." describes, by the black ants eating out the pistil of the flower. I had recourse to the usual remedies for their destruction, but found nothing so effectual as Scott's Wasp Destroyer, spread on thin slices of bread, and placed in different parts of the house; in a short time they were covered with ants. The pieces of bread were then put into boiling water; this was followed up for a few days, by which time scarcely an ant was to be seen in the house. *S. A. Woods, Osherton Gardens, Worsop.*

—We have experienced similar annoyances from black ants as your correspondent "J. R." One season we had scarcely a blossom left perfect on a Prince of Wales Nectarine tree. In the same house the blossoms of large flowering varieties of Peaches remained uninjured. Probably the ants cut off the pistil when in search of honey, in order to give free access to the interior of the blossoms. I noticed they had sufficient room to enter large blossoms without damaging the pistils. Ants may be driven away by strewing Peruvian guano in their runs. *Thos. Coomber.*

—"J. R." is not the only one troubled with these mischievous little pests. Our early house is infested with them. For some time they seemed to keep up their work of destruction as fast as the flowers expanded (which is not very fast this weather), by eating out the pistil, but I think I have cured them at last by binding paper round the stems, and on this I put a mixture of gas tar and oil. The oil keeps the tar from getting dry, and being always in a sticky state they don't attempt to travel beyond it. *Foreman.*

Measures taken to Eradicate the Phylloxera.—In a back number of the *Gardeners' Chronicle* I described the manner in which the Vines here were affected with Phylloxera—an explanation of the measures taken to exterminate this destructive pest may be interesting to some of your readers. We commenced as the Grapes were gathered, by cutting out the Vines and burning them, and removing the borders and drainage. As this proceeded all roots

found were collected and burned; many roots had found their way into crevices in the wall, and as on these traces of the insect were visible, we had the portions of the walls below the surface line of the borders encased in cement; the parts uncemented, after being well syringed with carbolic acid, diluted with water, were twice whitewashed, and all wood and iron work has had two coats of paint. We have concreted the sides of the border, as this had not been previously attended to, and in it placed sufficient clean brickbats and new tiles for drainage. Fresh borders are in preparation for young Vines from a reliable source. The vineries, five in number, will be replanted as follows, viz., two with Hamburgs, one with Muscat of Alexandria, one with Lady Downe's, and one mixed with Alicante, Alnwick Seedling, Gros Colmar, and Pearson's Golden Queen. We have found the Phylloxera most numerous in the warmest and most dry portions of the internal borders. I am inclined to agree with those who think it will do but little injury, in this country, to Vines planted entirely in external borders, yet I am not quite satisfied on this point; for although we failed to find it on roots so situated, the condition of the borders might possibly account for it. They were composed of tenacious soil, resting on marl, and imperfectly drained, they were consequently cold and wet—an unfavourable situation for Phylloxera; in soils of warmer nature there will be more cause for fear. We should prefer outside borders to replant in, but unfortunately in our case this is impracticable. It is thought by some we have gone to unnecessary trouble and expense. It may be so; I do not pretend to know, possessing as I do only a very imperfect knowledge of the nature of the Phylloxera; but I think when it gets a firm footing, as it had here, it is not easily eradicated, and unless a season is lost by allowing vineries to remain unoccupied something more must be done to prevent a second outbreak than merely clearing away borders and replacing with new. I should like to know if in depositing eggs confines itself to the Vine, or are some also laid on wood or brickwork, and do any eggs remain unhatched throughout the winter? We have exposed our houses as much as possible to the influence of the late severe weather, and no plants of any kind will be allowed inside with the Vines. I trust we have succeeded in thoroughly stamping it out; if so my employers, who take great interest in horticulture, will be compensated for the expense incurred. *Thomas Coomber, Hendre Gardens, Monmouth.*

Wiring Garden Walls.—Mr. Wilks, in answer to "Chevalier" (p. 149), points out (correctly, I think) that the durability of wiring must be looked at in considering the expense. It may be a guide to "Chevalier" if I tell him what it cost me for materials to wire my wall, which is 50 yards long and 6 feet 6 inches high, wires in number ten, distance apart 9 inches. The following is the bill:—

| | |
|---|-------|
| 20 galvanised terminal holdfasts, 1s. 8d. per dozen. | 2 9 |
| 20 galvanised raidisseurs, 2s. 8d. per dozen. | 4 6 |
| 252 galvanised eyes, 5d. per dozen. | 8 9 |
| 510 yds No. 14 galvanised solid wire, 1s. 10d. per 100 yards. | 9 4 |
| Key to tighten wires. | 0 5 |
| | £15 9 |

The fixing, neither difficult nor hard work, I did myself. *J. W., Liverpool.*

—If I remember rightly some writers have asserted in your columns that they consider galvanised wire injurious to fruit trees; but this, as far as my experience goes, is quite erroneous. We have a wall here about 50 yards long, which was wired by our own garden labourers on the French system. The studs are driven in to within half or three-quarters of an inch of the face of the wall, the wires run horizontally 6 inches, or two courses of bricks apart, strained at one end by raidisseurs. This we find quite close enough for fan-trained Pears, but for Peaches, Nectarines, or, in fact, any tree requiring the current year's wood to be laid in, I should prefer a wire to every course of bricks, or 3 inches from wire to wire. This wired wall has been in use for the last eight or nine years, and the wires have never required the slightest thing to be done to them. They are as tight, and to all appearance in as good condition as the day they were fixed. We have also other walls studded with galvanised eyes, similar to sketch enclosed, which answers the purpose equally well. They are driven into the walls up to the shoulders or eyes, 6 inches apart. Common garden nails, driven permanently into walls, and left protruding about half an inch, may also be used in the same way. And if, as in our case, the opportunity offers of new walls being built or refaced, and the advantage can be taken whilst the mortar is soft, they may be pushed in with the finger and thumb as the work progresses, and in such cases they bind with the mortar much firmer than they can be driven into an old wall. Any of the above systems I consider much preferable to the old-fashioned nail and shred; it looks neater, is a

saving of labour, and consequently must be cheaper in the end, independent of doing away with the continual nail-driving, puncturing, and defacing good walls, and making harbours for all kinds of insects. There is, however, one thing in the tying of fruit trees which must be carefully avoided, and that is to see that no careless workman ties the shoots too tightly, but leaves his ties sufficiently loose to allow the shoot to develop without nipping, or the ties cut in and make wounds in the bark, which in the case of Apricots, Plums, or Cherries, causes gumming and other diseases, which I am inclined to think may, in some cases, have been imputed to the galvanised wire. *W. Nichol, Drinkstone Park, Suffolk.*

Vines Bleeding.—That Vines will recover from the ill effects of this, only shows their great recuperative powers, but that it tends to great exhaustion and weakness for a time most gardeners are well aware, and do all in their power to stop it. Unfortunately, once it sets in this is a very difficult matter, and as your correspondent, "W. S. H.," appears to treat it lightly and as of no consequence, I would warn all who have vineries not to be misled by the remarks made, but to get their pruning done early, and if they have any doubt of the cut parts not drying and closing sufficiently by the time the buds are likely to be on the move, the best way is to use a little styptic or white lead to close up the pores. This is always advisable rather than to run any risk, especially where young rods have to be shortened, or the wood is large and not over well ripened, the structure of which being more soft and open, offers a readier outlet for the sap. Once this begins to flow, all remedies to prevent its escape are next to useless, as, do what one will, it forces its way somehow, and keeps on drop after drop till the whole energies of the plants so robbed are reduced to a very low ebb. Blood-letting at one time used to be very common with doctors, but such a thing is now seldom or never heard of, experience having long since taught them how debilitating to the human frame it is, and there can be no doubt that the loss of such a live-giving fluid as that of sap is just as much so in the case of a Vine. Anyhow, I have seen very deplorable results from it, and should much regret to find any I have to do with lose their strength in a way so profitless. Bleeding, in my opinion, is far more injurious than heavy cropping, bad as that is; and in this, as well as everything else, Nature will have her laws respected, as may be seen if she has been overburdened or put out of her course. In the case of Vines or other trees being over-laden, we only get inferior fruit, and the year following, little or none at all, for the penalty has to be paid, and those who run counter to her wise decrees, in this or any other matter, will find it so in the end. If "W. S. H.'s" Vines did so well after the loss of so much sap, they must previously have been very vigorous to have stood the drain, but the mischief done is sure to show itself by leaving a state of weakness behind. *J. Sheppard.*

Are Vines Impoverished through Bleeding?—From my experience I say, Yes. In 1877 I had a Black Hamburg Vine which bled to such an extent that it did not bring any fruit to perfection, the berries being not larger than black Currants, and they split so badly that they were utterly useless for table purposes. Some may say, What was the cause of their splitting? My experience tells me it was through bleeding, for after stoning, when all the other Vines were busy swelling their berries, this Vine was at a standstill, during which time the skin of the berries became very hard. About three weeks after, when the Vine had regained a little of its usual vigour by a fresh flow of sap, the berries again commenced swelling, but the skin becoming so hard during its stagnancy, the result was the whole of the berries split. In 1878 I had a Vine of Bowwood Muscat weakened so by bleeding that it did not start for a fortnight after the other Muscats, and when it did commence growth it was so weak the bunches decayed as soon as the leaves developed themselves. *T. H.*

Champion Potato.—Mr. McBeth would do well to try this Potato again. It was given me to plant last year as a disease-resisting variety, and as far as I have proved, which statement I repeat again, I found it upheld its character—the character I got with it. At the same time I do not wish to be its champion exactly, but merely its supporter until it proves by further trials whether it maintains its professed name, disease-resisting, or not. There is no doubt the old Rock is being sold under the name of Champion, and I would say, be sure you get the right variety. *H. K., Floors.*

—This Potato has with us maintained the character of a very productive and disease-resisting variety. Last spring we planted three bushels in the field along with a number of other old and tried sorts, but in product it far exceeded them, the return from Champion being sixty bushels of fine large tubers, no sign of disease, and eight

bushels refuse, that is, small Potatoes. I do not, however, consider last year a test one, for this reason, the summer was very dry, and other sorts which in former seasons had suffered severely were last year comparatively free from disease, thereby placing the Champion at a disadvantage, its quality for table use being at best only second-rate, until about the end of March, when other sorts are getting deteriorated in flavour it remains sound and good and can be classed with any sort. It will be a pity if its best points are lost sight of and it be allowed to fall into disrepute simply because we have been favoured with an exceptionally successful year for other sorts. *A. Scott, Auchtermann, Dumbartonshire.*

Odontoglossum pulchellum majus.—It would be difficult to say whether this or *Cœlogyne cristata*, which has been considered the premier Orchid for usefulness, would find the most votes if put in competition with each other. For my part I look on the two as pretty equal. Although it is an old Orchid it is surprising to see it so rare in quantity. A bit may be seen in most collections, but in quantity it is seldom seen. It is in reality, I may remark for those who don't know it, a very large Lily-of-the-Valley-like Orchid, in scent and appearance, excepting the leaf, which is the narrowest of all the *Odontoglossa*. Bulbs of this Orchid will grow 3 inches long and throw very fine spikes of flowers, and individually measuring 1 inch in diameter. *H. Knight, Floors.*

Seats for Woodland Walks.—The accompanying illustration (fig. 30) gives an excellent idea of some Mushroom-like seats, appropriately called "Mushroom Stools," which we noticed last autumn



FIG. 30.—MUSHROOM STOOLS.

by the sides of the walks in the pleasure-grounds and woodlands surrounding Baron Rothschild's handsome mansion at Ferrières. The stools are made of wood, and with exposure to the weather assume a russetty appearance which harmonises well with the trees and grass surrounding them. In this case two seats only are shown, but they are generally placed in trios—two for adults, and a lower one for a child.

Telegraph & Telephone.—In reference to the letters in your columns upon this subject, permit us to say, as bearing upon Mr. Culverwell's argument, that our Sharpe's Invincible Pea, which was one of Mr. Culverwell's seedlings, has always the character of producing mixed, wrinkled, and round seed, and on first seeing it, we thought there were two distinct varieties, but on proving them by picking out the wrinkled Peas and sowing them alone by the side of the round Peas, we could not detect the slightest difference when growing, and both rows produced, as at first, wrinkled and round Peas mixed. Laxton's Marvel has the same peculiar characteristic, which is more or less influenced by the season; this past year many of our large blue Peas, Bedman's Imperial, Burbridge's Eclipse and the like, containing a large proportion of wrinkled Peas, which we very rarely see. Time will show whether these two varieties are only "as like as two P's," or more so than they ought to be. *Charles Sharpe & Co., Sleaford.*

Birds and Fruit Trees.—I beg to make a few observations in regard to the letter written by Mr. W. Briggs, of Liverpool, who recommends that fruit trees should be enclosed in a kind of network of black cotton. My experience leads me to consider such a plan to be most objectionable. Thirty years ago, when I lived at Chigwell Row, upon Hainault Forest, one Apple tree was attacked by tomtits, which rather frightened us, but without any just reason, because no

other tree was molested that year nor in any other year. Perhaps a dozen years ago, the Queen's head gardener put a number of guns into his workmen's hands in the winter to shoot the birds, the consequence was that two-thirds of their Strawberry plants were killed by a yellow grub, and my Strawberry plants shared the same fate. About fourteen years ago bullfinches ate the buds of many of my Gooseberry trees, but never since, although we have abundance of birds. The buds were, of course, filled with insect eggs. This severe winter we have fed the birds close to our windows with Maize and wetted Rice-meal, which has brought swarms of them all day long—no less than fourteen different sorts, to our very great amusement. *Henry Willis, The Elms, Old Windsor.*

Pæony-flowered Camellia, Triomphe de Florence.—This is a very beautiful white, early and free flowering, and is one I got from Ghent some years ago. It seems to me that this Camellia will prove a very useful one. We have others in our collection, but I don't remember them individually, but will be glad to give names as they open. The above is in flower, besides those names you give. *H. Knight, Floors.*

Bees as Fertilising Agents.—I quite think with Mr. W. Miller at p. 138. I have tried bees in my Peach-houses for seven seasons, and always with the best results. I have a first-rate crop set this year in my early house, but I find it best to put the hive into the house a week before the blossoms open. I put a piece of moss in the hole of the hive to prevent them coming out. As soon as the flowers are fully expanded I remove the moss from the hole. They commence to work more steadily, and do not try to get out of the houses as if just brought in. At last I remove them to the orchard-house, 100 yards long, full of all kinds of fruit trees. Here they work with the greatest success to the fruit and to themselves. *Wm. Smythe, The Gardens, Basing Park, Alton.*

Veitch's Self-protecting Broccoli.—I have cut a good dish to-day (January 17), and no one was more surprised than myself at being able to cut this grand Broccoli after 27° degrees of frost. I must say that it was planted under a south wall without any protection. If a Broccoli will stand uninjured and fit to send to table after 27° of frost, it cannot be too highly spoken of. In my experience it is the best Broccoli ever sent out. *H. Parr, The Gardens, Harrow Weald Park, Stanmore.*

Reports of Societies.

Royal Horticultural: Feb. 11.—The annual general meeting of Fellows of this Society was held last Tuesday in the Council chamber, South Kensington, Lord Aberdare, the President, in the chair. The members of Council present were Sir Trevor Lawrence, Bart., M.P.; Lord Alfred S. Churchill, Mr. H. Webb (Treasurer), Mr. W. Haughton, Colonel Trevor Clarke, Dr. Denny, Major Mason, and Dr. Hogg (Secretary).

The first business proceeded with was the election of twenty-five new Fellows.

Mr. JENNINGS, Assistant-Secretary, read the minutes of the last annual meeting, which were confirmed; and the President nominated Mr. John Lee and Mr. West as scrutineers.

Mr. SHIRLEY HIBBERD said that having proposed Mr. Killock as a member of Council, he was entitled to nominate a scrutineer. He should, therefore, either nominate one of the two scrutineers, or one in addition to the two already nominated.

Mr. W. HAUGHTON having read a bye-law which stated that the Chairman "shall nominate two scrutineers" to superintend the ballot,

The PRESIDENT said he should be most happy to see everything properly conducted. It appeared, according to the bye-law, there was no choice in the matter. It was the business of the Chairman to appoint two scrutineers, and that right he had exercised.

The following report from the Council was then taken as read:—

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING OF FEBRUARY 11, 1879.

In presenting to the Fellows their report of the operations of the Society during the past year the Council are gratified to record a continuance of the improved interest in its proceedings, as evinced by the various shows and meetings which, during the year now closed, have been remarkable for the spirit which has animated the committees, and the unvarying energy displayed by all classes of exhibitors.

At no period of the Society's history have the meetings been so well attended, or such important and interesting groups of plants and collections of fruit displayed; so that these ordinary meetings have in variety and beauty fallen little short of the greater flower shows.

The meetings of the Scientific, Fruit and Floral Committees have been numerous attended; and the members have been most diligent in the discharge of their honorary duties. The usual high standard of excellence both as to fruit and plants has been maintained; a complete list of the Certificates awarded will be published in the next number of the Society's *Journal*. The Council have much satisfaction in recognising the valuable work that has thus been accomplished.

In order to increase the general interest of the meetings of the committees during the current year, and to give some direction to their work, it has been determined to award medals for special exhibitions of plants, &c., in the groups designated for each successive meeting.

Four parts of vol. v. of the Society's *Journal* have been published during the year, the first of which, issued in January, was under the editorship of the late Mr. Andrew Murray.

The contributed papers comprise Dr. M. C. Cooke's exhaustive treatise "On the Fungoid Diseases of the Vine"; a lecture delivered by the Assistant-Secretary on the "Cyclamen"; a paper by Dr. M. T. Masters, F.R.S., "On the Nomenclature of Garden Plants"; notes by Colonel R. Trevor Clarke "On the Culture of the Fig as a Standard in the Open Air"; "On Fern Sports," by T. Moore, F.L.S.; "On the Native Country of the Potato," by W. B. Hemsley, A.L.S.; and "On a Disease in the Ash," by W. W. Saunders, F.R.S.

The reports of Chiswick trials include *Violas*, *Clarkia*, *Iberis*, *Viscaria*, *Godetia*, *Tomatos*, *Asters*, *Turnips*, *Filberts* and *Savoyas*.

Records of the proceedings of all the meetings of the Society, as well as of the Scientific, Fruit and Floral Committees from the beginning of the year, up to and including the meetings of July 23, will also be found in the numbers of the *Journal* published. Matters of considerable interest resulting from the deliberations of the Scientific Committee are also fully reported.

The *Fruit Catalogue* which was published in the Society's *Journal* several years ago is now under revision, and will be corrected up to date. It is intended to reprint this most valuable work in the form of an appendix to the *Journal*.

The annual exhibition of the Society, which was honoured with the presence of Her Royal Highness the Princess of Wales, of the Crown Prince and Princess of Germany, and other members of the Royal family, is acknowledged to have been one of the most successful that has been held in this country since the great International Exhibition of 1866, and their Royal Highnesses were pleased to express their admiration of the magnificent display. The Council have every reason to anticipate that the arrangements they have made for the great show, to be held in May next, will ensure an equally successful exhibition. The Rose show, with which was associated the annual exhibition of the *Pelargonium* Society, was also a most extensive and beautiful display.

With a view to carry out one of the principal objects of the Society in popularising horticulture, the Council resolved to attempt an exhibition for the benefit of the poorer classes of the metropolis. Whit-Monday was selected for the experiment, and the low charge of two-pence was fixed for admission. Thanks to several Fellows of the Society, and a few of the City Companies, a liberal schedule was provided by private subscription; and several of the leading exhibitors at the Society's ordinary meetings generously contributed splendid groups of plants. The results were highly satisfactory; nearly 16,000 persons availed themselves of the privilege, and perfect order prevailed. Her Royal Highness the Princess Louise, Marchioness of Lorne, had graciously consented to distribute the prizes upon this occasion, but in consequence of a recent domestic bereavement was unable to be present, and that duty was kindly performed by the Lady Mayoress, who was accompanied by the Lord Mayor and the Sheriffs of London. It is intended to organise a similar show next Whit-Monday.

After an interval of five years, arrangements were made for holding a provincial show at Preston, under the auspices of the Society. The success of this magnificent exhibition, which was held in July last, was, from a horticultural point of view, complete.

In the present depressed state of trade, your Council have not felt themselves justified in accepting any of the invitations which they have hitherto received to organise a provincial show for the coming season.

The condition of the garden at Chiswick is satisfactory. The rockery formed at the commencement of 1877 has proved a most interesting attraction; the season having been favourable, the plants have succeeded remarkably well. Considerable additions have been made to the collection of hardy herbaceous and alpine plants, which will be gradually propagated for distribution to Fellows.

The severe frost which has prevailed during the present winter has done to the outdoor plants at Chiswick serious damage, the full extent of which cannot be ascertained as yet. The lowest temperature registered at Chiswick has been 12°—i.e., 20° of frost.

The crop of Grapes in the great viney has been good; the fruit has been sold to Fellows at reduced rates—a privilege which has been greatly appreciated. A wonderful crop of fruit has been produced on the cordon Peach trees on the wall—an experiment which has proved instructive as a means of comparing the different varieties.

Collections of the most approved varieties of Figs have been planted out as standards in the old orchard-house, which has been entirely devoted to the trial of their adaptability for this mode of culture.

The Vines newly planted under the glass wall have done well.

Owing to the late spring frosts the outdoor fruit crop proved almost a failure.

All necessary repairs to the hothouses have been carried on as usual; the alterations effected last year in the heating apparatus have proved entirely satisfactory.

The following trials have been carried out by the Fruit and Vegetable Committee:—Cabbages, in continuation of the 1877 trials; Peas, 110 varieties; Lettuces, 115 varieties; Endives, 30 varieties; Beet, 60 varieties; Strawberries in pots, 150 varieties. Of these, the trial of Peas owing to the peculiar season was not satisfactory, they will therefore be tried again. A second trial of Lettuces, Radishes and Leeks will also be made.

Full reports by the Superintendent on Cabbages, Endives and Beet will be published in early numbers of the *Journal*.

Trials by the Floral Committee have been carried out of—Gloxinias, 80 varieties; Abutilons, 38 varieties; Bouvardias, 19 varieties; Cannas, 150 varieties; tuberous Begonias, 72 varieties. Several charming new varieties of these last have been raised in the garden, which, when propagated, will be distributed.

Trials have also been made of double Ivy-leaved *Pelargoniums* and double-flowered *Zonal Pelargoniums* in pots; and as bedding plants, of *Verbenas*, *Tropæolums*, and many varieties of annuals, conspicuous among which may be named the varieties of the Chinese Pink. On all these subjects full reports will be published in the *Journal*.

The thanks of the Society are due to the numerous donors of plants and seeds, a full list of which is appended; and especially to the Director of the Royal Gardens at Kew; to H. J. Elwes, Esq., and W. Wilson Saunders, Esq., Colonel R. Trevor Clarke, Baron von Mueller, of Melbourne, and Professor Sergeant, of the Harvard University, Boston, U.S.A.

The Council have great pleasure in announcing the encouraging fact that during the past year the distribution of plants, cuttings, and seeds, has been considerably in excess of that of any former year; many valuable plants, &c., some of which are new to cultivation, have been distributed from Chiswick to almost every part of the United Kingdom.

The following is a summary of the distributions of 1878 as compared with those of 1877:—

| | Distributed in 1878. | Distributed in 1877. |
|-----------------------------------|-------------------------|-------------------------|
| Plants | 5,250 | 1,695 |
| Cuttings of plants, fruit, &c. .. | 2,054 | 715 |
| Strawberry runners | 2,500 | |
| Packets of seed | 22,500 | 15,850 |

In order to meet the wishes expressed by many of the Fellows of the Society, it has been arranged to include seeds of useful vegetables not ordinarily found in trade catalogues in the distributions of the coming season.

The Council again express their desire to open correspondence with foreign and colonial horticulturists, with a view to the exchange of plants and seeds, and they trust that the Fellows of the Society will assist them in carrying out so desirable an arrangement. Letters on this subject should be addressed to the Assistant-Secretary, South Kensington.

At South Kensington several improvements have been effected in the gardens. It has been necessary to supply new boilers both to the Palm-house at Chiswick and to the conservatory at South Kensington.

The Fellows of the Society are aware that the last agreement entered into between H.M. Commissioners and themselves, with respect to the occupation of the South Kensington Gardens, terminated at Christmas last. Under this agreement H.M. Commissioners waived their right of re-entry until the close of the original term of occupancy, viz., June, 1892, provided the Society could, in the three years ending December 25, 1878, raise its annual income from subscriptions to £10,000. The efforts of the Council to fulfil this condition have failed; and the Commissioners have therefore the right to exercise their power of re-entry. No intimation has as yet been received from them that any substantial alteration in the occupation of the gardens is at present intended; and the Council venture to hope that arrangements may be made by which the connection of the Society with these gardens, in all those respects in which that connection has been beneficial to the best interests of the Society, may still be maintained. But whatever may be the ultimate decision of the Commissioners, the Council is convinced that no measure which they may resolve upon in the discharge of their trust as managers of the estate of which the gardens form part, will be adopted without the utmost consideration to the fair claims of the Society and its position as a scientific association of established usefulness and eminence.

During the past year 197 new monthly tickets have been issued to students in the Science and Art Schools, to enable them to pursue their studies from Nature in the gardens and conservatory. The same privilege has always been accorded to properly accredited artists.

The number of new Fellows elected in 1878 was 215, and of One Guinea Members, thirty-six. There have been ninety-seven resignations and sixty-nine deaths; amongst the last the Society has to mourn the loss of the lamented Princess Alice, Grand Duchess of Hesse.

The number of resignations appears to be somewhat larger than usual; the list, however, includes many Fellows who had neither paid their subscriptions for 1876 and 1877, nor resigned, and who have since paid their arrears and removed their names. Several of these have since rejoined the Society.

The Society's list of Honorary Fellows has been

strengthened by the election of His Majesty the King of the Belgians, K.G., who has most graciously accepted the honour, claiming not only to be a lover of horticulture, but a practical horticulturist. Several distinguished foreign and colonial horticulturists have been elected corresponding members.

The Council feel the desirability, in the interests of horticulture, of the closer co-operation of the various kindred associations throughout the country, and they will be glad to receive suggestions from local secretaries and others interested as to the best means of carrying out this object.

A legacy of £100 has been left to the Society by the will of the late Miss Parry, of Ham, for many years a Fellow. This amount has been invested in Consols, and placed in trust under the same conditions as those regulating the Davis bequest.

| BALANCE SHEET, DECEMBER 31, 1878. | | | | | |
|---|--|--------|----|----|--|
| CR | | £ | s. | d. | |
| To sundry creditors on open account | | 179 | 5 | 0 | |
| Life composition account | | 2,162 | 2 | 0 | |
| Additional debenture—C. J. Freaque | | 5,000 | 0 | 0 | |
| General revenue account balance carried forward | | 859 | 16 | 7 | |
| Legacy received from the late Miss Parry .. | | 90 | 0 | 0 | |
| | | £3,295 | 3 | 7 | |
| DR | | £ | s. | d. | |
| By capital— | | 7,171 | 12 | 9 | |
| Annual subscriptions—outstanding | | 361 | 4 | 0 | |
| Sundry debtors— | | 183 | 0 | 1 | |
| Investment— | | | | | |
| 3 per cent. Consols—£100 legacy invested | | 95 | 2 | 6 | |
| Cash at bankers— | | 345 | 16 | 10 | |
| On deposit account and interest | | 138 | 2 | 11 | |
| On current account | | 483 | 19 | 9 | |
| Petty cash in hand | | 4 | 0 | 0 | |
| | | £3,295 | 3 | 7 | |

We have examined the above accounts with the books and vouchers, and find the same correct.

JOHN LEE,
JAS. F. WEST,
R. A. ASHINALL, } Auditors.
SAMUEL JENNINGS, Assistant-Secretary.

Jan. 31, 1879.

| ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDED DECEMBER 31, 1878. | | | | | |
|---|--|--------|----|----|--|
| DR. | | £ | s. | d. | |
| To establishment expenses— | | | | | |
| Salaries | | 577 | 17 | 0 | |
| Wages | | 231 | 0 | 1 | |
| Printing, stationary and cards | | 168 | 18 | 2 | |
| Postages | | 73 | 13 | 4 | |
| Gas | | 17 | 12 | 0 | |
| Library | | 4 | 3 | 5 | |
| Miscellaneous | | 95 | 8 | 1 | |
| | | 1,168 | 12 | 1 | |
| To special expenses in relation to horticulture— | | | | | |
| <i>Journal</i> | | 141 | 12 | 2 | |
| Fruit and Floral Committees | | 86 | 16 | 4 | |
| Editor of the <i>Journal</i> | | 100 | 0 | 0 | |
| | | 328 | 8 | 6 | |
| To Chiswick Garden expenses— | | | | | |
| Rent, rates, taxes, and insurance | | 254 | 2 | 8 | |
| Labour | | 974 | 6 | 8 | |
| Implement, manure, coals, and coke | | 335 | 1 | 3 | |
| Repairs | | 108 | 1 | 2 | |
| Trees, plants, seeds, &c. | | 30 | 15 | 0 | |
| Superintendent's salary | | 150 | 0 | 0 | |
| Water | | 14 | 16 | 0 | |
| Miscellaneous | | 79 | 6 | 5 | |
| | | 1,916 | 19 | 2 | |
| To Kensington Garden expenses— | | | | | |
| Rates, taxes, and insurance | | 416 | 13 | 1 | |
| Superintendent's salary | | 100 | 0 | 0 | |
| Labour | | 421 | 0 | 6 | |
| Repairs | | 112 | 2 | 3 | |
| Coke and manure | | 24 | 9 | 0 | |
| Implement | | 1 | 0 | 6 | |
| Water | | 40 | 7 | 5 | |
| Reading room | | 24 | 5 | 2 | |
| Bands | | 162 | 13 | 9 | |
| Miscellaneous | | 91 | 19 | 0 | |
| | | 1,394 | 10 | 8 | |
| To exhibitions— | | | | | |
| Advertising | | 270 | 13 | 5 | |
| Prizes and medals | | 734 | 1 | 0 | |
| Lands | | 1,071 | 12 | 0 | |
| Superintendent of flower shows | | 25 | 0 | 0 | |
| Judges' fees | | 13 | 13 | 0 | |
| Sundries | | 117 | 15 | 7 | |
| | | 1,349 | 12 | 0 | |
| | | £6,187 | 12 | 5 | |
| To balance to general revenue account | | 650 | 15 | 8 | |
| | | £6,838 | 8 | 1 | |
| CR. | | £ | s. | d. | |
| By 1/15 Life Compositions as at | | | | | |
| January 1 | | 676 | 18 | 0 | |
| Annual subscriptions | | 4,065 | 12 | 0 | |
| Exhibitions | | 1,071 | 12 | 3 | |
| Promenades | | 69 | 5 | 0 | |
| Daily admissions | | 358 | 13 | 1 | |
| Garden produce | | 424 | 8 | 1 | |
| Packing charges | | 20 | 1 | 7 | |
| Miscellaneous receipts | | 60 | 15 | 10 | |
| "Davis bequest,"—Interest appropriated under provisions of trust towards prize medals | | 89 | 16 | 4 | |
| Interest on bank deposit account | | 10 | 19 | 4 | |
| | | £6,188 | 8 | 1 | |

We have examined the above revenue account with the books and vouchers and find the same correct.

R. A. ASHINALL,
JOHN LEE,
JAS. F. WEST, } Auditors.
SAMUEL JENNINGS, Assistant-Secretary.

Jan. 31, 1879.

GENERAL REVENUE ACCOUNT, DECEMBER 31, 1878.

| Dr. | | £ | s. | d. |
|--|--------|----|----|----|
| To annual subscriptions—arrears account for subscriptions in arrear which have either lapsed, or in other ways become irrecoverable, or which have been carried off at time of payment to credit of current subscriptions .. | 663 | 17 | 6 | |
| Balance carried forward as per balance sheet .. | 859 | 10 | 7 | |
| | £1,523 | 14 | 1 | |
| Cr. | | £ | s. | d. |
| By balance of revenue account brought forward January 1, 1878 .. | 522 | 18 | 5 | |
| Annual revenue account—balance for the year 1878 .. | 650 | 15 | 8 | |
| Suspense account—as per balance sheet, December 31, 1877, transferred to revenue, being cash received from H. M. Commissioners for overpaid taxes and interest thereon .. | 342 | 0 | 0 | |
| | £1,523 | 14 | 1 | |
| By balance carried forward .. | £859 | 16 | 7 | |

We have examined the above account with the books and vouchers, and find the same correct.

R. A. ASPINALL, }
JOHN LEE, } Auditors.
JAS. F. WEST, }
SAMUEL JENNINGS, Assistant-Secretary.

Jan. 31, 1879.

The PRESIDENT then said: I am happy to say the observations I have to make on this occasion will be very brief. I think you will observe that in many respects there is in this report a departure from the precedent of last year which I think will be satisfactory to you. Instead of containing a long catalogue of disputes and negotiations with which so large a portion of former reports was occupied, the present report gives an account of strictly horticultural operations which tends to show that during the last year there has been a good deal of healthy life in the Society, and I believe the words you will find in the report are not to be taken as mere words. Indeed, I may venture to say, on the authority of persons who are more competent than I am to pronounce an opinion, that the fortnightly meetings of the Society have never been better supported, or have supplied better material for instruction, than those of last year. I may also point with satisfaction to the fact that no annual shows could be more magnificent than those held during the past year. It was my pleasing duty to accompany the Princess of Wales, the Crown Prince and the Crown Princess of Germany round the show, and I wish all of you could have heard the expressions of satisfaction and admiration which fell from those illustrious persons. Dr. Hogg informs me that it will be for the benefit of the scrutineers, and will facilitate the business of the ballot, if I were to make a few remarks with respect to those gentlemen who are returned on the list in the place of those members of Council who retire. The gentlemen nominated by the Council were Mr. Grote, Mr. Aspinall, and Colonel Makins, M.P. There is no opposition to be given, I believe, to Mr. Grote's election, but two other gentlemen have been proposed—in the exercise of the undoubted right of the Fellows—as members of the Council. With respect to one of the two gentlemen nominated—Lord Skelmersdale—I am happy to say we have the means at hand of electing him without any contest whatever, through the generous conduct of Mr. Aspinall, who said, finding there was a desire on the part of the Fellows that some other Fellow than himself should be elected, he should withdraw rather than remain to be the cause of a contest. I was not aware Lord Skelmersdale was contemplating becoming a Fellow of the Society, so I wrote to him, and received from him a letter saying he was most willing to become a Fellow of the Society and to serve on the Council; and his lordship added that if elected he should give active attention to the duties of his office. Thus, as far as regards Lord Skelmersdale, we may have the pleasure of electing him unanimously. With respect to Mr. Kellock and Colonel Makins, the latter was also, after a review of the merits of many other gentlemen, unanimously chosen by the Council as a person in all respects properly qualified to be a member of Council, and one calculated to advance the interests of the Society. At the same time, while I say that, and while I must abide by the choice of that gentleman, I wish also to say there is not, on the part of the Council, any objection to Mr. Kellock. Let me say what may be said in respect of both these gentlemen. Mr. Kellock comes forward with the advantage in his favour of having been for five years a member of the Council, and also of having during that time performed his duties with great ability and perfect independence. At the end of that time he retired. The rule of the Society is that when a member of Council ceases to be on the Council he cannot be re-elected for twelve months. That time has passed, and Mr. Kellock is now perfectly qualified for re-election. I therefore admit the perfect fitness of Mr. Kellock, in all respects, to be a member of the Council. I admit his capacity to be a valuable member of the Council. You may ask, then, why we did not bring him back to the Council instead of choosing Col. Makins. My reason is—I hope Mr. Kellock will be a member of Council before

long, but I think there is a great advantage in letting fresh blood into the Council. New men can see what has been done—things present themselves to them in a new and fresh light; and I think there is a positive mischief in not, from time to time, availing ourselves of the power we have of bringing fresh members upon the Council. Mr. Kellock is now proposed at the shortest possible time in which he could be re-elected—he is supported by a number of persons of influence, and I am not surprised at it, because Mr. Kellock has done good service to the Society. Therefore, you must understand, as far as I am concerned, if it is the will of the Fellows that Mr. Kellock should be re-elected, I shall be very happy to shake him by the hand and congratulate him on your choice. On the other hand, I wish you to consider the advantage of electing a gentleman of competent ability to fill the office in every respect; who has never yet served on the Council, and who has always taken a great interest in the welfare of the Society. Having said that, I leave the matter entirely in your hands. I now proceed to the only remaining subject on which I have anything to say. I wish what I had to say was more definite than what I must say on the present position of the Society. The report has told you all that the Council could do. We have not been able to raise our annual income from subscriptions to £10,000, which we undertook to do in the three years ending Dec. 25, 1878, under which agreement Her Majesty's Commissioners waived their right of re-entry until the close of the original term of occupancy, viz., June, 1892. It is stated the Commissioners have asked us whether we have raised that sum, and that we have informed them that we have not been able to raise it. The only further correspondence we have is a letter from General Scott, informing us that Her Majesty's Commissioners were about to hold a meeting, at which they would take into consideration the answer they received from us. For myself, I do not think there is anything in the business which need very much disturb the nerves of this Society. One thing, at least, I am pretty certain of—that we shall not be disturbed during the present year. Another thing is that there is a strong desire on the part of the Commissioners to do nothing to injure the Society, but on the contrary, to give every facility and convenience to the work of the Council, whether at their ordinary meetings or their annual shows. And I may say—for it is no violation of confidence, being a Commissioner myself—I feel perfectly satisfied no disturbance will take place which will really affect the interests of this Society, as a scientific society. When you come to the question, What can be done with a portion of the gardens? it is well known it is the idea of the Commissioners that they are not justified in leaving the whole space as it now is for the purposes of recreation for the inhabitants of this neighbourhood, and that if they had the opportunity of erecting buildings for scientific purposes they would be perfectly justified in doing so. You must understand when I say that, I am simply stating my strong impression. As yet we have received no answer from the Commissioners, but they are about to call a meeting to consider the subject. This being the case, I have nothing to add but that I will be very happy to answer any question on the report or as to the position of the Society, put by any Fellow. I beg leave to move the adoption of the report.

Lord ALFRED S. CHURCHILL seconded the motion. Mr. SHIRLEY HIBBERD, referring to the debenture debt, said he had not gathered from the report what was the proposal of the Council in dealing with it. Their position appeared to be this: that they had no longer a legal claim to the ground on which they now stood—that they were allowed to walk about the grounds and through the arcades, and make use of the conservatories; but that, nevertheless, at any moment the Commissioners might exercise their right and turn them out. He thought it would be a very good thing if the Commissioners did exercise that right to turn them out, for they might then seriously consider what they should do next. They were living in such a state of uncertainty, that the Council might probably find themselves responsible for the whole of the debenture debt, and then have nothing to fall back upon. If the Commissioners would relieve them of that by some engagement, then their position would be somewhat plain, and they could shape their course as to future arrangements. Under any circumstances if they kept these gardens, they ought to pay a rental subject to a division of profits. It appeared to him that they needed in this respect some distinct reference to the debenture debt. That debt amounted to £50,000, and there was an accumulation of interest, and all this would have to be met in some way or other some day. Hitherto the gardens had been for the debenture-holders as a kind of security, but all that was gone. They could not create a security in place of them. They now were fixed in the most complete uncertainty—they were walking through a fog. He submitted they ought to be told something more in reference to the debenture debt, and if his lordship in the chair could enlighten them upon it, it would be much to their advantage.

The PRESIDENT said he supposed when the last speaker spoke of the Council he meant that the Society was responsible for the debenture debt. It was just as well they should clearly carry in their heads what was the actual amount of the responsibility. It was this—that their receipts, after providing for the carrying on and the maintenance of the gardens in proper condition, may be applied to the interest of the debenture debt. The Council had no responsibility whatever with respect to the capital of that debt, and their responsibility only arose as to interest when the receipts were beyond the proper wants of the Society. The Council did try to obtain the most advantageous terms for the debenture-holders. These terms were offered and refused, and he was quite unable to say how the Commissioners would deal with any further application of the debenture-holders. His advice to the debenture-holders was to accept what terms they could get.

Dr. MASTERS said that before putting a question he must express his regret that the report of the Council was not circulated at an earlier date. He had only an opportunity of looking at it five minutes before the meeting, but from a horticultural point of view it seemed in many respects satisfactory. There was one omission, which he had possibly overlooked. There was but little reference to the Preston show, more especially as to the financial result. It would be very much to the interest of the Fellows to know in what position the Society stood as to that.

The PRESIDENT said the Preston show was a most magnificent one, but in consequence of adverse circumstances, the lock-outs and strikes, which impoverished the district, the show was much injured; and during the five days of the show the rain fell in such torrents as Lancashire alone witnessed. The result was the show had not been a financial success, but the Society was not responsible for any loss that had occurred; and in reply to another question, as to who was responsible for the loss, the President stated that he was not in a position to answer the question.

Mr. POWELL asked the Chairman if there was any intention on the part of the Council to re-open the north-west entrance to the gardens?

The PRESIDENT replied that the Council had only been able to square their expenditure by the exercise of economy—by saving the salaries of servants. If they had the means when the season returned the north-west entrance to the gardens would be reopened.

The motion for the adoption of the report was then put and carried unanimously.

The scrutineers reported the result of the ballot as follows:—Mr. A. Grote, F.L.S., 85 votes; Lieut.-Col. W. T. Makins, M.P., 65; Lord Skelmersdale, 59; Mr. W. B. Kellock, 38. The vacating members were:—Mr. W. Haughton, Mr. C. J. Freake, and Mr. Philip W. S. Miles.

The PRESIDENT said he had to declare Mr. Grote, Col. Makins, and Lord Skelmersdale duly elected as members of Council. There had been no difference of opinion as to the election of officers. He heartily thanked the Fellows for re-electing him as President of the Society. Their excellent friend Mr. Webb would be again Treasurer, and their faithful old officer, Dr. Hogg, their Secretary. Mr. Haughton, who could not be well spared from the Council, would go upon the Expenses Committee.

The list of officers was then agreed to as follows:—President, Lord Aberdare; Treasurer, Mr. Henry Webb; Secretary, Dr. Hogg. Expenses Committee—Lord Alfred S. Churchill, Mr. H. Webb, Mr. W. Haughton. Auditors—Mr. R. A. Aspinall, Mr. Jno. Lee, and Mr. James F. West.

Colonel Makins, M.P., returning thanks for his election, said he should not have considered it any taunt on him if Mr. Kellock, who had served five years on the Council, had been elected in his place. He could only bring to the Council every intention to do the best he could for the interests of the Society, and he promised to devote the amount of time necessary to the transaction of its business.

On the motion of Mr. Harry Veitch, who congratulated the Fellows on the number of cuttings that the Society had distributed, a vote of thanks was given to the President, and then the proceedings terminated.

SCIENTIFIC COMMITTEE.—Rev. M. J. Berkeley in the chair.

Cocoa-nut Beetle.—Mr. MacLachlan reported on a beetle which does much damage to the Cocoa-nut Palms in Zanzibar by eating and destroying the terminal bud or cabbage, and consequently killing the tree. The beetle in question is *Oryctes monoceras*. Dr. Kirk, who sent the specimen, stated that the insect appeared in Zanzibar after a hurricane, which is the more interesting, as the species has been found in Reunion by Dr. Coquerel. It is further interesting, as other species of the same genus feed on dead vegetable matter, *O. nasiformis* being found in tan pits. Mr. MacLachlan recommended that the trees should be cut down and burnt.

Pentlandia miniata.—Col. Trevor Clarke showed flowering bulbs of this plant grown in the open ground beneath a light, and then dug up and removed to a

greenhouse. He had found that the bulbs would not flower in the open border, but if dug up, as just stated, they then flowered freely.

Snowdrops.—Dr. Masters showed a flower of the Dunrobin Seedling, raised by Mr. Melville, also an early flowering form, and some of the ordinary kind for comparison. All were planted, some in the open border, others in a cold frame, on September 17. The early flowering variety was found in bloom on February 3, when the snow and ice melted away, so that the plants had been in flower for some time beneath the snow. The Dunrobin Seedling flowered on February 9, while a dwarf late variety planted on the same day is not yet in flower. Further remarks on these plants will be given on a subsequent occasion.

Eupomatia laurina.—A flower of this interesting shrub was exhibited by Mr. W. Bull.

Cucumber Disease.—Specimens from Earlswood of this mysterious disease were exhibited, but nothing further was elicited as to its cause. Change of soil was sometimes found to be efficient.

Outgrowth from Stem of Passiflora quadrangularis.—A singular hypertrophied condition of the stem of this plant was exhibited, and referred to Rev. M. J. Berkeley for further examination and report.

Disease in Ash.—Mr. Sydney Webb stated that the cause of the canker in Ash trees, so commonly met with, was to be attributed in the first instance to the injuries inflicted by the larva of a moth, *Prays Curtisellus*, concerning which further comment is made on our leader page.

FLORAL COMMITTEE.—Dr. Denny in the chair. The meeting on this occasion was held in the large conservatory, and proved to be of a fairly interesting character, though limited in extent. The only First-class Certificates awarded were two in number, and the first of these was voted to Mr. William Bull for *Cyphokentia macrocarpa*, a handsome pinnate-leaved Palm, the young unfolding leaves of which are of a bronzy red colour. It was introduced from New Caledonia in 1875, and was put in commerce in the following year under the name of *Kentia Lindenii*, and is figured at p. 61 of the *Illustration Horticole*, 1877, and again under the name of *Kentia (Kentiopsis) macrocarpa*, Brngt., in M. Oswald de Kerchove's handsome volume, *Les Palmiers*, published in Paris last year. Mr. C. Green, gr. to Sir George Macleay, received the other certificate for *Rubus roseiflorus* var. *coronarius*—the valuable white double-flowered species illustrated in our issue for January 18, p. 77. Mr. Green also received a vote of thanks for cut blooms of *Dahlia Maximiliana* and *Sparmannia africana*. The first-named is a species of the *D. imperialis* type, with lilac flowers, which are smaller and not so showy as those of the last-named. The plant, however, presents a stately appearance, independent of its flowers, growing to the height of 8 feet, and 4 feet in diameter. It continues in bloom for a considerable time, and requires the same treatment as *D. imperialis*. Mr. Bull was awarded a small Gold Banksian Medal for a choice group of plants, which included several Palms and handsomely-developed specimens of such Cycadaceous plants as *Macrozamia McKenzii*, *Enephalartos cycadifolius duplicatus*, *E. villosus*, *E. Hildebrandtii*, and *E. horridus volutus*, besides several Orchids, including *Lycaste Skinneri*, *Masdevallia polysticta*, *Dendrobium Fytchianum*, *Oncidium macranthum hastiferum*, *Oncidium cirrosum Klabochozum*, &c. To Mr. John Wills a Silver Flora Medal was awarded for a tasteful group of decorative plants, which included well-flowered examples of *Cœlogyne cristata*, *Odontoglossum crispum*, and *Lily of the Valley*. Messrs. James Veitch & Sons received a similar award for a small group of plants, which included forced examples of *Staphylea colchica*, figured at p. 116; *Lilac Charles X.*, *Guelldres Roses*, *Rhododendrons*, *Tulips*, *Lily of the Valley*, and a nice batch of *Cyclamens*, as well as a small white-flowered hybrid Orchid—*Dendrobium endocharis*—the result of a cross between *D. japonicum* and *D. heterocarpum*, and a Fern-leaved *Primula* named *Peach Blossom*, lilac-pink in colour. A Silver Flora Medal was voted to Messrs. Osborn & Sons, Fulham, for a nice group of fine-foliaged and forced spring flowering plants, the latter consisting of *Rhododendrons*, *Deutzias*, *Spiræas*, *Hycinths*, *Tulips* and *Crocuses*, and *Lily of the Valley*. To Mr. B. S. Williams a small Banksian Medal was awarded for a small group of plants which included excellent samples of *Primula sinensis fimbriata rubra*, some of the flowers of which measured 2½ inches in diameter; and of *P. sinensis fimbriata alba*, which represented an exceedingly good strain. Mr. Williams also contributed a few Orchids, including a large and well-flowered *Cœlogyne cristata*; the new Fern, *Asplenium neo-caledonicum*; *Croton Princess of Wales*, a sport from *C. gloriosus*, which it much resembles; *Abutilon igneum*, a fine well reflexed, striated, crimson flower; and *Amaryllis Harry Williams*, a large deep crimson flower, mottled with white. Mr. H. Parr, gr., Harrow Weald Park, received a vote of thanks for some cut specimens of *Poinsettia pulcherrima*, which measured 15 inches across the head of bracts—excellent results from

plants in 6-inch pots; of various seedling *Abutilons* and of *Begonia glaucifolia*, a valuable free-flowering plant for hanging baskets. Mr. Cannell, Swanley, again received a vote of thanks for a stand of cut blooms of richly coloured *Pelargoniums*, neatly put up on a carpeting of *Netera depressa*. Mr. G. Salter, gr. to W. Cobb, Esq., Silverdale Lodge, Sydenham, showed a plant of *Odontoglossum Rossii majus* with a branched spike of eight flowers, the first of which opened on December 19; and Mr. C. Rann, gr. to J. Warren, Esq., Handcross Park, Crawley, showed *Phalenopsis grandiflora gigantea* with three lovely white flowers of great size. A plant of *Oncidium superbiens* with a spike of seven brownish chocolate flowers came from H. J. Buchan, Esq., Wilton House, Southampton; and cut blooms of seedling *Abutilons* were contributed by Mr. J. George. Votes of thanks were awarded in each instance. A very large collection of *Primulas* was again sent up from Chiswick. The plants were mostly raised from seeds sent by Continental firms, but with the exceptions noticed at the last meeting were of no value, though showing great variations in the range of colour.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. The principal contribution to this meeting was a collection of Apples and Pears of exceptionally fine quality for the season, shown by Mr. C. Haycock, gr. to R. Leigh, Esq., Barham Court, Maidstone. The Apples included about thirty sorts, most noticeable amongst them being—*Reinette du Canada*, *Dumelow's Seedling*, *Belle du Bois*, *Cox's Pomona*, *Reinette Très Tardive*, a large green-skinned variety, stated to be a fine late keeper; *Reinette de Caux*, *Calville Blanc*, *Melon Apple*, and the *Forge Apple*. Amongst the Pears we noted *Duchesse de Bordeaux*, *Marie Benoist*, *Josephine de Malines*, *Crassane*, and *Bergamotte d'Esperen*, as being of superior quality. A Silver-gilt Knightian Medal was awarded to the exhibitor. Messrs. T. Rivers & Sons also sent a collection of forty dishes of Apples, and single specimens of a few culinary sorts came from Mr. Killick, Langley, near Maidstone. Mr. S. Ford, Leonardslee, Horsham, sent samples of the *James Veitch Apple*; and Mr. Cox, of Redlea, sent the *Redleaf Russett*.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, Feb. 12, 1879.

| MONTH AND DAY. | BAROMETER. | TEMPERATURE OF THE AIR. | HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | WIND. | RAINFALL. | | | | | | |
|----------------|-----------------------------------|-------------------------------------|--|---------|-----------|---------------|-------------------------------------|------------|---------------------------------|--------------------|----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 60 Years. | Highest. | Lowest. | Range. | Mean for Day. | Departure from Average of 60 Years. | Dew Point. | Degree of Humidity. Sat. = 100. | Average Direction. | |
| Feb. 6. | In. 29.39 | In. -0.37 | 49.5 | 47.3 | 24.8 | 8 | +7.4 | 42.0 | 94 | WSW | In. 0.08 |
| 7 | 29.16 | -0.61 | 49.8 | 40.2 | 9.6 | 15 | +6.4 | 43.6 | 93 | WSW | 0.13 |
| 8 | 29.36 | -0.41 | 51.8 | 40.5 | 11.3 | 46.0 | +6.9 | 40.0 | 80 | SW | 0.09 |
| 9 | 29.16 | -0.62 | 52.0 | 46.2 | 5.8 | 49.4 | +10.3 | 46.9 | 92 | S.S.W. | 0.27 |
| 10 | 28.73 | -1.05 | 52.2 | 44.0 | 8.2 | 47.3 | +8.3 | 46.3 | 96 | S.S.E. | 0.63 |
| 11 | 28.94 | -0.84 | 50.5 | 39.1 | 11.4 | 44.5 | +5.5 | 40.8 | 87 | SW | 0.25 |
| 12 | 29.59 | -0.29 | 44.0 | 31.6 | 9.4 | 38.8 | -0.1 | 35.4 | 89 | N.W. | 0.00 |
| Mean | 29.19 | -0.59 | 50.0 | 40.3 | 9.7 | 45.0 | +6.0 | 42.2 | 90 | variable | sum 1.45 |

Feb. 6.—A fine bright day, cloudy at times. Thaw. Rain fell in early morning and at 3 P.M. Moonlight in evening.

7.—Overcast, and dull throughout. Occasional showers. Mild. Windy.

8.—A fine bright day. Very mild. Rain fell in morning and evening. Windy.

9.—A dull cloudy day, gleams of sunshine at times. Frequent rain fell. Mild.

10.—Overcast, dull, and wet throughout. Mild.

11.—Fine, but very cloudy. Sunshine at intervals. Rain fell in early morning, and frequently after 4 P.M.

12.—Fine and bright till 11 A.M., overcast and dull afterwards. A cold day.

* 10th. Barometer reading at 9 A.M. = 28.80 inches; 11 A.M. = 28.75; noon = 28.71; 1 P.M. = 28.65; 2 P.M. = 28.63; 3 P.M. = 28.68; 8 P.M. = 28.71; midnight = 28.73.

Note.—The mean temperature of the air for the 102 days (1878, Oct. 27—1879, Feb. 5), was 34°.9, being 5°.3 below the average of sixty years.

LONDON: Barometer.—During the week ending Saturday, February 8, in the suburbs of London the reading of the barometer at the level of the sea decreased from 29.94 inches at the beginning of the week to 29.60 inches by the afternoon of the 3d, increased to 30.08 inches by the evening of the 4th, decreased to 29.52 inches by noon on the 6th, increased to 29.64 inches by the evening of the same

day, decreased to 29.27 inches by the evening of the 7th, and increased to 29.59 inches by the end of the week. The mean daily readings were below their averages on every day except the 4th, which was 0.05 inch above that of the 7th, was no less than 0.61 inch in defect of the average. The mean reading for the week at sea level was 29.67 inches, being 0.59 inch below that of the preceding week, and 0.28 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 51½° on the 8th, and 49½° on the 6th and 7th, to 34½° on the 4th; the mean value for the week was 43°. The lowest temperatures of the air observed by night varied from 28° on the 5th, and 29½° on the 4th, to 40½° on the 8th; the mean temperature for the week was 34°. The mean daily range of temperature in the week was 9°, the greatest range in the day being 12½° on the 6th, and the least 4½° on the 3rd.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—February 2, 34°, -4.7°; 3d, 34.6°, -4.2°; 4th, 32.4°, -6.5°; 5th, 33.3°, -5.7°; 6th, 43.8°, +4.7°; 7th, 45.5°, +6.4°; 8th, 46° +6.9°. The mean temperature of the air for the week was 38°.5, being 0°.4 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 101½° on February 8, 61½° on the 6th, and 52° on the 7th; on the first four days of the week the sky was overcast, and the readings did not rise above 42°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 26° on the 5th, 27½° on the 4th, and 29° on the 2d; the mean of the seven lowest readings was 32½°.

Wind.—The direction of the wind was N.E. and S.W., and its strength moderate.

The weather during the first four days of the week was overcast, dull, and cold; but on the remaining three days it was fine and bright.

Rain or snow was measured on six days in the week, the amount being 0.92 inch.

ENGLAND: Temperature.—During the week ending Saturday, February 8, the highest temperatures of the air observed by day were 54° at Truro, 53½° at Cambridge, 52½° at Bristol, and 52½° at Plymouth; the highest temperature of the air at Wolverhampton and Bradford was 47½°; the mean value from all places was 50½°. The lowest temperatures of the air observed by night were 24½° at Wolverhampton, 25° at Sheffield and Bradford, 25½° at Nottingham, 27° at Leeds, 27½° at Norwich, and 28° at Hull; the lowest temperature of the air at Plymouth was 33°, and at Truro was 32°; the mean from all stations was 28½°. The range of temperature in the week was the greatest at Cambridge and Nottingham, both 25½°, and the least at Brighton and Liverpool, both 17½°. The mean range of temperature from all places was 21½°.

The mean of the seven high day temperatures was the highest at Truro, 51°, Plymouth, 48½°, and Bristol, 46°; and the lowest at Wolverhampton and Bradford, both 39°, and Nottingham 40½°; the general mean from all stations was 42½°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 32½°, Nottingham 32½°, Hull and Sheffield both 33°, Bradford, 33½°, and Leeds 33½°; and the highest at Truro, 41½°, and Plymouth, 39½°; the mean value from all places was 35°. The mean daily range of temperature in the week was the greatest at Truro, 9½°, and the least at Bradford, 6°; the mean daily range from all places was 7½°.

The mean temperature of the air for the week was 38½°, being 1° higher than the value for the corresponding week in 1878. The mean temperature of the air was the highest at Truro, 46°, and Plymouth, 43½°; and the lowest at Wolverhampton, 35½°, Bradford, 35½°, and at Nottingham, 36°.

Rain or snow fell on five or six days in the week at most places, the amounts were the heaviest at Sheffield, 1°.75 inch, Plymouth, 1°.67 inch, Hull, 1°.60, and Truro, 1°.55, and the least at Norwich, 0°.30, and Sunderland, 0.35; the average fall over the country was 0.96 inch.

The weather during the first four days of the week was cold and dull, with occasional snow and frozen rain, but on the remaining three days it was fine, bright and mild, though frequent rain fell.

SCOTLAND: Temperature.—During the week ending Saturday, February 8, the highest temperatures of the air varied from 49½° at Edinburgh to 44½° at Aberdeen; the mean from all stations was 48°. The lowest temperatures of the air varied from 23° at Paisley, 24° at Perth, and 27½° at Greenock to 31° at Dundee; the mean from all places 28½°. The mean range of temperature from all stations was 19½°.

The mean temperature of the air for the week from all places was 37°, being 3½° lower than the value for the corresponding week in 1878. The highest were 39° at Glasgow and 38° at Leith; and the lowest were 35½° at Perth and 35½° at Greenock.

Rain.—The amounts of rain and melted snow measured varied from 1.13 inch at Greenock to 0.10 inch at Aberdeen; the average fall over the country was 0.50 inch.

DUBLIN.—The highest temperature of the air was 55°, the lowest was 29°, the range was 26°, the mean was 43°, and the amount of rain and melted snow was 1.79 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

QUICK HEDGES.—Can you or any of your correspondents give me any hints with regard to the cultivation of Quick hedges? As a railway engineer I have several hundred miles of hedges under my charge, and I notice that my inspectors have very different ideas as to their management. Some dig about their roots every year, and cut them down low periodically; while others leave them very much to themselves, with the exception of dressing them occasionally. Also, are there any shrubs or trees which might be planted to advantage on railway slopes which have a tendency to "slip"? *Engineer.*

Answers to Correspondents.

PRIZES FOR ROSES AT BISHOP AUCKLAND.—In answer to "Inquirer," I may say that the prize for twelve yellow Roses at Bishop Auckland show, in 1875, was awarded to the late Mr. John Harrison, of Darlington, who set up a box containing eleven blooms of *Maréchal Niel* and one of the then new Rose, *Perle des Jardins*. If I am not mistaken, the prize was £5, and not £10. R. G., *Garnons, near Hereford.*

ALPINES: *A Pea-rise proper.* Plant them out on the rockery by-and-by, when the weather gets more settled, having first hardened them in a cold frame. We should get them out of the vinery at once. You will possibly find the required information in Wood's *Tourist's Flora*.

CATTLEYA SKINNERI: **ERRATUM.**—In the notice of this plant at p. 180, Prof. Reichenbach stated that the specimen was received from Mr. Murton, gr. to Captain Clarke, instead of Mr. Murton, gr. to H. W. Williams, Esq., *Tredrea*.

CYCLAMENS: *Old Subscriber.* The plants have received a severe check of some kind, and the flowers are consequently blighted. Perhaps the roots are in a bad state; perhaps the frost has caught the crowns, or, not unlikely, they have been the prey of aphides, which do incalculable mischief. *Amaryllis* next week.

DOUBLE CINERARIA: *R. Greenfield.* If it can be perpetuated and freely increased your seedling will be a valuable acquisition. The flower-heads are over an inch in diameter (1½ inch), full double, with strap-shaped florets, and of a very deep magenta-purple. It will no doubt be an excellent plant for decorative purposes, but its horticultural value beyond this will depend mainly on whether it will reproduce itself true from seed.

FERN: *T. S.* The Ferns have no doubt suffered from too low a temperature and too much moisture. In summer they would not feel this so much, but after October, when the temperature fell, they would be injured by the double evil.

FIGS: *W. Ross.* Figs are dried mostly in the sun, but sometimes in stoves. When sufficiently dry they are placed in boxes and submitted to heavy pressure, as we see them in trade. The sugar they naturally contain helps to preserve them. A brief account of the Fig will be found under article "Ficus" in Lindley and Moore's *Treasury of Botany*, Longmans.

FLOWER GARDEN DESIGNS: *J. Jones.* Such a book as you want is published at 171, Fleet Street, E.C., at the cost of a few shillings.

HAMBURGH POLLEN: *Amateur* should take a clean sheet of foolscap paper, hold it on his left hand under the bunches of Hamburgs, give them a gentle shake with the right, and he will soon secure plenty of pollen in a fit state for impregnating his shy-setting kind in an adjoining vinery. Having obtained the pollen, a good-sized camel-hair brush should be well charged and passed over the bunches every day when the temperature has reached the maximum. If the pollen is shaken into a cardboard box it may be kept for some time in a dry room.

INSECTICIDES: *Insect.* If not a practical hand you had better leave petroleum alone and use only tobacco-water of tolerable strength, or a mixture of tobacco-water and Gishurst Compound. The Primulas and Cinerarias should be fumigated, but it must be done carefully if near the point of flowering.

NAMES OF PLANTS: *J. T. S.* *Lycopodium clavatum*—one of our native Club-mosses.—*Chapman*. 1, *Oncidium Cavendishianum*; 2, in an early number.—*W. E. H.* *Cypripedium barbatum*.—*A. Turner.* *Rodriguezia secunda*.—*J. R.* *Freesia xanthospila*.—*F. F. N.* Your Apples are peculiar—exceedingly sweet in flavour, but entirely unknown to us.—*O. Orpel.* 1, *Gesnera*, apparently oblongata; 2, *Asplenium Fabianum*; 3, *Pleopeltis Billardieri*.—*J. Jordan.* Probably *Gastaria verrucosa*.

ORCHIDS: *An Old Subscriber.* The leaf of the *Epidendrum Stamfordianum* looks very much as if the plant has had a severe check, either by cold drip from the roof or from the atmosphere of the house getting several degrees below its usual temperature. Presuming the stove runs to 65° in the day, the plant in

question, if kept thoroughly moist, would certainly get a check in a temperature of 50°.

PARASITE ON CUCUMBERS AND CELERY: *H. W. Tugwell.* The Celery and Lettuce arrived in such a rotten state that we can make nothing of them. We have had no complaints of a similar nature from any of our correspondents.

PRIMULA SINENSIS: *H. Cannell.* Yours are a very fine and varied lot of flowers, fully equal to the best strains which have reached us. There is certainly no lack of good Chinese Primroses at the present day.

PRIMULAS: *G. Geirs.* Your flowers are very good. The rosy carmine one is like many which have come to hand. The lilac-tinted flower differs from any we have seen in the narrow white border to the yellow eye. The double of the same colour is also distinct, and having its organs all present will probably reproduce itself by seeds.—*D. C. Powell.* Too small; there are many much finer.

ROYAL HORTICULTURAL SOCIETY: *Old Subscriber.* The gardens are open to the public on the meeting days at 1 P.M. Information as to the subjects invited could be obtained from the Secretary.

RUSCUS RACEMOSUS: *F. T.* This plant is best known in gardens as the Alexandrian Laurel, and was introduced from Portugal in 1713.

TOBACCO PLANTS FLOWERING: *Nicotiana.* There is nothing unusual in your Tobacco plants flowering at this season.

WEEDS ON WAKS: *IV. C.* The presence of moss on your walks indicates that they want draining. The weeds may be kept down by dressing with salt or salt water, or, if you prefer it, with carbolic acid diluted with water. A trial or two on a small scale will tell you to what extent the diluting process may be carried.

COMMUNICATIONS RECEIVED.—W. P. H.—J. S.—H. N. G.—T. F. K.—C. W. S.—A. D.—R. Watson—W. P.—G. S. B.—T. B.—J. M.—K. & K.—C. D. P.—J. I. L.—J. C.—F. J. H.—E. S. W.—W. C.—Captain W. F. T.—Mrs. A. W.—J. D.—A. B.—H. W. (thanks)—J. S.—O. T.—W. C.—S. & S.—R. G.—G. M.—J. V. & Sons. An Unprejudiced Reader.—D. & L.—W. S., *Hardwick*—W. B.—E. B.—Agent (your letter is an advertisement)—A. F.—Balt.—A Young Amateur (no leaf received).—C. P. Hemery (probably snail's eggs, but we cannot say for certain).—T. D. M.

Markets.

COVENT GARDEN, February 13.

Good Grapes are now in demand; samples generally showing signs of shrivelling. Apples are confined to Nobs, Wellingtons, and Northern Greenings; prices remaining the same. Trade very quiet. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. | s. d. | | s. d. | s. d. |
|-----------------------|-------|--------|----------------------|-------|-------|
| Apples, ½-basket | 1 6 | 5 0 | Oranges, per 100 | 4 0 | 8 0 |
| Cobs and Fiberts, lb. | 0 9 | 1 0 | Pears, per doz. | 4 0 | 8 0 |
| Grapes, per lb. | 0 3 | 0 8 | Pine-apples, per lb. | 1 0 | 2 6 |
| Lemons, per 100 | 3 3 | 0 10 0 | | | |

VEGETABLES.

| | s. d. | s. d. | | s. d. | s. d. |
|------------------------|-------|-------|-------------------------|-------|-------|
| Artichokes, English | | | Horse Radish, p. bun. | 4 0 | .. |
| Globe, doz. | 2 0 | 4 0 | Lettuces, Cabbage, | | |
| — Jerusalem, bush. | 6 0 | .. | per doz. | 1 6 | .. |
| Asparagus, Fr. sprue, | | | Mint, green, bunch. | 1 6 | .. |
| per bundle | 1 6 | .. | Onions, per bushel | 4 0 | .. |
| — Eng., per 100 | 10 0 | .. | — young, per bun. | 0 4 | 0 6 |
| — Fr. giant, p. bun. | 30 0 | .. | Parsley, per lb. | 2 0 | 3 0 |
| Beans, French, p. 100 | 2 0 | .. | Peas, per quart | 12 0 | .. |
| Beet, per doz. | 1 0 | 2 0 | Potatoes, new, basket | 1 0 | .. |
| Brus. sprouts, bush. | 10 0 | .. | Radishes, per bunch | 0 1 | 0 3 |
| Cabbages, per doz. | 1 0 | 2 0 | — Spanish, doz. | 1 0 | .. |
| Carrots, per bunch | 0 4 | 0 6 | — New Jersey, doz. | 2 0 | .. |
| Cauliflowers, per doz. | 2 0 | 5 0 | Rhubarb, doz. | 10 0 | .. |
| Celery, per bundle | 1 6 | 2 0 | Shallots, per lb. | 0 6 | .. |
| Chilis, per 100 | 2 0 | .. | Seakale, per punnet | 2 6 | .. |
| Cucumbers, each | 0 9 | 1 6 | Spinach, per bushel | 4 0 | 5 0 |
| Endive, Batav. dozen | 1 6 | .. | Sweet Potatoes, per lb. | 0 6 | .. |
| Garlic, per lb. | 0 6 | .. | Tomatoes, per dozen | 2 6 | 3 0 |
| Herbs, per bunch | 0 2 | 0 4 | Turnips, p. 12 bunch. | 3 0 | 6 0 |

Potatoes: — Regents, 100s. to 130s.; Champions, 80s. to 92s. Rocks, 75s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

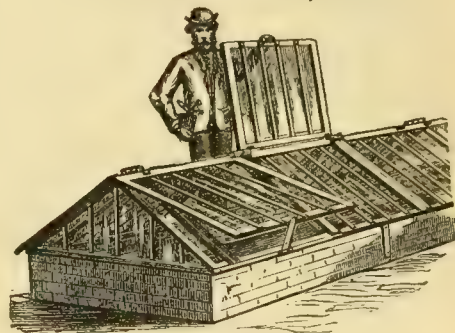
PLANTS IN POTS.

| | s. d. | s. d. | | s. d. | s. d. |
|----------------------|-------|-------|-------------------------|-------|-------|
| Arum Lily, or Rich- | | | Euonymus, var., doz. | 6 0 | 18 0 |
| ardia æthiop., doz. | 9 0 | 18 0 | Ferns, in var., p. doz. | 4 0 | 18 0 |
| Azaleas, per dozen | 2 0 | 60 0 | Ficus elastica, each | 2 6 | 15 0 |
| Begonias, per doz. | 6 0 | 12 0 | Foliage Plants, vari- | | |
| Bouvardias, per doz. | 18 0 | 24 0 | ous, each | 2 0 | 10 6 |
| Camellias, per dozen | 18 0 | 60 0 | Mignonette, per doz. | 6 0 | 9 0 |
| Cinerarias, per doz. | 12 0 | 18 0 | Myrtles, per doz. | 6 0 | 12 0 |
| Cyclamens, per doz. | 12 0 | 30 0 | Palms in variety, | | |
| Cyperus, per dozen | 6 0 | 12 0 | each | 2 6 | 21 0 |
| Dracena terminalis | 30 0 | 60 0 | Pelargoniums, scar- | | |
| — viridis, per doz. | 18 0 | 24 0 | lets, zonal doz. | 6 0 | 12 0 |
| Epiphyllum, per doz. | 18 0 | 60 0 | Primulas, per dozen | 4 0 | 12 0 |
| Erica gracilis, doz. | 9 0 | 12 0 | Solanums, per doz. | 6 0 | 18 0 |
| — hyemalis, p. doz. | 12 0 | 42 0 | Tulips, per dozen | 8 0 | 12 0 |

CUT FLOWERS.

| | s. d. | s. d. | | s. d. | s. d. |
|-----------------------|-------|-------|-------------------------|-------|-------|
| Abutilon, 12 blooms | 0 6 | 1 0 | Lily of Val., 12 sprays | 2 0 | 6 0 |
| Arum Lilies, 12 blms. | 4 0 | 12 0 | Mignonette, 12 bun. | 12 0 | 18 0 |
| Azaleas, 12 sprays | 0 6 | 1 0 | Narcissus, paper- | | |
| Bouvardias, per bun. | 1 0 | 4 0 | white, 12 sprays | 1 0 | 4 0 |
| Camellias, per dozen | 1 0 | 9 0 | Pelargoniums, 12 spr. | 1 6 | 3 0 |
| Carnations, per dozen | 1 6 | 4 0 | — zonal, 12 sprays | 1 0 | 2 0 |
| Cineraria, 12 bunches | 9 0 | 18 0 | Primula, double, per | | |
| Cyclamen, 12 blooms | 0 3 | 1 0 | bunch | 1 0 | 2 0 |
| Deutzia, 12 bunches | 6 0 | 12 0 | — single, 12 bunch. | 6 0 | 12 0 |
| Epiphyllum, 12 blms. | 1 0 | 3 0 | Roses (indoor), doz. | 3 0 | 12 0 |
| Eucharis, per doz. | 4 0 | 12 0 | Snowdrops, 12 bun. | 1 0 | 6 0 |
| Euphorbia, 12 sprays | 3 0 | 6 0 | Tropæolum, 12 bun. | 2 0 | 6 0 |
| Gardenias, 12 blms. | 12 0 | 24 0 | Tuberose, per dozen | 3 0 | 6 0 |
| Heliotropes, 12 sp. | 0 6 | 1 0 | Tulips, 12 blooms | 1 0 | 3 0 |
| Hyacinths, 12 spks. | 4 0 | 12 0 | Violets, 12 bunches | 3 0 | 6 0 |
| — Roman, 12 spks. | 1 0 | 3 0 | | | |

BOULTON & PAUL, Horticultural Builders, Norwich.



No. 64. PATENT PLANT PRESERVERS.

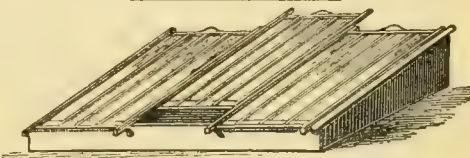
ARRANGED TO BUILD ON BRICK WALLS.

This is the Practical Gardener's and Nurseryman's favourite Frame, now largely used for storing the great quantities of bedding plants in winter, and in summer for growing Melons, &c.

Section No. 64 shows the frame built on brickwork, with a pit sunk low enough for making a dung bed for growing Cucumbers, Melons, &c. This form can be made up to any length required. (See List, free on application.)

CASH PRICES, including two glass ends to each length, painted four times, glazed with 21-oz. glass. Carriage paid.

| Length. | Width. | £ s. d. | Length. | Width. | £ s. d. |
|---------|--------|---------|---------|--------|---------|
| Feet. | Feet. | | Feet. | Feet. | |
| 12 | 5 | 5 5 0 | 24 | 6 | 11 10 0 |
| 18 | 5 | 7 5 0 | 30 | 6 | 14 0 0 |
| 24 | 5 | 9 2 6 | 12 | 7 | 8 0 0 |
| 30 | 5 | 11 2 6 | 18 | 7 | 11 0 0 |
| 12 | 6 | 6 10 0 | 24 | 7 | 14 0 0 |
| 18 | 6 | 9 0 0 | 30 | 7 | 17 0 0 |

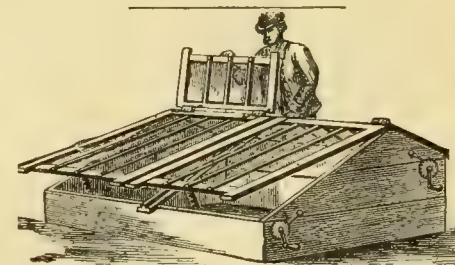


100 MELON and CUCUMBER FRAMES

Ready to dispatch on receipt of order. These Frames are made of the best red deal, thoroughly seasoned, and fitted by first-class workmen: 24 inches high at the back, 12 inches high in front; painted three coats of good oil colour, glazed with the best 21-oz. glass, every pane of which is nailed in and bedded in putty—the best method of glazing known, and adopted by the most eminent Builders and leading Nurserymen (see the *Garden* for January 13, 1877, p. 30). Iron handles to each light, and an iron strengthening bar across. Each light is 6 feet by 4 feet, and 2 inches thick.

CASH PRICES.

| | £ s. d. |
|-------------------------------------|---------|
| 1-Light Frame..... 4 feet by 6 feet | 2 0 0 |
| 2-Light " " " " " " | 3 7 6 |
| 3-Light " " " " " " | 4 17 6 |
| 4-Light " " " " " " | 6 7 6 |
| 5-Light " " " " " " | 7 17 6 |
| 6-Light " " " " " " | 9 7 9 |



No. 74. NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.

Our illustration shows a New Frame for Growing Cucumbers, Melons, &c., and for storing plants. It is made to give greater height and more convenience than the Melon Frame, No. 75. The front is 11 inches high, without the light, 32 inches high at the ridge, and 22 inches high at the back. The front lights can be turned back on the lights behind, and the back lights turned on to the front lights, giving access to all the plants. They are made of the best red deal, sides and ends 1½ inch thick, 2 inch lights; all are painted three times and glazed with 21-oz. sheet glass.

CASH PRICES—Carriage paid.

| Size. | Long. | From front to back. | Gearing extra to 8 ft. size and upwards. | £ s. d. |
|-------|-------|---------------------|--|---------|
| No. 1 | 4 | 6 | 3 0 0 | — |
| No. 2 | 8 | 6 | 4 15 0 | 0 15 0 |
| No. 3 | 12 | 6 | 6 10 0 | 1 2 0 |
| No. 4 | 16 | 6 | 8 5 0 | 1 10 0 |
| No. 5 | 20 | 6 | 10 0 0 | 1 16 0 |

SPECIAL NOTICE.—Carriage paid to any railway station in England, also to Dublin, Glasgow, and Edinburgh, on order of 40s. and upwards.

Breakage seldom occurs. Should any glass be broken we will send sufficient to repair it, carriage free.

Packing Cases charged cost price, and half allowed when returned free to our Works.

New Illustrated Catalogue of Greenhouses, Plant Preservers, Melon Frames, &c., post-free.

BOULTON & PAUL, NORWICH.

SPECIAL OFFER OF NURSERY STOCK,

all transplanted, and well rooted.
LAURELS, Portugal, 1 to 1½ foot, 12s. per 100; 1½ to 2 feet, extra fine, 25s. per 100; 2 to 2½ feet, very fine, 30s. per 100.
PICEA NORDMANNIANA, 2 to 3 feet, 18s. per dozen; 3 to 4 feet, 24s. per dozen.
BOX, Handsomely Broad-leaved, 1 to 2 feet, 15s. per 100; 140s. per 100.
CEDRUS DEODARA, 2 to 3 feet, 10s. per dozen, 70s. per 100; 3 to 4 feet, 20s. per dozen.
FIR, Larch, 1½ to 2 feet, 25s. per 1000; 2 to 3 feet, 30s. per 1000.
FIR, Spruce, 1 to 1½ foot, 25s. per 1000; 2 to 3 feet, 60s. per 1000.
HAZEL, 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 21s. per 1000.
HORNBEAM, 3 to 4 feet, 30s. per 1000; Sycamore, 3 to 3½ feet, 20s. per 1000.
CHESTNUTS, Scarlet, very fine Standards, 12s. per dozen.
LIMES, fine Standards, 8 to 10 feet, 60s. per 100; 10 to 12 feet, 80s. per 100.
THORNS, Paul's Double Crimson, Standards, 9s. per dozen.
VIRGINIAN CREEPERS, staked, strong, 15s. per 100.
GOOSEBERRIES, mixed, strong, 12s. per 100.
CURRENTS, White, 10s. per 100.
PEACHES, Dwarf-trained, leading sorts, 24s. per dozen.
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(The usual Discount to the Trade.)

H. BLANDFORD is prepared to offer the undermentioned NURSERY STOCK at exceptionally low prices, as quoted below, in order to clear the ground:—

The quality cannot be surpassed.

ROSES, Standards, 100s. per 100.
MANETTI STOCKS, 33s. per 1000.
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CURRENTS, Red, 15s. per 100. [dozen.
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ARAUCARIA IMBRICATA, 4 feet, 7s. 6d.; 84s. per doz.
BAY, 1½ to 5 feet, bushy, 8s. to 30s. per dozen.
CEDRUS DEODARA, 2½ to 5 feet, 21s. to 36s. per dozen.
CRYPTOMERIA JAPONICA, 5 to 7 feet, 30s. to 42s. per doz.
CUPRESSUS MACROCARPA, in pots, 1½ to 2½ feet, 7s. to 12s. per dozen.
LAWSONIANA, 4 to 7 feet, 12s. to 25s. per dozen.
LAUREL, Portugal, 2 to 3½ feet, 6s. to 12s. per dozen.
Common, bushy, 2½ feet, 18s. per 100.
THUJA AUREA, 1½ to 3½ feet, perfect specimens, 18s. to 60s. per dozen.
" ELEGANTISSIMA, 1½ to 2½ feet, 15s. to 30s. per doz.
" SEMPERAURESCENS, 1 to 2 ft. 12s. to 30s. per doz.
GIGANTEA, 3 to 4½ feet, 21s. to 30s. per dozen.
THUJOPSIS BOREALIS, 7 feet, 5s. each, 50s. per dozen.
YUCCAS, of sorts, 12s. to 36s. per dozen.
HORNBEAM, 6 to 9 feet, 10s. to 30s. per 100.
BEECH, Common, 5 to 6 feet, 16s. per 100.
HORSE CHESTNUT, 9 to 10 feet, 15s. per dozen.
H. BLANDFORD, The Dorset Nurseries, Blandford.

To the Trade.—Vines—Vines—Vines.

W. G. CALDWELL AND SONS have still extra strong fruiting Black Hamburg VINES to offer, excellent stuff, at 5s. 6d. each. Also **AZALEA AMENA CALDWELLII**, well set with buds, 18s. and 24s. per dozen.
APPLES, Standard, 40s. per 100.
 Pyramid, 60s. per 100, in all leading varieties.
 General CATALOGUE of Fruit Trees, Conifers, Roses, &c., post-free on application.
 The Nurseries, Knutsford, Cheshire.

Colognye cristata.

R. S. YATES has now in full bloom 30 or 40 Plants of the above, unequalled in the world. They have many thousand flowers upon them. A portion of the plants he offers for cash only, at from 2 to 20 guineas each.
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R. S. YATES' unequalled stock of lovely **FLOWERS**, suitable for the making of Funeral Wreaths, Crosses, Garlands, &c., consisting of Camellias, Eucharis, Christmas Roses, Colognye, Primroses, Hyacinths, Rhododendrons, Azaleas, Myrtle, Ferns, &c.
 Sale; and 24, Corporation Street, Manchester.

Grudge not, ye rich (since luxury will have, And half the world lives by procuring delicacies for ye); Grudge not, ye rich, ye little know the care Of summer flowers (fruits) brought forth by wintry suns, Frogs, lice, and creeping things innumerable. *Couper.*

BOUQUETS.—Wedding, Ball, and Table Bouquets, unsurpassed and rarely equalled, can at all times be supplied from the vast collection of plants grown expressly for the above purpose. **R. S. YATES** must not be confounded with those who rely upon advertisement; he is the producer of what he offers, and any orders once accepted will be executed in their integrity.
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GEORGE FARNSWORTH has to offer large quantities of the following, which are good and well rooted:—
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ASH, Mountain, 1-yr., 3s. per 1000; 3 to 5 feet, 25s. per 1000
BERBERIS AQUIFOLIA, 2-yr., 5s. per 1000; 1-yr. and 1-yr. transplanted, 20s. per 1000
BIRCH, 1½ to 2 feet, 20s. per 1000
COTONEASTER MICROPHYLLA, 1-yr. cuttings, 20s. per 1000
HOLLY, Common, 9 to 15 inches, 100s. per 1000; 12 to 18 inches, 130s. per 1000
LARCH, 1½ to 2½ feet, 22s. 6d. per 1000
LAUREL, Common, 1-yr., fine, 10s. per 1000
RHODODENDRON, 3-yr. seedling, 5s. per 1000; 3-yr. and 2-yr. boded, 20s. per 1000; 6 to 10 inches, extra transplanted, 70s. per 1000
WHIN, Double, 2-yr. cuttings, 60s. per 1000
 Samples on application at
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FIFTY ACRES OF FRUIT TREES.—

Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordons and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price List, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for a penny stamp.

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TREES IN POTS.—Grape Vines, extra strong, and warranted free from phylloxera, oidium, and all disease; Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. each. Orchard-house Trees, fruiting in pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price List for a penny stamp.

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PLANTS, their scientific and English names, height, colour, time of flowering, and other useful information. Descriptive Price List for a penny stamp. Collection of 100 beautiful hardy varieties for Garden Beds, Borders, or Rockeries, for 30s.

LIST of all the EVERGREEN FIR TRIBE,

suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

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ALL kinds of GARDEN SEEDS, of first quality, **BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS**, and other **GARDEN REQUISITES**. See Lists, which may be had on application.

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Really Choice Seeds.

GLOXINIA CRASSIFOLIA GRANDIFLORA, magnificent strain, quite distinct, leaves broad, fleshy, and recurving; blooms very large and richly marked and coloured. Erecta and horizontalis, separate or mixed, per packet, 1s. and 2s. 6d.

AURICULA, extra choice, mixed. Almost every plant from this seed will give blooms of exquisite colouring, distinct eye and margin, and perfection in form. Per pkt., 1s. 6d.

PETUNIA, Double, large flowering. Most carefully hybridised; yields a large percentage of double flowers. Per packet, 1s. 6d.

BEGONIA, Tuberous rooted.—From a superb collection containing all the splendid new introductions in this class. Per pkt., single, 2s. 6d.; double, 2s. 6d.

STEPHANOTIS FLORIBUNDA.—Free-flowering variety from the Mauritius. Per packet, 1s. 6d., post-free.
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DICKSON & SONS,
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**VEGETABLE & FLOWER SEEDS.
Seed Potatoes & Garden Requisites.
QUALITY UNSURPASSED, CARRIAGE FREE.
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Early Peas for Marketing.

THE BEST EARLY PEA IS

SUTTON'S IMPROVED EARLY CHAMPION.—Extensively used by the principal Pea Growers. Ten days earlier than Daniel O'Rourke; very prolific, good quality. Also:—

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| Sutton's Racehorse | Invicta |
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Price per bushel and quarter on application.

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20,000 **PLUM**, Lent Withy, 4 to 5 feet.

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THE ABOVE and many other PATTERNS

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GARDENS, as they

harbour no Slugs or Insects,

take up little room, and

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further labour or expense,

as do "grown" Edgings, consequently being much cheaper.

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very durable and of superior finish, and in great variety of design.

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KENT PEATS or LOAM supplied at lowest rates in any

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A liberal Discount to the Trade.

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BLAKE'S SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of
Villages, Irrigation, Railway Stations, Mansions,
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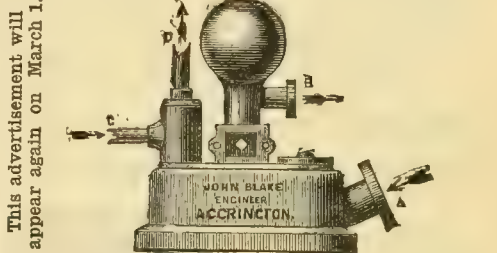
No Cost for Motive Power, which is obtained from the
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NO OILING OR PACKING REQUIRED

Made in sizes to raise from 300 to 100,000 Gallons per day.

WILL FORCE TO A HEIGHT OF 1500 FEET.

This advertisement will appear again on March 1.



This Ram will raise a part of the same water that works it, or will raise pure water from a well whilst it is worked by a stream of impure water.

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From the Right Hon. T. SOTHERN ESTCOURT, *Estcourt Park, Gloucestershire, September 6, 1875.*

"You will be glad to hear, as I am to tell you, that your Self-acting Hydraulic Ram has worked exceedingly well and continuously since it was erected, more than twelve months ago. It is, in fact, perfectly successful."

(The delivery pipe in the above case is 4200 feet long, with 100 feet rise.)

From Captain TOWNSEND, *Wineham, February 10, 1877.*

"In answer to your enquiry, I am glad to say the Hydraulic Ram you sent me in November, 1875, is working exceedingly well, and gives no trouble. It will work when quite immersed, as it has been several times during the floods this winter, forcing up water through a delivery pipe 900 yards long at the rate of 80,000 gallons per day, although you only promised 50,000."

From W. SCARTH, Esq., *Agent to His Grace the Duke of Cleveland, Raby Castle, Darlington, July 16, 1878.*

"The Hydraulic Ram you supplied to his Grace the Duke of Cleveland in 1875 is a complete success. It worked for more than two years without once stopping, and throws more water than promised."

Deanwater, Wilmslow, November 20, 1873.

"Dear Sir,—In answer to your enquiries respecting the Hydraulic Ram you supplied me with six months ago, I beg to state that I am more than satisfied with it, as it is in perfect order, sending up to the top of the house about 2000 gallons of water in the twenty-four hours, whereas you only contracted to deliver in that time 500 gallons. I have, therefore, every reason to be well pleased with your work, and more especially as I had a Ram supplied me by another maker which could not send up a single gallon of water to the height required, and a second maker informed me that no Ram with a fall of 3 feet could send up water to the distance required, namely, 120 feet. But yours is an accomplished fact, and does its work most effectually.—I am, yours truly, L. HANMER."

From JOHN TAYLOR, Esq., *The Rocks, Bath, Aug. 22, 1878.*

"The Self-acting Hydraulic Ram you fixed here in March of last year continues to work well. It has only the same quantity of water and fall to work it as the water-wheel and pump which I used previously to force to a height of 294 feet, and yet the Ram sends up more than double the quantity of water than the wheel did to the same height."

From JOHN PENNINGTON, Esq., *Ennott Hall, near Colne, December 21, 1868.*

"Sir,—The Self-acting Hydraulic Ram you supplied me with nine months ago continues in excellent condition. It receives water from a spring through a 2-inch pipe, of which it forces 3600 gallons per day of twenty-four hours to a height of 90 feet, exceeding all you promised, and far surpassing the water-wheel and force pumps which it has displaced. Its cost is small, it occupies but little space (2 square feet), and in mechanical detail is simplicity itself. I have much pleasure in recommending it as a cheap and efficient method of raising water."

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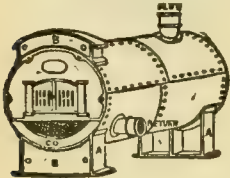
The above Labels are made of a White Metal, with RAISED
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The *Gardeners' Magazine* says:—"We must give these the
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Samples and Price Lists free.

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After long experience, has proved the most SIMPLE,
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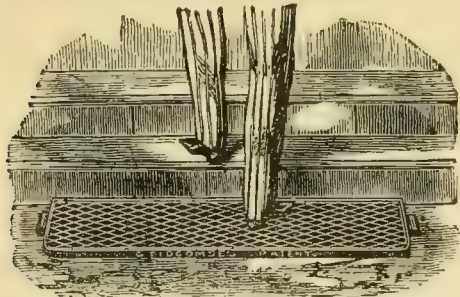


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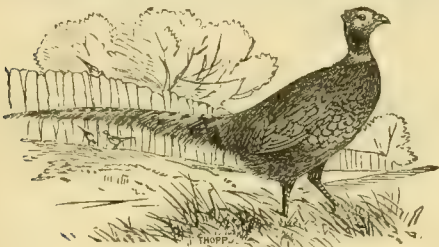
Our Boilers are the ONLY ones made with the sanction
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SCRAPER MATS.**—They improve the appearance of
Entrances, are suitable for all kinds of Gravel-walk Entrances, in
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to the feet in whatever direction you step. They are the width
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Tidcombe's Patent Gravel-walk Metal Scraper Mats are
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Gritty, or Gravel Walks. Delivered on Railway on receipt of re-
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PHEASANTRY WIREWORKS.



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R. HOLLIDAY begs respectfully to inform
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Business of HORTICULTURAL IRON and WIREWORKS, from 2A,
Portobello Terrace, Notting Hill Gate, to more extensive and
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favours and trusts for their support and patronage in the future.

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HORTICULTURAL IRON and WIREWORKS.
"The Pheasantry," Beaufort Street, Chelsea,
London, S.W.

For Garden and Conservatory Wirework see Illustrated
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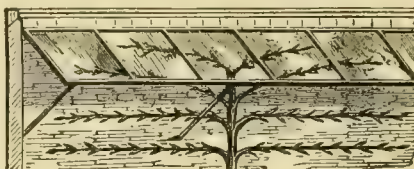


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Catalogues free on application.

A Crop of Fruit in Spite of Frost.



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Many miles are in use. Testimonials and Prospectus free.
Price, with 21-oz. glass and painted iron framing, 2 feet wide,
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Orders amounting to £3 carriage paid.

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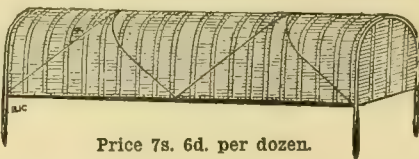
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Price 7s. 6d. per dozen.

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Ten per Cent. discount allowed for cash with order.

Special quotations for large quantities.

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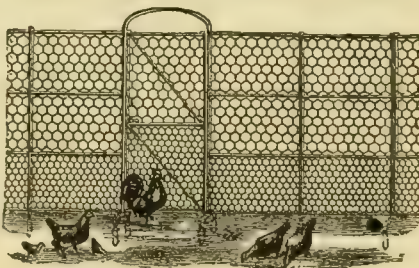
Paddington Iron and Wireworks,

285 and 362, EDGWARE ROAD, LONDON, W.
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NEW and IMPROVED POULTRY FENCES.



This fence is a much stronger description of fencing than the
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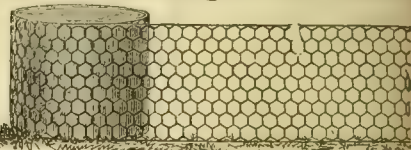
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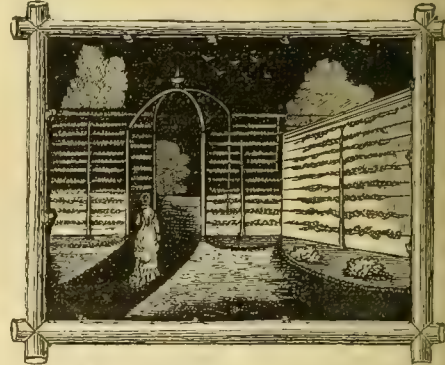
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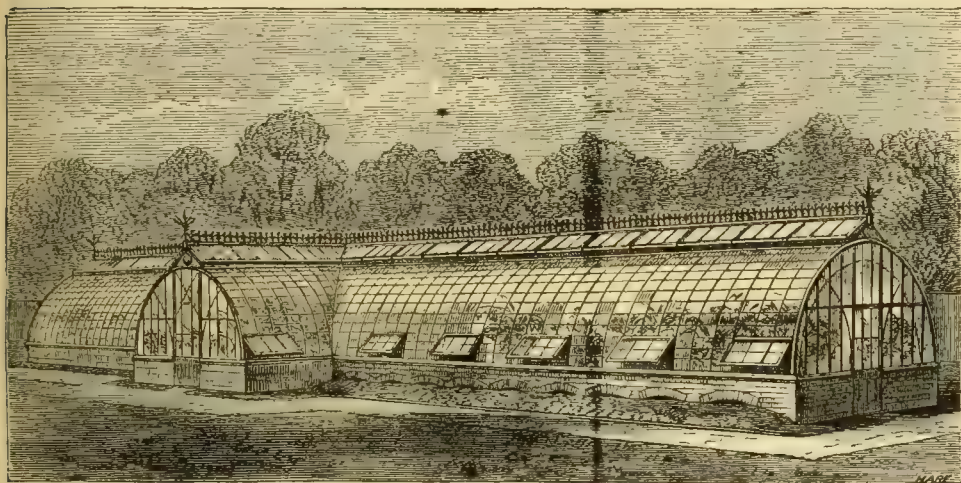
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|---------------|--------------------|--------|--------|--------|---------|--------|---------|
| Inch. | | | d. | | d. | | s. d. |
| 2 | Rabbits & Hares... | 19 | 3 | 18 | 3½ | 17 | 0 4¼ |
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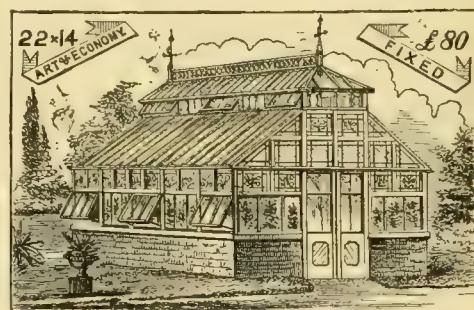
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May be viewed. Catalogues obtained on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

The Nursery, Leigham Court Road, Streatham, S.E. FINAL CLEARANCE SALE.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. G. Clark to sell by AUCTION, on the Premises, on FRIDAY, March 7, at 12 o'clock punctually, the whole of the well-grown NURSERY STOCK, in capital condition for removal, comprising magnificent *Araucarias*, *Decidars*, fine common and Portugal Laurels, Box, Green Hollies, *Aucubas*, and other *Evergreens*, Fruiting Apples and Pears, Heavy CART, small Rick of HAY, and other effects.

May be viewed. Catalogues of Mr. J. NEVILLE, on the Premises; and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

The Royal Nurseries, Ascot, Berks. PRELIMINARY NOTICE.

Important Four Days' Sale of remarkably well-grown NURSERY STOCK, in splendid condition for removal.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Standish & Co. to prepare for SALE by AUCTION, on TUESDAY, March 11, and three following days, many thousands of handsome *CONIFERÆ* and *EVERGREEN SHRUBS* of all sizes, also of choice AMERICAN PLANTS, a considerable number of FOREST and ORNAMENTAL TREES, TEA ROSES, and other Plants in pots.

More detailed particulars will shortly appear.

Taunton, Somerset.

FINAL CLEARANCE SALE.—Land Sold for Building.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, by order of Mr. Wm. Hockin, on the Premises, the Nurseries, Taunton, on TUESDAY and WEDNESDAY, March 11 and 12, at 12 o'clock precisely each day, the remaining NURSERY STOCK, including 3000 Fruit Trees, thousands of Laurels and other useful shrubs, Standard and Dwarf *Roses*, Stove and Greenhouse Plants, 2000 Bedding *Geraniums*, 1000 *Calceolarias*, Lily of the Valley, *Liliums* and Ferns; together with the erections of four GREENHOUSES, quantity of Garden FRAMES, Hot-water PIPING and Utensils, and numerous effects.

May be viewed. Catalogues had on the Premises; and of the Auctioneers, 98, Gracechurch Street, E.C.

Valuable Orchids.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 24, at half-past 12 o'clock precisely, a magnificent importation of ORCHIDS, from the collectors of the New Plant and Bulb Company, consisting of *Cattleya Mendelii*, *C. Gigas*, *Odontoglossum Alexandræ*, *O. Pescatorei*, *O. coronarium*, *O. Phalaenopsis*, *Oncidium cucullatum*, *Epidendrum vitellinum majus*, *Sophranitis grandiflora*, *S. violacea*, and other beautiful Orchids; also from Messrs. F. Sander & Co. some magnificent masses of *Odontoglossum Rossi majus*, and a collection of established and other Orchids, consisting of *Odontoglossum vexillarium*, *O. Halli*, *O. membranaceum*, *O. triumphans*, *Phalaenopsis grandiflora*, *P. Luddemania*, *P. Schilleriana*, *Dendrobium* of various kinds, *Maxillaria grandiflora*; also a consignment from New Jersey of 1000 *Dionaea muscipula*, and 1000 *Sarracenia* and 3000 *Lilium auratum*, from Japan.

On view morning of Sale, and Catalogues had.

Odontoglossum polyanthum (Rehb.). **MR. J. C. STEVENS** has received instructions from Mr. F. Sander to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 27, at half-past 12 o'clock precisely, the entire importation of this most magnificent ODONTOGLOSSUM. It is offered for the first time, and the grandest of Mr. E. Klaboch's discoveries: the plant resembles *O. Halli* in the bulb, but makes two leaves only, whereas three are produced on the bulbs of *Halli*. ODONTOGLOSSUM POLYANTHUM flowers in October and November, the flowers are over 4 inches in diameter, petals broad and golden-yellow, having from three to five large crimson dots at the base, sepals also golden-yellow, barred with dark red. The plant is very scarce in its native habitat, and very difficult to get home alive. From the flower-spikes on the plants it will be seen how extraordinarily floriferous this *Odontoglossum* is; a specimen with only six bulbs had eleven flower-spikes, one of which had over thirty flowers on it. This is a very grand novelty: see dried flowers on day of Sale. Also a fine importation of *ONCIDIUM MACRANTHUM* in very large species, and in extra health, freely set with breaks; *CATTELYA MENDELII*, a large quantity of this fine *Cattleya* in splendid masses; *EPIDENDRUM VITELLINUM MAJUS*, splendid masses of this magnificent cool Orchid; *NANODES MEDUSE*, the largest and finest masses hitherto offered of this splendid Orchid; ODONTOGLOSSUM ROSSI MAJUS, the true majus variety of Rossi: some of the masses are extraordinarily large; *O. VEXILLARIUM*, *O. MACULATUM SUPERBUM*, the fine large flowering bright yellow varieties; *O. PARDINUM*, established plants; *O. PHALAENOPSIS*, *O. PESCATOREI*, *O. ALEXANDRÆ*, *O. TRIUMPHANS*; a new *LYCASTE*, and a variety of other cool Orchids.

On view morning of Sale, and Catalogues had.

Importations of Orchids and Bulbs from Japan, NEW JERSEY, and other parts.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 3, at half-past 12 o'clock precisely, an importation of JAPANESE ORCHIDS in fine condition, including *Angraecum falcatum*, *Calanthe Sieboldii*, *Aerides japonicum* and another new *Aerides*; 3000 fine bulbs of *Lilium Krameri* and 10,000 splendid bulbs of *Lilium auratum* from Japan; 5000 splendid roots of *Tigridia grandiflora* from New Jersey (see Coloured Plate in *Garden*, Feb. 15); Hardy North American Orchids, a quantity of New Holland dwarf Pitcher-plants, *Cephalotus follicularis*, English-grown Lilies, *Gladioli*, *Anemones*, *Ranunculi*, &c., from Holland.

On view morning of Sale, and Catalogues had.

Knockholt, near Sevenoaks, Kent.

(About a Mile from Halstead Station, on the S.E. Railway.)

MR. WM. HODSOLL is instructed by Mr. J. W. Collins to sell by AUCTION, on the Premises as above, on THURSDAY, February 27, at 12 for 1 o'clock, a large quantity of valuable NURSERY STOCK, comprising Shrubs, Plants, and Trees, in great variety.

May be viewed and Catalogues had at the place of Sale, and of the Auctioneer, Farningham, Kent.

S.W. District (4554).

In a main thoroughfare within four miles of the City.

FOR DISPOSAL, a NURSERY (owing to confirmed ill health), with nearly an Acre of Ground, 26 Greenhouses, Pits, and Outbuildings. Returns £1700 per annum. Terms for interest in Lease, Glass Erections, Goodwill, Stock, Two Horses, Van, &c., and orders to view, may be had gratis of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C.

Herts (4577).

TO SELL, a BUSINESS, in good position, near a Station. Dwelling-house and Shop, over 2 acres of Land, and over 3000 feet super of Glass. Rent £50. Price for Lease, some Glass Erections, and good Stock, £450. Orders to view of PROTHEROE AND MORRIS, as above.

FOR IMMEDIATE DISPOSAL, a NURSERY, SEED, and FLORIST'S BUSINESS (in consequence of the ill health of the Proprietor), old established, with good connection. For particulars apply to HENRY BAKER, The Nurseries, Atherstone.

Nursery and Market Garden.

TO BE DISPOSED OF, a small NURSERY and MARKET GARDEN, with good connection, in a thriving neighbourhood. No other Nursery within 30 miles. For particulars apply to H. W. HUMPHREYS, Seedsman, Bangor.

Horticultural Valuations.

MR. EDWIN COOLING, LICENSED VALUER, undertakes the VALUATION of all kinds of HORTICULTURAL PROPERTY. Terms on application. Mile Ash Nurseries, Derby.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Planting Season.

E. BURGESS begs to offer the following:—Burg Standard PEARS, Standard-trained APRICOTS, Turkey and English OAK, English and Scotch ELMS, LIMES up to 12 feet, BEECH up to 7 feet, and a general Nursery Stock. Prices on application. The Nurseries, London Road, Cheltenham.

To the Trade.

LAURUSTINUS, 3-yr. transplanted, 1½ to 2½ feet, 15s. per 100, £45 ros. per 1000, cash with order. J. AND G. LOWE, Uxbridge.

To the Trade.

ASPARAGUS, Giant, 1, 2, 3, and 4-year. JAMES BIRD, Nurseryman, Downham.

Roses, Fruit Trees, and General Nursery Stock. W. B. ROWE solicits the inspection by Nurserymen of his extensive stock of the above, which are well-grown, and fit for removal. Barbourne Nurseries, Worcester.

FOR SALE, a large quantity of good strong MANETTI STOCKS, at 12s. per 1000. Apply to JAMES LAMBERT, Woking, Surrey.

To Florists and the Trade.

CAMELLIAS, Double White, 4s. per dozen; AZALEA, semi-double White, 8s. per dozen sprays. GERANIUM, Scarlet, 6s. per dozen bunches. C. WILSON, Nurseryman, Kendal.

Mangel Seed.

JOHN SHARPE is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs. Bardney Manor, Lincoln.

Calceolaria, Cineraria, Primula, and Hollyhock. F. AND A. SMITH offer the above, saved from their unrivalled strains, in 1s., 2s. 6d., and 5s. packets. Price, per weight, to the Trade on application. The Nurseries, West Dulwich, S.E.

NEW CUCUMBER.—Stanstead Rival is a genuine novelty, and will take its place as the best cucumber grown. Sealed packets 2s. 6d. each. The Trade supplied. JOHN LAING AND CO., Seedsmen, Forest Hill, S.E.

15,000 Irish Iries in Pots.

W. FROMOW has the above, strong, from 2 to 12 feet high, and other Green and Variegated varieties, at low prices for Cash, delivered free within 6 miles of Nursery. Sutton Court Nursery, Turnham Green, London, W.

SCARLET RUNNER BEANS (New English).—For Sale about 10 Bushels of the above, in splendid condition. For lowest cash price apply to W. R. HARRISON, High Street, Maidstone.

RASPBERRY CANES.—For Sale, 150,000 Fastolf, at 17s. per 1000, free on rail. Cheque or reference to a London house required with order. R BATH, Crayford.

BLACKTHORN for Covert Planting, one million of strong transplanted, 10s. to 15s. per 1000. THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

To the Trade.

THOMAS METHVEN AND SONS have a large and fine Stock of strong transplanted SCOTCH FIR and PINUS LARICIO, and will be happy to send special quotations on application. Leith Walk Nurseries, Edinburgh.

25,000 Bedding Geraniums for £10.

TAYLOR AND CO., FLORISTS, Timperley, Cheshire, offer the above, in the following varieties:—400 Crystal Palace Gem, 600 Vesuvius, 350 Flower of the Day, 300 Christine, 300 Amy Hogg, 500 Mrs. Turner. Autumn struck, and nearly all from single pots. Also 500 PELARGONIUMS, extra strong plants, require potting into blooming pots, at 30s. per 100, for cash.

LILIUM AURATUM, fine healthy roots, 6s. per dozen; a size smaller, for 5½-inch pots or bedding, 3s. per dozen. **LILIUM THUNBERGIANUM** STAMINOSUM, 3s. and 6s. per dozen. **LILIUM KRAMERI**, 6s. per dozen. Double **TUBEROSES**, 1s. 6d. per dozen. For cash. W. F. ROFF, 203, Upper Street, Islington, N.

SEAKALE for FORCING.—Excellent large roots, none to excel the size of them in growth; 10s. 6d. per 100, and 1s. packing. ASPARAGUS, RHUBARB, GLOBE ARTICHOKE, ASHLEAF KIDNEY, DUNBAR REGENTS; price on application. A remittance must accompany all orders.

ALFRED ATWOOD, Market Gardener, 8, Palk Road, Battersea, S.W.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, and other mixed sorts, good, strong, autumn-struck plants, with plenty of good Cuttings, from store pots, at 1s. per store pot. Package free. Cash to accompany all orders. Queen's Road Nursery, Markhouse Common, Walthamstow, E. Late of Islington Nursery, Park Street, Islington, N.

NATIVE SCOTCH FIR, extra strong, and all other FOREST TREES grown in exposed situations. DICKSONS AND CO., Nurserymen and Seedsmen, 7, Waterloo Place, Edinburgh.

GRAPE VINES.—For Sale, ten Grape Vines, 4 and 5-yr. planted, in full bearing, consisting of Muscat, Black Hamburg, Lady Downe's, &c. Apply to The GARDENER, Jardine Hall, Lockerbie.

ENGLISH YEW.—Extra transplanted and well furnished, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 90s. per 100. THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

To the Trade.

MYATT'S ASHLEAF KIDNEY POTATO—For Sale, a fine even sample of these, quite free from frost or disease. Price, per ton, on application to W. TAIT AND CO., Seedsmen, Dublin.

Every One Who Has a Garden Should Read SUTTON'S AMATEURS' GUIDE, the most Practical Work on Gardening yet published. Post-free for fifteen stamps, gratis to customers.

SUTTON'S AMATEURS' GUIDE is the Best Book of its class that has come under our notice, and if regarded as a Trade Circular is certainly a remarkable production. In the printing and getting up it is a model of elegance throughout; it contains a considerable body of literary matter, and it weighs 13 oz.—*Gardeners' Magazine*, Dec. 29.

SUTTON'S AMATEURS' GUIDE is beautifully Illustrated with several Coloured Plates and nearly 500 Engravings.

SUTTON'S AMATEURS' GUIDE contains all necessary information for the successful Cultivation of Vegetables, Flowers, and Potatoes. Post-free for fifteen stamps, gratis to customers.

SUTTON'S PRICE CURRENT, gratis and post-free on application.

SUTTON'S DESCRIPTIVE LIST of SEED POTATOS is now ready, and may be had gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf ROSES, FRUIT TREES of all sizes, Scarlet and other RHODODENDRONS well set with buds, CONIFERÆ and EVERGREENS, and DECIDUOUS TREES for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

WELLINGTONIA GIGANTEA.—Fine trees, 8 to 10 feet high, transplanted 2 years since, 36s. per dozen.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

SUTTON'S MAGNUM BONUM POTATOS, 10s. per cwt.
Apply to W. W. PEARCE, Measham, Atherstone.

SCOTCH FIR, LARCH, Seedling and Transplanted, for sale cheap. Carriage paid to London.
LEVAVASSEUR AND SON, Nurserymen, Ussy (Calvados), France.

LARCH, 1-yr. Seedling; PEAR STOCKS, SPANISH CHESTNUTS, 6 to 9 inches; PHLOXES, Bedding VIOLAS and PANSIES. A splendid Collection of Champion and Walker's Regent POTATOS for seed.
DICKSONS AND CO., 1, Waterloo Place, Edinburgh.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to offer:—
5000 LAURELS, Portugal, 3 to 4 feet.
5000 YEWs, English, 3, 4, 5, and 6 feet.
5000 FIRS, Spruce, 3, 4, 5, and 6 feet.
5000 HOLLIES, Green, 2, 3, and 4 feet.
Price on application.

SELECTED SEED POTATOS.—
50 tons CHAMPION, grown on new land on the banks of the Solway.
50 tons IMPROVED VICTORIAS.
50 tons REGENTS, and other sorts.
Prices and LIST on application.
LITTLE AND BALLANTYNE, Seed Growers, Carlisle.

KENTISH FRUIT TREES, of every description, in 300 varieties, including some Dwarf Pyramid Fruiting APPLES, suitable for windy districts, at extraordinary low prices. Before purchasing elsewhere, send for SPECIAL LIST to
T. EVES, Gravesend Nurseries.—Established 1810.

VERBENAS, VERBENAS, VERBENAS.—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000, 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s. Terms cash.
H. BLANDFORD, The Dorset Nurseries, Blandford.

Verbenas in Single Pots.
WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash.
Cemetery Nursery, Gravesend.

Verbenas from Store Pots.
WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums.
WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash.
Cemetery Nursery, Gravesend.

Seed Potatoes.
THOMAS IMRIE AND SONS, SEEDSMEN, have at present to offer:—
CHAMPIONS, PORTER'S EXCELSIOR, VICTORIAS, FORTYFOLDS, and a few others, all specially selected for Seed.
Price per Ton or Cwt. on application.
Also samples and prices of Genuine Machine-cleaned AYR-SHIRE PERENNIAL RYEGRASS SEED on application.
Ayr, N.B., February 18, 1879.

RHODODENDRONS—Ponticums, hybrids No. 1 and No. 2, Catawbiense and its hybrids. The best named kinds, and thousands of dwarf kinds. Forty Acres are covered with Rhododendrons, and the plants are suitable for any Garden, and cheap enough to plant for Cover, and are mostly grown on land 1000 feet above the sea. For 5,000 or 10,000 of one kind special offers will be made.
CATALOGUE free per post.
JAMES SMITH, Darley Dale Nurseries, near Matlock.

EXHIBITION VEGETABLES and FLOWERS.—All who desire to win Prizes should send at once for CARTER'S STERLING NOVELTIES. It is a short Catalogue, profusely illustrated, and contains the best New Vegetables and Flowers of the year.

Gratis and post-free on application to
The Queen's Seedsmen, High Holborn, London, W.C.

To the Trade.

SEED POTATOS.—Our SPECIAL LIST, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application.

H. AND F. SHARPE, Seed Growers, Wisbech.

Dahlia Pot Roots.

THOMAS BURY begs to offer the above, in all the leading varieties, at 18s. per 100. Cash with order.

The Nurseries, Osbaldeston, near Blackburn.

ENGLISH OAKS.—Tall straight Standards 10 feet high, 20s. per 100, £8 8s. per 1000, for cash.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

WEBB'S PRIZE COB FILBERTS AND OTHER NUTS.

Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to THE MANAGER, Calcot Gardens, Reading. CATALOGUES post-free on application.

WEBB'S CHOICE POLYANTHUS AND OTHER SPRING PLANTS.

Early orders are solicited for the above choice plants. Apply to THE MANAGER, Calcot Gardens, Reading.

Special Offer.

WM. AND D. STEWART have large quantities of fine transplanted LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Prices on application.
Ferndown Nurseries, Wimborne, Dorset.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

Roses, Roses.
DOWNIE AND LAIRD are now sending out the above, the Finest Varieties in Cultivation, at 9s. per dozen, selection left to D. & L.
Royal Winter Gardens, Edinburgh.

CHEAP ORCHIDS.—Good flowering Bulbs of Calanthe vestita rubra and Pleione Wallichii, 18s. per dozen, or £6 per 100. Also a few good plants of Coeloglyne cristata. Apply to
S. WOOLLEY, Cheshunt, Herts.

SPRUCE FIRS.—A quantity of strong stuff for sale, 2 feet high, at 30s. per 1000.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

J. R. PEARSON'S CATALOGUE of NEW GERANIUMS, including the three beautiful NEW CAPE PELARGONIUMS which were certificated at the Preston Show, is now ready, and will be forwarded on application.
Chilwell Nurseries, Notts.

To the Trade.

OSBORN AND SONS can still supply a quantity of Dwarf Maiden PEACHES, NECTARINES and APRICOTS, and a few Standards. Also the following FRUIT TREE STOCKS:—Common, Brussels, and Mussel Plum, Pear, Paradise and Quince. Prices on application.
The Fulham Nurseries, London, S.W.

CEDRUS DEODARA, 2½ to 3½ feet, 24s. to 30s. per dozen.
ABIES DOUGLASII, 5 to 7 feet, 20s. to 30s. per dozen.
CUPRESSUS LAWSONIANA, 2½ to 3½ feet, 10s. per doz. The above are very fine and well-rooted.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

GOLD MEDAL BEGONIAS.—Seed saved from our unrivalled collection of named varieties, in sealed packets, 1s. 6d. and 2s. 6d. post-free. Special offers to the Trade.
JOHN LAING AND CO., Nurseries, Forest Hill, S.E.

HARDY HEATHS.—60,000 good plants, in a great variety—fine for Edging, Bedding, Covering Banks or raised mounds. The prices, which are very low, will be found in the CATALOGUE, free per post.
JAMES SMITH, Darley Dale Nurseries, near Matlock.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers AZALEA INDICA of all sizes, AZALEA MOLLIIS, and A. PONTICA; CAMELLIAS, DEUTZIA GRACILIS, DIELYTRA SPECTABILIS, SPIRÆA JAPONICA, PALMS for Table use, DRACÆNAS, FERNS, and YUCCA VARIEGATA.
CATALOGUES free on application.

To Potato Growers.

Do not let the season 1879 pass without sending for **QUINCEY'S RETAIL DESCRIPTIVE SEED POTATO PRICE LIST.** It contains the greater part of the best English and American varieties. Most samples seed size. Free by post.
CHRISTMAS QUINCEY, Potato Grower and Merchant, Peterborough.

ABIES DOUGLASII.—A quantity of well-grown handsome specimens, transplanted last spring. Special low prices on application to
J. GEO. HILL, The Royal Nurseries, Merriott, Crewkerne.

Manetti Stocks.

EWING AND CO. have a few thousands more than they require, of very fine quality, which they are offering at a low price.
Eaton, near Norwich.

Economy in the Garden.

TO LARGE CONSUMERS.
JAMES CARTER AND CO. being *bond fide* growers of the seeds they offer, are enabled to place PUBLIC INSTITUTIONS, HOTEL-KEEPERS, &c., on the most liberal terms. State quantities and sorts required to
CARTERS, The Queen's Seedsmen, High Holborn, London.

THORNS, LARCH, SCOTCH FIR, HOLLIES, PINUS AUSTRIACA. 1-yr. seedlings; LARCH, SCOTCH FIR, ASH, 1-yr. seedling, 1-yr. transplanted. Prices on application.
D. AND W. CROLL, Nurserymen, Dundee, N.B.

Cabbage Plants.

CABBAGE PLANTS.—Can now supply the following good strong healthy plants:—Early Battersea, Early Nonpareil, Early Enfield Market, Early Oxheart, Robinson's Drumhead, and Red Pickling Cabbage. Prices on application.
W. VIRGO, Womersley Nurseries, near Guildford.

SCOTCH GROWN SEED POTATOS.—The following unsurpassed main crop varieties, genuine and sound, viz.:—Dalmahoy Early, Edinburgh or Red Bog Early, Fortyfold, Dunbar Regent, Paterson's Victoria, Walker's Early Regent, and Rintoul's Early White Don, 5s. per bushel. CHAMPION REGENT, true, 4s. per bushel.
TODD AND CO., Seedsmen, Maitland Street, Edinburgh.

STOCK PLANTS of VERBENAS.—We have at the present time a large stock of the above, which for vigour and freedom from disease cannot be surpassed; they are very bushy, and bear already large quantities of clean healthy cuttings. Price 16s. per 100, or 140s. per 1000. LIST of 42 sorts may be had on application to
KEYNES AND CO., Salisbury.
A few good STANDARD and DWARF ROSES still unsold.

Caution.—Sutton's Novelties.

MESSRS. SUTTON find it necessary to state that their Novelties can only be had direct from them. Every packet bears their Registered Trade Mark. Descriptive particulars on application.
The Queen's Seedsmen, Reading, Berks.

STANDARD ROSES, 3 to 4 feet stems, with good heads, 75s. per 100.
J. IRELAND, The Nurseries, Rawleigh, Barnstaple, Devon.

Special Cheap Offer.
TO SEEDSMEN, MARKET GARDENERS, and OTHERS PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to
W. BALL AND CO., Bedford Road Nursery, Northampton.

Three Really Good Things.
CUCUMBER.—New Improved Telegraph, 12 seeds, 1s. per packet.
GOURD.—Petition or Mammoth, 1s. per packet.
CELERY.—Dixon's XL, red, 1s. per packet.
1 packet of each for 30 stamps, post-free.
JOHN E. DIXON, Seedsman, Gainsborough.

ASTERS, STOCKS, BALSAMS, &c.—Get your supply of the above direct by post from the best growers in Germany, and save from 20 to 30 per cent. on prices usually charged.
For particulars and Priced LIST (gratis and post-free),
DURANT AND SONS, North Tawton, Devonshire.

To the Trade.

CEANOTHUS DENTATUS
JAS. GARAWAY AND CO. offer Strong Plants of the above, in pots, 6s. per dozen, 40s. per 100.
JAS. GARAWAY AND CO., Durham Down, Clifton, Bristol.

CUCUMBER, MELON, and STRAWBERRY PLANTS, Dwarf Moss and Cabbage ROSES, Wholesale and Retail.
G. WALKLING, College Park Nursery, Lewisham, S.E.

TURNIPS for SALE.—About 500 bushels of young Turnips, fit for table use. Within 1 Mile of Winchfield Station, South-Western Railway. Apply to
H. CHOULES, Church House, Winchfield, Hants.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

A New and Brilliant Primula.
CARTER'S VESUVIUS.—Brilliant scarlet.
"For which a world-wide popularity may be safely predicted."—*Gardeners' Magazine*.
Price 2s. 6d. per packet, post-free.
See **STERLING NOVELTIES**, a short Catalogue profusely illustrated with the best New Things of the Year, gratis and post-free, from
CARTERS, The Queen's Seedsmen, High Holborn, London.

"A Catalogue without Padding."
W. THOMPSON, SEEDSMAN, 34, Tavern Street, Ipswich, respectfully announces that the twenty-fourth annual issue of his **FLOWER SEED CATALOGUE** is now ready, and will be sent free to any address. It comprises more than 2000 varieties, including many new, rare, and choice seeds.

TO THE TRADE.
100,000 LARCH FIR, transplanted.
75,000 ASH, transplanted.
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LILIUM AURATUM, by the dozen, hundred or thousand, at 9d., 1s., and 1s. 6d. each.
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WM. PAUL AND SON (Successors to the late A. Paul & Son, established 1806), Paul's Nurseries, Waltham Cross, Herts, invite attention to their large stock of the above. The collection, which comprises upwards of 200 varieties, is now coming into flower, and will continue in bloom throughout February and March.
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STOCK, East Lothian, very select strains.
"Crimson, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.
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"24 varieties, separate, including latest novelties, 2s. 6d.
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"mixture of 24 splendid varieties: per packet 3d., 6d., and 1s.
MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex.; per packet, 6d. and 1s.
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To the Trade.

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| BEEF , Red, Cooper's Excelsior | ONION , White Spanish |
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THUJA AUREA, 1½ to 3½ feet, perfect specimens, 18s. to 60s. per dozen.
"ELEGANTISSIMA, 1½ to 2½ feet, 15s. to 30s. per doz.
"SEMPERAEVESCENS, 1 to 2 ft. 12s. to 36s. per doz.
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THUJOPSIS BOREALIS, 7 feet, 5s. each, 50s. per dozen.
YUCCAS, of sorts, 12s. to 36s. per dozen.
HORNBEAM, 6 to 9 feet, 10s. to 30s. per 100.
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CABBAGE.

Giant Early Marrow.

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"It is a splendid Cabbage. Mrs. Williams cut some last season only eight weeks planted out, weighing 7 lb. each."—Mrs. Williams, Kilmaganny, Ireland.

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KITCHEN GARDEN and FLOWER SEEDS,

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Evergreen and Flowering

TREES and SHRUBS,

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"Gee's superior Bedfordshire-grown plants and seeds have attained much celebrity."—"The soils of the district offer facilities enjoyed at few places for bringing away plants, seeds, roots, &c., and under the skill and perseverance of Mr. F. Gee they are turned to good account."—*Vide* Opinions of the Press.

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1s. 6d. per half-pound, 2s. 6d. per pound.
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To the Trade.

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H. AND F. SHARPE will be pleased to make special offers of all the leading varieties of SEED POTATOS they have grown this season. The prices will be found very advantageous to purchasers.
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Now Ready.

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LAWNS, CROQUET GROUNDS and CRICKET GROUNDS.

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Economy in Gardening.

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THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

NURSERY STOCK to be Sold, cheap, as

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LIMES, 12 to 14 feet. MAPLE, Norway, 12 to 15 ft.

BIRCH, 12 to 15 feet. LAURELS, 5 to 6 feet, &c.

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ALDER, 4 to 5 feet, strong.

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GOLD, SILVER and BRONZE MEDALS,

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1s. 6d. per Packet.

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ROYAL NORFOLK SEED ESTABLISHMENT.

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DECORATIVE PURPOSES.

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Can supply fine bulbs, full of flowers, unsurpassed for colour and form, as under:—

SUTTON'S NEW CYCLAMEN GIGANTEUM

ROSEUM SUPERBIUM,

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CYCLAMEN GIGANTEUM ROSEUM, s. d. Each.

Sutton's new variety of 1877 3 6 and 5 0

" GIGANTEUM ROSEUM ALBUM 2 6 and 3 6

" PERSICUM ALBUM, pure white 1 6 to 2 6

" PERSICUM MARGINATUM, rosy

white with red base 1 6 .. 2 6

" PERSICUM ROSEUM, rose with

carmine base 1 6 .. 2 6

" PERSICUM ROSEUM ALBUM,

white with red base 1 6 .. 2 6

From the *Gardeners' Chronicle*, December 21, 1878.—"I

can speak in terms of high praise of Sutton's strain of Cyclamen."

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H. CANNELL begs to announce that he has several thousands of splendid plump POT ROOTS in 200 of the choicest varieties in the finest possible condition for propagating Stock, 6s. per dozen. H. C.'s selection, 20s. per 100. In H. C.'s Floral Guide will be found the most complete descriptive and best classified list of the whole family ever published, and full particulars of the new and old single varieties, including "Paragon," with engraving, which is unquestionably the most beautiful and useful of all Dahlias: sent post-free for twelve stamps.

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RASPBERRIES.—The best kinds, price per 100 or 1000, and full particulars on application.

STRAWBERRY "GARIBALDI."—Splendid strong plants, in 6-inch pots ready for immediate forcing, 35s. per 100; ditto, in small pots, 15s. per 100; strong planted-out runners, of all the best kinds, 5s. per 100, 40s. per 1000.

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To the Trade.

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offer:—

PEARS, extra strong dwarf-trained Beurre Diel, 15s. per dozen.

extra strong, assorted, 15s. per dozen, 45s. per 100.

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FILBERTS, transplanted layers, strong, 25s. per 100.

JAS. GARAWAY AND CO., Durdham Down Nurseries,

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LAURELS, Portugal, &c.; LILACS,

RHODODENDRONS, Irish YEW, SPRUCE FIRS,

Dwarf ROSES, LIMES, BIRCH, Mountain ASH,

ACACIA, PLANES, BOX ARBOR-VITE, CHESTNUTS,

a few Standard LABURNUM, SEQUOIA, CUPRESSUS

LAWSONIANA, THUJA, CEDRUS DEODARA,

PICEAS, SPRUCE FIR, AUCUBAS; some other things,

great part of them removed last year. Any one can have the lot

for £100. I can give them until next Christmas to remove them.

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Choice Flowers and Cuttings from

HENRY SURMAN, FLORIST, Witney,

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2s. 6d. per dozen; extra choice Double Petunias, 2s. per dozen;

best Dark Lobelias and Pumilas, 4s. per 100; Mesembryanthemum cordifolium variegatum, 5s. per 100; Dahlias, Show

and Fancy, cuttings, 6d. per dozen; choice Show Balsam Seed,

9 var., 1s. per packet; choice Show German Aster, 12 var., 1s.

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Cuttings from all the above, half-price. Terms cash. Post-free.

Wellingtonia gigantea Seed.

L. PAILLET, NURSERYMAN, Chatenay-les-

Sceaux, near Paris, France, has the pleasure to announce that he has just received a splendid lot of fresh Seeds of

WELLINGTONIA GIGANTEA of very first quality, from

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L. PAILLET also offers Tuberous or Bulbous BEGONIAS,

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Surplus Stock to Clear Ground.

MESSRS. CRANSTON AND CO. are offer-

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Nursery Stock:—

LAUREL, fine bushy plants, 2 to 2½ feet, 12s. 6d. per 100;

2½ to 3 feet, 16s. per 100; 3 to 4 feet, 20s. per 100.

YEW, bushy, 2 to 2½ feet, 20s. per 100; 2½ to 3 feet, 30s. per

100; 3 to 4 feet, 50s. per 100.

RHODODENDRON PONTICUM, ½ to 1 foot, 15s. per

100; 1 to 1½ foot, 20s. per 100; bushy, 1½ to 2 feet,

25s. per 100.

BOX, Tree, 1 to 1½ foot, 10s. 6d. per 100; 1½ to 2 feet, 15s.

per 100; 2 to 2½ feet, 20s. per 100.

THUJA WAREANA, 2 to 3 feet, 25s. per 100; 3 to 4 feet,

30s. per 100.

" LOEBI, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per

dozen; very fine, 5 to 6 feet, 12s. per dozen.

PINUS EXCELSA, 1½ to 2 feet, 6s. per dozen; 2 to 3 feet,

9s. per dozen; 3 to 4 feet, 12s. per dozen.

" AUSTRIACA, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s.

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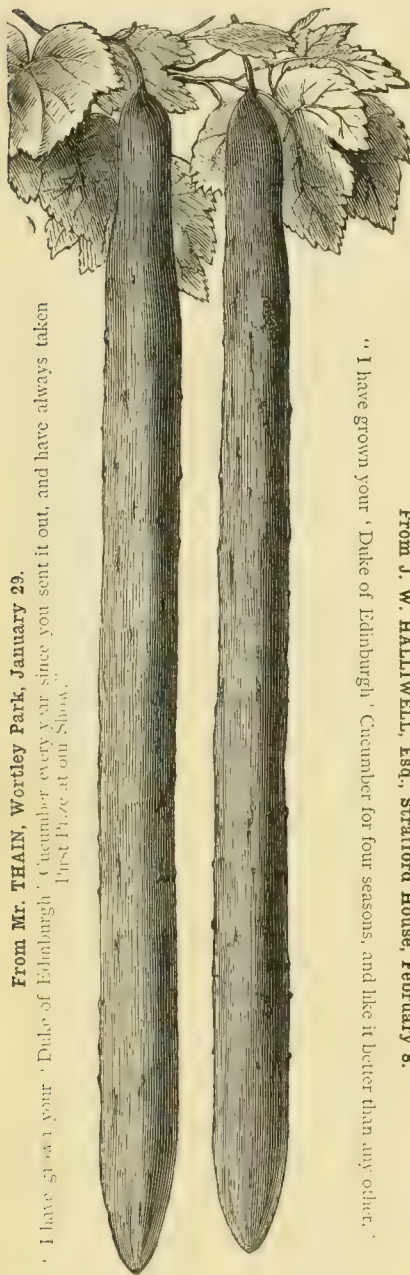
ABIES DOUGLASII, 3 to 4 feet, 12s. per dozen; 4 to 5

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"DUKE OF EDINBURGH"
CUCUMBER.

"The finest in Cultivation."



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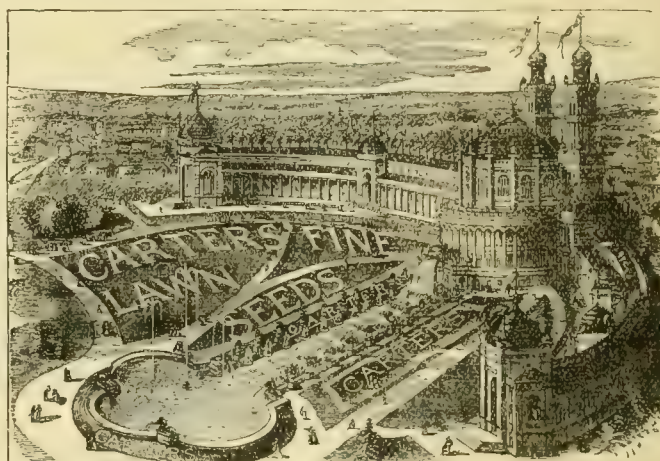
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SATURDAY, FEBRUARY 22, 1879.

HORTICULTURAL HANDICAPS.

THE term smacks of matters horsey, and which have little in common with the sober pursuit of gardening, but it seems to illustrate a subject I now take the liberty of saying a few words upon, which may not be out of season at the present time, when arrangements are being made by many horticultural societies for the coming summer's exhibitions. Those even but little conversant with the regulations connected with the national sport are aware that handicapping is simply weighting the best animals so much in excess of the inferior ones as to give the veriest screws a chance of winning, but it does not go so far as to ensure the prizes falling to the least capable, for if a close run is secured betwixt the competitors the affair is considered satisfactory, yet the arrangement can only be looked upon as having an influence in favouring inferiority.

Amongst the numbers of provincial horticultural societies now existing, there is often a disposition in some of the exhibitors to induce the committees to embody in their schedules regulations something akin to the handicapping I have alluded to, but much more certain in its results; as in their case it is not a good neck-and-neck race they want, but a sort of easy trot over the course—in fact, a walk over would frequently be preferred, only there is sometimes a little danger attached to the latter performance, as judges have often the provoking propensity of weighing more closely the merits of the walk-over exhibitor's productions than where there is competition, and, if they are found to be considerably below par, the unlucky individual has the mortification of beating himself—a performance that is evidently far from agreeable, and frequently ends by the judges being given to understand in anything but courteous terms that they do not understand what they are doing, and that the exhibitor will never show again if the committee dare to appoint such ignoramuses in future, in which case the society will most likely die out at once, as it doubtless deserves to do.

This subject, like most others of a kindred character, to be fairly judged, requires to be looked at from different points of view. It would be manifestly unfair to allow the man who has very limited accommodation wherewith to grow his plants to be completely swamped by those whose means are ample for the purpose required. Not only so, but it would have a direct tendency to defeat the best objects which such societies should ever have in view, that is, the encouragement of a system of really good cultivation by the greatest number of individuals, with the respective things they grow, be these plants, fruits, or vegetables. But on the other hand it must not be forgotten that all exhibitions of this nature, if of any real use to the pursuit they represent, must be educational, and that up to a sufficiently high standard. This they fail to be where mediocrity or anything below it is rewarded. On this account it does not answer to make rules that will handicap the really good cultivator merely with a view to provide a fenced-round, unassailable position for those who lack either the ability or the attentive disposition, or both, to grow anything they undertake in a way creditable to themselves or the exhibition where

their productions are forthcoming. Added to this the funds at command by most societies are so far limited that if an extension in the number of classes is made, with the intention of accommodating all, the prizes have to be so cut down in value that the things thoroughly well grown and most generally deserving receive so little as to scarcely cover the cost and trouble of taking them to the place of exhibition. Although, as I have already said, there are those who like snug little corners kept for themselves, still by far the greater portion of exhibitors are made of different material to this; they ask for nothing beyond a fair field, and would spurn favour. Exhibitors as they are most usually met with, who show at provincial exhibitions or the suburban districts of large towns where societies exist, may be classed under four heads:—1. Nurserymen who grow for sale, and who ordinarily have a class or classes made for themselves, and consequently do not require to be further noticed; 2. Private growers with large gardens and the needful appliances for the size of their establishment; 3. Smaller growers with a regular gardener and means proportionate to their places; and 4. A section who correctly fill the position of amateurs, and who do not keep a gardener regularly, having, as is most usual, a man some portion of his time, and in his absence attending to their plants themselves. Now, the question arises, how far it is necessary to provide for the second and third classes, and also to keep the last and smallest men from being crushed out by the two former. The ordinary course is to make two classes for each description of exhibit, such as miscellaneous, flowering, or fine-leaved plants, separate or combined, as the case may be, and the same with Azaleas, Roses, Pelargoniums, Fuchsias, Ferns, and others, in each case consisting of larger and smaller numbers, with a proviso that no exhibitor can show in the two classes of the same description of plants. For the fourth or smallest growers named, where these exist in numbers enough to make it necessary to provide sufficient classes for them alone, there is no reason for not doing so, as they could not reasonably be expected to compete against those who have made the cultivation of the subjects they exhibit their regular occupation, although it is not uncommon to meet with amateurs who, by practice and perseverance, are enabled to grow those plants, flowers, or other produce they take in hand, as well as many who have been engaged in the same pursuit the greater part of a lifetime. Any attempt to further separate the second and third sections of growers by confining such and such classes to the particular size or description of garden, the number of houses, or of regular men employed, only tends to encourage mediocrity, as the man with one or two houses or half an acre of ground, by confining himself to the things that his means warrant him in attempting, has as good a chance of growing them up to the mark as the individual with half a score of houses and several acres of garden, with proportionate or often greater calls upon his time and abilities. From an intimate acquaintance with the working of a good many societies, I should suppose there is scarcely one existing of which the managing body has not had to deal at some time or other with this subject. Where the managers fail to see where to draw the line it is generally an evidence of their lacking the practical element which usually is to be found in any locality. *T. Baines.*

RECIPE FOR A FRAGRANT WARDROBE POWDER.
—Lebl's *Zimmer Fenster und Balkongartnerei* gives the following recipe for a good fragrant powder for wardrobes, trunks, &c.:—Coriander, Orris root, Rose leaves, and Sweet Flag, about 1 oz. (avoidupois) each; Lavender flowers, 1½ oz.; Rhodes wood, 15 grains; and Musk, 5 grains. These ingredients well mixed and reduced to a coarse powder form an agreeable scent.

New Garden Plants.

CATTLEYA MARDELLII, *n. hybr., Seden.**

This new product is much in the way of *Cattleya Walkeriana* (bulbosa). It has a beautiful light lilac flower. The petals are nearly rhomboid, far broader than the ligulate sepals. The lip is three-lobed, the side lobes half oblong, very narrow, open both sides of the column, whitish, bordered with lilac, with some brown radiating lines on either side of the middle. At each side near the sinuses between the lobes is a light sulphur-coloured area, and a deep yellow one in the middle. The anterior lobe is of a beautiful magenta-purple tint. The column is very broad, and boat-shaped at its anterior part, and beautifully coloured with magenta both sides and on the back. It flowered about the middle of last June at the Royal Exotic Nursery of Messrs. Veitch, and I enjoyed the sight of this very healthy plant last autumn, one of the numerous members of the wonderfully showy collection of *Cattleyas* and *Lælias* in that establishment, which are regarded by so many connoisseurs as unsurpassed anywhere. Not fully trusting my remembrance, I asked Mr. Harry Veitch for a description of the plant, and I obtained these statements:—"Bulbs 4½ inches long, blunt, ancipitous, and quite covered with a white sheath, two-leaved; largest leaves 6 inches long by 1½ inch wide. The style of growth reminds me more of *Cattleya superba* than any other kind." It was named in honour of Mr. Seden's uncle, Mr. Marell, who delights in the successes of his enthusiastic and persevering nephew. *H. G. Rehb. f.*

CIRRHOPELALUM MAKOYANUM, *n. sp.†*

Messrs. Makoy sent me this plant, and I also obtained it for the Hamburg Botanic Garden, where I need scarcely state that it grew and flowered well, as this is the general characteristic of the plants we obtain from that establishment, whose leaders so well understand how to keep up their old reputation. It is a most curious statement, that it came from Minas Geraes, since no plant of the *Cirrhopetalum* group has hitherto been seen in the New World. The plant has short tetragonous bulbs and stalked oblong ligulate rather blunt coriaceous leaves. The inflorescence is umbellate, and has eight to a dozen light yellow flowers. The lateral sepals have a few brown spots and lines at the bases, as the ovary is spotted with brown. The petals are bright yellow, with three brown lines; the lip brownish. Column yellowish with some brown spots. The triangular cuspidate odd sepal and the ligulate falcate petals are ciliate. The plant ranks between *Cirrhopetalum fimbriatum*, Lindl., and *Cirrhopetalum Cumingii*, Lindl. The first-named species (very well represented in *Bot. Mag.*, 4391), has shorter pyriform bulbs, very broad lateral sepals (much longer and narrower in Messrs. Makoy's plant), and two prolonged teeth to the column. I have it at hand from the excellent author, with his original letter. In the Vienna Herbarium there is a specimen gathered by the late Baron von Hügel. *Cirrhopetalum Cumingii*, a species with scarlet flowers, has also short bulbs, but stands much nearer by its unarmed column. It is, however, equally distinct by its short and broad lateral sepals, and by its much longer petals. It gives me great pleasure to inscribe the species to Messrs. Makoy, of Liège, to whom I also express my thanks for the services which they have rendered to the Hamburg Botanic Garden by sending rare and healthy plants. *H. G. Rehb. f.*

NOTES ON NEW CROCI.

(Continued from p. 368, vol. x., 1878.)

IN looking through the Croci a few days ago in the Herbarium at the Botanic Gardens at Edinburgh, I came upon a sheet of specimens collected by Dr. Kirk (now Consul at Zanzibar) at Renkioi, Dardanelles, in March and April, 1856, which I have no doubt is an undescribed species. Several names have been successively attached to the specimens,

* *Cattleya Marellii*, Seden.—Pseudobulbo oblongo obtuse ancipiti diphylo; foliis oblongis; flore illium *Cattleya Walkeriana*, Gardn. aquante; sepalis ligulatis acutis, tepalis rhombicis utrinque obtusangulis; labelli trilobi lobis lateralibus semi-oblongis extus obtusangulis, prope apertis; lobo antico transverso obovato paulo crispulo; columna trigona, antice utrinque bene dilatata, subscapulisformis. *H. G. Rehb. f.*

† *Cirrhopetalum Makoyanum*, n. sp.—Pseudobulbo oblongo cylindraceo argute tetragono; folio a petiolaribus basi oblongo-ligulato obtuse acuto; pedunculo longiori bene umbellato; bracteis lanceis acuminatis ovaria pedicellata subaequantibus; floribus 8—12; sepalis impari lanceo-subulato aureo ciliato; sepalis paribus basi in mentum obtuse triangulum extensis, longe linearibus convolutis; tepalis falcatis aureo ciliatis; labello basi subcordato oblongo utrinque obscure lobato; columna antice utrinque juxta foveam angulata exaristata. Flores pallide albo sulphurei maculis quibusdam paucis brunneis in ovario ac basi sepalorum. Tepala xanthina nervis tenuis atropurpureis. Labellum margine brunneo lavatum.—Bulbophyllum Makoyanum. Dicitur illi. viris Makoy, qui speciem ex Brasilia, introduxisse dicunt. *H. G. Rehb. f.*

"biflorus," "Boryi," "albiflorus," and "Susianus," but with none of these will the Dardanelles plant agree, and the associated characters are such as to distinguish it from every other known species. I purpose to call it

CROCUS KIRKII (Maw).—Vernal. (Section *Schizostigma* of Baker.)

Limb 12 to 14 lines in length, by 3½ to 4 lines wide, white or pale cream colour, yellowish towards the throat, the outer divisions occasionally feathered and striped with purple, like *Crocus biflorus*, or faintly suffused with purplish markings.

Throat apparently unbearded, yellow.

Tube from germen to throat 2 to 2½ inches in length.

Stigma 7 lines high, orange, dividing towards base of anthers, and immediately sub-divided into about a dozen capillary terminations reaching a little above level of anthers, and closely resembling the stigma of *Crocus hyemalis*.

Anthers 4 to 5 lines in length, on a filament 2 to 3 lines high, reaching nearly to a level with the stigma.

Leaves appearing with flowers in March, and reaching to a level with the throat at the time of flowering, subsequently produced in April to a length of 20 to 22 inches; blade very broad and flat, 3 lines wide, with a slightly reflected margin, central white band, narrow and well-defined glabrous keel, very narrow, lateral channel wide and open, glaucous, furrowed with five or six narrow ribs and channels.

Corm 8 to 9 lines wide, by 7 to 8 lines high. Corm tunic resembling that of *Crocus aureus*. Main tunic splitting up from base into strong flat parallel unbranched fibres, united at apex into parcels of three or four. Basal tunic of short strong fibres radiating from a strong basal plate. Cap membranous, produced as a bunch of flat pointed fibres ½—¾ inch above summit of corm.

Basal spathe absent. Proper spathe of two equal membranous valves, 2 to 3 inches in height, exceeding sheath-leaves and reaching nearly to throat.

Germen 1½ to 2 inches above summit of corm, the supporting scape lengthening to 3 or 4 inches in April.

Sheath-leaves three, from 1 inch to 4 inches in length, the longest with a broad expanded termination, falling short of proper spathes, and enclosing from two to three scapes.

Flowers produced in March and early in April.

Gathered by Dr. G. Kirk at Renkioi, Dardanelles, in March and April, 1856.

CROCUS ALEPPICUS (Baker) = *C. Gaillardotii* (Boissier).—I am indebted to Professor Haussknecht and to M. Boissier for specimens of this *Crocus*, gathered by the former on Djebel Nahor, one hour to the north-west of Aleppo, in January, 1867, and on comparing it with the Lebanon *C. Gaillardotii*, of Boissier, I have no hesitation in concluding that they are one and the same species; the name *aleppicus* must therefore give place to the older name, *Gaillardotii*. It occurs abundantly on the Anti-Libanus range, also between Dimas and Damascus, near the village of Scanderouna, and in other neighbouring localities, and probably extends over the intervening country to Aleppo.

It must not be confounded with the Palestine *C. hyemalis*, even as a variety, from which it is at once distinguished by its compact parallel-fibred corm tunic, that of *hyemalis* being membranous, without obvious fibres. *C. Gaillardotii* is much smaller in stature than *C. hyemalis*.

CROCUS VITELLINUS and *C. SYRIACUS* must, I think, be looked upon respectively as the self-coloured and bronzed forms of one species. I have been favoured by Professor Haussknecht with specimens of the striped form from Aleppo (*C. syriacus* of Herbert and Baker), and have also in cultivation the Beyrout species, and can detect no single point of difference of any specific value, indeed the Beyrout form occasionally occurs with bronzed flowers; and various collectors who have liberally supplied herbaria with specimens from the neighbourhood of Beyrout and Saida have labelled them indiscriminately "syriacus" and "vitellinus." This is a mid-winter flowering species, and must not, I think, be confounded with the bronzed orange *Crocus*—

CROCUS BALANSE, discovered by Balansa in the neighbourhood of Smyrna, where I have also gathered it. Though growing at a low level, it is a late vernal species, and flowers at least three months later than the Syrian *Crocus vitellinus*, from which it differs in its very broad leaves, and other characters.

CROCUS ORSINII (Parlatore).—I had a long hunt for this plant on Monte di Fiori, near Ascoli, on the borders of the Roman States, in October, 1877, but failed to find it, from having ascended too high. I have since been favoured by Professor Cesati with the loan of Orsini's specimens and those gathered by Tenore from the same locality at an earlier date. The habitat appears to be on the south-east flank of the mountain, at altitudes variously stated at from 2000 to 3200 feet. I find we have here a form almost

identical with the garden Saffron, and much more nearly approaching it than does the smaller Greek plant, indeed, quite undistinguishable from the cultivated *C. sativus*, except that the stigma is slightly shorter. Tenore's specimens are labelled *Crocus sativus* ("savage"), and but for Parlatore's subsequent name of "*Orsinii*" having been applied to it, the vexed question of the wild origin of *C. sativus* need not have remained open.

CROCUS KARDUCHARUM (Kotschy).—"In jugis inter Müküs et Scherwan Karduchia" 6000 feet, September 27, 1859. In specimens thus labelled in the Kew herbarium the long corm (as distinguished from the very flat corm of *zonatus*), and the dense membranous corm tunic, suggest a specific distinction from Gay's *C. zonatus* from Cilicia, but the flowers of the Kew specimens are insufficient to draw up a description from. As the plant probably occurs in other herbaria I should be much obliged by the loan of any specimens exhibiting the stigma and stamens.

CROCUS PALLASII, from Dalmatia, and **C. THOMASII**, from South Italy, must, I think, be united as one species; a careful comparison of the specimens in the herbaria at Kew and Florence permit of no other conclusion, which has been hinted at long ago by several writers, including Visiani, Nyman, and Baker. I have recently obtained this plant from Patras in the Morea. *Crocus campestris* of Pallas, *C. Visianicus* of Herbert, and *C. hybernus* (Fridwaldsky), from Rumelia, are probably also identical with *Pallasii* and *Thomasii*.

CROCUS CILICICUS (Kotschy).—This species, which appears to be abundant in the Cilician Taurus, has been from time to time gathered by various collectors and described under several names, which it will be convenient to suppress. *C. cancellatus* var. *Kotschyanus* of Herbert, *C. pylarum cilicicarum* of J. Gay, and *Crocus* "new species allied to *cancellatus*," collected and distributed by Balansa, all from the same district, appear to be identical with *Crocus cilicicus* of Kotschy; all of these are placed by Baker under the species *cancellatus*. I do not take exception to this view, but as the bright blue oblong-lanceolate limb, which is much narrower than in the typical forms of *cancellatus*, seems to be a constant character, I think *Crocus cilicicus* may be conveniently made a subspecies of *cancellatus*. The name *Kotschyanus* having been applied for several years to two very dissimilar species, viz., to the cancellate blue *Crocus* of the Taurus and to *Crocus zonatus* of J. Gay, it will be best to put it aside altogether and retain that of *cilicicus* for the one and *zonatus* for the other.

CROCUS NUDIFLORUS and **C. SEROTINUS**.—In the records of numerous Spanish habitats these two species seem to have been strangely confounded. As far as my own observations go, *C. nudiflorus* does not spread south of the chain of the Pyrenees and Asturias, but it appears to extend a little to the north into the Landes; and in none of the alleged habitats and specimens of supposed *C. nudiflorus* from Central Spain can I detect anything but *Crocus serotinus*. I have in cultivation from Gijon, in North Spain, Herbert's *C. asturicus*, but this I find cannot be recognised, as Herbert supposes, as a variety of *C. nudiflorus*, and is evidently merely a form of *C. serotinus*, which is a later flowering species than *nudiflorus*, and smaller in stature, with leaves appearing with and immediately after the flowers in the autumn. The stoloniferous reproduction of the corm, which is so marked a feature in *Crocus nudiflorus*, is absent in all the specimens of *C. asturicus* I have examined, and also in the specimens from the alleged Spanish habitats of *C. nudiflorus* (excepting those in the Asturias). It is possible that *C. nudiflorus* may occur south of the Pyrenean chain, but the specimens from Central Spain thus named by many authors and collectors are unquestionably forms of *C. serotinus* of Salisbury.

C. PELOPONNESIACUS (Orphanides).—A good deal of obscurity and doubt hangs over this supposed species, the affinity of which, judging from the published description, is with *C. hadriaticus*, and the only point of difference seems to be that *peloponnesiacus* flowers before the appearance of the leaves, and that in *hadriaticus* the leaves and flowers are contemporaneous. Cultivators of Crocuses know that in many cases this is only a question of degree, and it may be that the original description of the supposed new species was drawn up from a specimen of *C. hadriaticus*, in which the leaves were a little late in appearing. In a specimen of supposed *C. peloponnesiacus* recently gathered near Patras by Professor De Heldreich, of Athens, I can detect no point

that could properly separate it from *C. hadriaticus*. *C. hadriaticus* is a variable plant, and often occurs with pure white flowers. In the Albanian plant these are blotched with purple at the base of the limb, and in the variety *chrysobelonicus* of Santa Maura the throat is of a bright golden-yellow externally veined with chocolate. An error may here be noticed of the existence in several collections of a *Crocus* under the name of *peloponnesiacus* which is merely one of the numerous varieties of *Crocus cancellatus*, at once distinguishable by its corm tunic of strong oblong-reticulated fibres, that of *hadriaticus* consisting of fine silky reticulations like the well-known corm tunic of *Crocus sativus*.

CROCUS BORYI (= *C. LEVIGATUS*), **TOURNEFORTI**, **MARATHONISIUS**, and **ORPHANIDESI**.—The distinction as species of *C. Boryi* and *C. Tourneforti* was well understood by the late Dean Herbert; but as they often grow in their native habitats closely intermingled the bulbs have in later years been confounded in their distribution in English gardens, and confusion has occurred which it is difficult to unravel. This group includes two well marked species, *C. Boryi* (= *C. levigatus*) and *C. Tourneforti*. *C. Boryi* is distinguished by its hard cartilaginous corm tunic splitting up at its base into a vandyke fringe, the successive tunics lasting for many years, forming a series of superimposed imbrications; also by its comparatively short, erect, much-branched stigma, generally yellow, occasionally orange, and by the symmetrical feathered markings of the limb, resembling those of *Crocus biflorus*; *C. Tourneforti*, by its softer fibro-membranous corm tunic, its tall, fragile, branched scarlet-orange stigma, the lax divisions of which bend over, and by its self-coloured limb rarely marked except by a few thin unbranched lines.

C. marathonisius of Heldreich and *Orphanidesi* of Hooker are closely allied to *C. Tourneforti* and not to *C. Boryi*. *C. marathonisius* is invariably white; *C. Tourneforti* and *C. Boryi* also vary with white flowers, and these three white forms placed side by side are not a little perplexing. White *Boryi* and white *Tourneforti* are, however, distinguishable by their corm tunics and stigmas, and white *marathonisius* by its extremely short stigma generally reduced to three fine thread-like terminations. Professor De Heldreich assures me that this is a constant character, and it is invariable in the specimens at Kew and those both fresh and dried received from Athens; but the aspect of this stigma allies it with *C. Tourneforti*, and not with *Boryi*. The white *Crocus* from Corfu is, I believe, the white form of *C. Tourneforti*. The leaves of *C. Tourneforti* and of its variety *marathonisius* are usually much longer and narrower than those of *C. Boryi*.

CROCUS ETRUSCUS (Parlatore).—In company with my friend, Mr. S. Sommier, of Florence, I had the good fortune to refind this plant in the spring of 1876, and we had no hesitation in at once accepting it as a good and well marked species; its affinity, however, is not with *C. reticulatus*, as had been supposed, but with the group of Italian and Corsican species, including *versicolor*, *Imperati*, *suaveolens*, *corsicus*, and *minimus*. The strongly reticulated corm coat resembling that of *reticulatus* is merely an instance of the absence of natural grouping of individual characters which is such an obvious feature of the genus. As an illustration of this, the three best-known species with annulate corm tunics, *C. biflorus*, *C. pulchellus*, and *C. chrysanthus*, the corms of which are quite undistinguishable, have no other characters in common, indeed are widely separable in all other features.

Common characters in the stigma, spathes, colour of limb—i.e., if attempted to be used as a means of grouping—present similar difficulties, community of character in each separate organ bringing together a different set of species; geographically the same anomaly is apparent, as no distinct set of species grouped on any basis are found locally associated; indeed, very special characters of particular organs are not only associated in totally dissimilar species, but appear common to species isolated in far-removed localities. The genus is exceptionally gappy and interrupted and wanting in that continuity of gradation which many smaller genera present, and which in large genera is the rule. Again, where a few species seem to naturally associate, as in the case of the five or six species allied to *sativus*, and the Italian and Corsican species allied to *Imperati*, though the species in each group closely approach each other, the groups themselves are isolated, and intermediate links connecting them with other groups are absent. Whilst writing an intimation reaches me of a bright coloured *Crocus* having been seen in the middle of May covering the ground high up on Mount Lebanon, on the eastern slope, near the path leading over the high pass of Muckmel from Ainata on the east to

the Cedars on the west, close to the melting snow. As no late vernal species is known in Syria, what can it be? Will one of the many tourists who visit Lebanon set this question at rest by transmitting some roots to English gardens?

I have also to-day received from Mr. Barr fresh flowers of an unfamiliar *Crocus*, from roots dug up by Mr. Llewelyn, on sandy ground, near the lighthouse at Biarritz. It has a lilac self-coloured limb, bright orange unbearded throat, very long orange stigma, dividing high up, and slightly fringed at the extremity, short pale lemon-coloured anthers, a double proper spathe, and very broad leaves, with a square keel. I believe no *Crocus* is known from that district except *nudiflorus*, which is an early autumn flowering species, and *vernus*, which occurs in the Pyrenees, but with neither of these will it at all agree. *George Mawe, F.L.S., Benthall Hall, near Brosley, Feb. 1.*

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

(Continued from p. 203.)

FOR this preliminary list I have thought it better to retain such generic names as *Laelia*, *Brassia*, &c., although Dr. Reichenbach reduces the first to *Bletia*, *Brassia* to *Oncidium*, and so forth. With regard to synonymy, I am mainly indebted to Dr. Reichenbach's writings in Walper's *Annales*, and various publications quoted in the list.

ACINETA, Lindl., Bot. Reg. xvix. Misc., No. 100. About eight species, ranging from Mexico to New Granada.

A. Barkeri, Lindl., Bot. Reg. xxix. Misc., No. 100. *Peristeria Barkeri*, Batem. Orch. Mex. and Guat., t. 8; Bot. Mag., t. 4203. Dark ravines round Jalapa, Mexico.

A. chrysanthia, Lindl., Paxt. Fl. Gard. i., p. 31. *Neippergia chrysanthia*, Morr., Ann. de Gand. v., t. 282. Mexico.

A. cryptodonta, Rehb. f., Bonplandia, ii., p. 92. Central America. (?)

A. densa, Lindl., Paxt. Fl. Gard. i., p. 91. *A. Warszewiczii*, Kl. Costa Rica.

A. erythroxantha, Rehb. f., Bot. Zeit. 1852, p. 705. Central America. (?)

A. Schilleriana, Rehb. f., Walp. Ann. vi. 603. Central America. (?)

A. sella-turica, Rehb. f., Bot. Zeit. 1852, p. 705. Mt. Chiriqui, Veragua, at 6000 to 8000 feet.

A. superba, Rehb. f., Walp. Ann. vi., p. 603. *A. Humboldtii*, Lindl., var. *fulva*, Bot. Mag., t. 4156. *Anguloa superba*, H.B.K., Nov. Gen. et Sp. i., t. 93. Central America, Venezuela, New Granada.

AERANTHUS, Lindl., Bot. Reg., t. 317. About twenty species, twelve of which are African and Mascarene, and the remainder New World, ranging from Mexico and the West Indies to Guiana and Peru.

A. Schiedeii, Rehb. f., Linnæa, xxii., p. 853. *Todaroa micrantha*, Rich. et Gal. Mexico.

A. (?) sp. (?) A. Schiedeii var.) Guatemala. (Hb. K.) **ALAMANIA**, La Llave et Lexarza, Nov. Veg. Descr. ii., p. 31. The only species.

A. punicea, La Llave et Lexarza, Nov. Veg. Descr. ii., p. 31. *Epidendrum puniceum*, Rehb. f. Mexico. **ARPOPHYLLUM**, La Llave et Lexarza, Nov. Veg. Descr. ii., p. 19. Besides the following there is one species described from New Grenada.

A. alpinum, Lindl., Benth. Pl. Hartw., p. 93. Mexico, at an altitude of nearly 10,000 feet.

A. giganteum, Lindl., Ann. Nat. Hist. iv., p. 384. Mexico.

A. medium, Rehb. f., Beltr. Orch. Centr. Am., p. 89. Costa Rica.

A. spicatum, La Llave et Lexarza, Nov. Veg. Descr. ii., p. 19. Bot. Mag., t. 6022. Gard. Chron. 1874, i., 727. Mexico, up to 8500 feet.

A. sp. (?) A. spicati var.) Guatemala (Hb. Kew.)

ASPASIA, Lindl., Gen. et Sp. Orch., p. 139. Apparently confined to Central America. Dr. Reichenbach has referred all the species except one, recently described by himself to *Odontoglossum*.

A. epidendroides, Lindl., Gen. et Sp. Orch., p. 139. Bot. Mag., t. 3962. Gard. Chron. 1843, 878, fig. Guatemala, Panama.

A. papilionacea, Rehb. f., in Gard. Chron. 1876, vi., p. 100. Costa Rica.

A. Principissa, Rehb. f., Bot. Zeit. 1852, p. 637. Veragua.

BARKERIA, Knowles and Westc., Fl. Cab. ii., p. 7. Restricted to the following species, now usually referred to *Epidendrum*.

B. elegans, Knowles and Westc., Fl. Cab. ii., p. 7, with a coloured plate, Bot. Mag., t. 4784. Mexico.

B. Lindleyana, Batem. Orch. Mex. and Guat., t. 38; Bot. Mag., t. 6098, var. *Centerea*, Gard. Chron. 1873, 1597. Mexico (at 5500 feet), Costa Rica.

B. melanocaulon, Rich. et Gal. Ann. Sc. Nat., 3 série, iii., p. 22. Mexico, at 7000 feet.

B. pentadactylum, *Epidendrum pentadactylum*, Rehb. f., Bonpl. ii., p. 89; Xenia, l., t. 48. Costa Rica, at 9000 feet.

B. spectabilis, Batem., Bot. Reg. Misc., No. 5; Gard. Chron. 1842, p. 455, 1843, 741. Mexico, Guatemala.

BATEMANIA, Lindl., Bot. Reg., t. 1711. About six species, ranging from Mexico to New Granada, Guiana and Brazil.

B. armillata, Rehb. f., in Gard. Chron. 1875, iii., p. 780. Central America (?)

SNOWDROPS.

WE doubt whether even the Lily of the Valley has a greater hold on our affections than the Snowdrop. Its grace and elegance are beyond compare, while, if it has not the delicious perfume of the *Convallaria*, it needs no forcing to put in an appearance even when the snow is on the ground. This year, when the snow and ice melted from our borders, we found some Snowdrops in full bloom. How long they had been so hidden by the snow we cannot tell.

But there are Snowdrops and Snowdrops, some

known to need to be pointed out. It may simply be said that some of the varieties are much better than others—mere increase of size is in our eyes no recommendation, but a broader flower-segment is an improvement. Again, it is an advantage to have early and late varieties.

Last year we were favoured by Mr. Melville, of Dunrobin Castle Gardens, with four varieties for comparison. These were planted, some in the open border, others in pots in a cold frame, on September 17. The first was a seedling of Mr. Melville's, which goes by the name of the Dunrobin



FIG. 31.—(A) GALANTHUS PLICATUS; (B) G. ELWESII.

early and some late—some small, some large—some single, others double; and yet they are all Snowdrops—technically *Galanthus nivalis*. And there are yet other Snowdrops which do not belong to this species, albeit they belong to the same genus, *Galanthus*. There are *G. plicatus* and *G. elwesii*, as well as some others which by some are considered as distinct species, by others accepted only as varieties.

GALANTHUS NIVALIS.—The old favourite, the best known, the one to which our allegiance must be always given, in spite of the superior size of some of the other forms, is *Galanthus nivalis* of Linnæus, a species wild throughout Europe and the greater part of Asia Minor. Its characteristics are too well

Seedling. This had larger bulbs than the others, and they were rather more elongated. On November 5 it was aboveground, and on February 9 it produced its flowers, which are larger than those of the ordinary form, but not so large as those of that known as *G. imperati*, nor were the segments so abruptly narrowed at the base. The flowers were rather over 1 inch in length, the flower segments oblong-ovate, broadest near the centre, each one fully half an inch across in the widest portion. It was at one time suspected that this might be a hybrid between a Snowdrop and a Snowflake (*Leucojum*), but we fail to see any trace of the latter genus in it, although we are told by Mr. Melville that while the other varieties

- B. Burui*, Endr. et Rehb. f., Gard. Chron. 1872, p. 1009, and 1854, 227, vi. 1876; Bot. Mag., t. 6003. Costa Rica, New Grenada.
- B. grandiflora*, Rehb. f., Bonpl. iv., p. 323. Galeottia grandiflora, A. Rich. Mexico.
- B. sp.* (? *B. grandifloræ* var.). Costa Rica.
- BLETIA**, Ruiz et Pav., Fl. Per. Syst., p. 229. About fifty species, all natives of the New World, dispersed from Carolina through the West Indies and Mexico to Peru and Brazil. Professor Reichenbach includes *Lælia*, *Brassavola*, &c., under this genus, raising the number of species to about 100.
- B. adenocarpa*, Rehb. f., Bonpl. iv., p. 216. Mexico.
- B. anomala*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 23. Mexico. [Florida, Carolina.]
- B. aphylla*, Nutt., Gen. ii., p. 194. Mexico, Texas.
- B. campanulata*, Llave et Lexarza, Nov. Veg. Descr. ii., p. 17. Mexico. [p. 16. Mexico.]
- B. coccinea*, Llave et Lexarza, Nov. Veg. Descr. ii., p. 206. *B. pallida*, Lodd. Bot. Cab., t. 629. Veragua, New Grenada. West Indies.
- B. fulgens*, Rehb. f., Bonpl. iii., p. 221. Mexico.
- B. gracilis*, Lodd., Bot. Cab., t. 1977, Bot. Reg., t. 1681. Mexico, Guatemala.
- B. havanensis*, Lindl., Bot. Reg. Misc., No. 35. *B. acutipetala*, Hook. Bot. Mag., t. 3217. Mexico to Panama and in the West Indies.
- B. jucunda*, Lindl. et Rehb. f., Bonpl. iii., p. 221. Mexico. [p. 23. Mexico.]
- B. lilacina*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 23. Mexico.
- B. Parkinsoni*, Hook., Bot. Mag., t. 3736. Mexico.
- B. reflexa*, Lindl., Bot. Reg., t. 1760. Mexico.
- B. Roezlii*, Rehb. f., Linnæa, xli., p. 7. Mexico.
- B. secunda*, Lindl., Bot. Reg., 1840, Misc., 120. *Eulophia dilatata*, Lindl. Mexico.
- B. undulata*, Rehb. f., var. ? *costaricana*, Rehb. f., Xenia, ii., p. 49. Mt. Chiriqui, Veragua, at 6000 feet.
- B. verecunda*, R. Br., Ait. Hort. Kew. v., p. 209. *B. Shepherdii*, Hook., Bot. Mag., t. 3319. Mexico, Guatemala, Florida, West Indies.
- BOLBOPHYLLARIA**, Rehb. f., Bot. Zeit. 1852, p. 934. This genus includes, besides about six American species, one Khaysan and about six Mascarene.
- B. aristata*, Rehb. f., Beitr. Orch. Centr. Am., p. 60. Central America.
- B. CErstedii*, Rehb. f., Bonpl. iii., p. 223. Nicaragua.
- B. sordida*, Rehb. f., *Bolbophyllum sordidum*, Lindl., Bot. Reg. xxvi. Misc., 217. Guatemala.
- BRASAVOLA**, R. Br., Ait. Hort. Kew. v., p. 216. About twenty-five species, all New World, and widely spread over tropical America. Referred by Reichenbach to *Bletia*.
- B. acaulis*, Lindl., Paxt. Fl. Gard. ii., p. 152, with a figure. Central America.
- B. appendiculata*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 23. Mexico, 2500 feet.
- B. cucullata*, R. Br., Ait. Hort. Kew. v., p. 216; Bot. Mag., t. 543. *B. cuspidata*, Hook., Bot. Mag. 3722. *B. odoratissima*, Regel, Gartenflora, t. 33. Mexico.
- B. Digbyana*, Lindl., Bot. Reg. 1846, t. 53. Bot. Mag., t. 4474. Honduras.
- B. glauca*, Lindl., Bot. Reg. 1839, Misc., 67, 1840, t. 44; Bot. Mag., t. 4033; Bateman's Orch. Mex. and Guat., t. 16. Mexico, Guatemala.
- B. lineata*, Hook., Bot. Mag., t. 4734. *B. Mathieana*, Kl. Central America, 2000 feet.
- B. nodosa*, Lindl., Bot. Reg., 1465; Bot. Mag., t. 3229. Mexico to Panama, the northern part of South America and in the West Indies, common. Var. *grandiflora* (Lindl. species). Honduras.
- B. Pumilio*, Rehb. f., Linnæa, xviii., p. 418. Mexico.
- B. rhopalorrhachis*, Rehb. f., Bot. Zeit. 1852, p. 833. Guatemala, Nicaragua.
- "*B. suaveolens*, Gal." (Hb. Kew). Mexico, 5900 feet.
- B. venosa*, Lindl., Bot. Reg. 1840, t. 39; Bot. Mag. t. 4021. Guatemala, Honduras.
- BRASSIA**, R. Br., Ait. Hort. Kew. v., p. 215. About twenty species, ranging from Mexico and the West Indian Islands to Peru. United with *Oncidium* by Reichenbach.
- B. brachiata*, Lindl., Benth. Pl. Hartw., p. 94; Bot. Reg. 1847, t. 29. Guatemala.
- B. caudata*, Lindl., Bot. Reg., t. 832; Bot. Mag., t. 3451. Mexico or Guatemala, according to Bateman's list, West Indies, Brazil.
- B. chlorops*, Rehb. f. in Gard. Chron., 1873, p. 542. Costa Rica.
- B. Gireoudiana*, Rehb. f. and Warscz., Xenia, i., p. 79.
- B. Helenæ*, Rehb. f., Walp. Ann. vi., p. 771. Central America.
- B. Lawrenceana*, Lindl., Bot. Reg. 1841, Misc., vi., t. 18; Gard. Chron. 1841, p. 215. *B. augusta*, Lindl. *B. cochleata*, Knowles and Westc. Brazil, Guiana.—Var. *longissima*, Rehb. f. in Gard. Chron. 1868, p. 1313, 1869, p. 1182; Bot. Mag., t. 5748. Costa Rica.
- B. Lanceana*, Lindl., Bot. Reg., t. 1754; Bot. Mag., t. 3577. Guiana, Brazil.—Var. *β macrostachya*, Lindl., Sect. Orch., t. 6. Panama.
- B. longiloba*, A. D. C., Mem. de Genève, xl., p. 2, t. 2, fig. A; Gard. Chron. 1848, p. 139. Mexico.
- B. maculata*, R. Br., Ait. Hort. Kew. v., p. 215; Bot. Mag., t. 1691. *B. Wrayæ*, Hook., Bot. Mag., t. 4003. *B. guttata*, Lindl. Mexico, Guatemala, Jamaica.
- B. odontoglossoides*, Garten Zeitung, 1847; Gard. Chron. 1848, 103. Guatemala.
- B. verrucosa*, Lindl., Folia, p. 4. Batem. Orch. Mex. and Guat., t. 22. *B. aristata*, Lindl. *B. longiloba*, DC. B. Cowani, Hort. *B. coryandria*, Morr. ? *B. odontoglossoides*, Kl. Mexico, Guatemala,

To be continued.)

seed freely with him this one produces no seed, although some of the flowers were carefully fertilised. It may be called *G. nivalis* var. *Melvillei*.

The second kind, sent by Mr. Melville as a dwarf late form, had smaller bulbs than any of the rest, and it is certainly later, for it is not at the time of writing expanded. The third was an early-flowering kind, which justified its name, for it was in bloom, as we have said, on February 3. Its flowers, like its bulbs, were of medium size, but presented no special peculiarity apart from their early blooming tendency. The fourth set were ordinary Snowdrops, which were not in bloom till February 18.

be said about it: except for the sake of variety we presume few would grow it, but it is interesting structurally. Mr. E. J. Lowe told us last year that in his experience the common Snowdrop dug up from the fields, where it is so well established as to be almost wild, becomes in large proportion double when transplanted to an orchard.

A form named *Sharlocki* may be mentioned as an accidental variation, in which the spathe is divided completely into two segments; and, according to Mr. Ellacombe, it frequently bears two flowers instead of one only.

Galanthus montanus, which we have not seen, is in Mr. Baker's opinion only a variety of *G. nivalis*.

same as *plicatus*, but differs, according to Mr. Elwes, in the sheath from which the leaves proceed being more deeply notched, in the leaves not being folded within the sheath but twisted, and in the petals, which are contracted in the middle, being only slightly notched at the apex, and, unlike all the other forms, marked with green spots at the base, as well as at the apex of the petal.

Lastly, there is a species mentioned by Professor Orphanides as *Galanthus reginæ* Olgæ, of which we know nothing but the name. We have heard rumours of a very early—that is, of an autumn-flowering kind, which may possibly be this species. To sum up, therefore, we may say that there are the following species and varieties—the latter, though well marked when seen in their extreme forms, yet presenting so many shades of size and form as to defy accurate limitation:—

1. *Galanthus nivalis*, Linn.; Baker, in *Journ. Bot.*, June, 1873, p. 166.
var. *major*, Redouté, *Lil.*, t. 200.
Melvillei.
? *montanus*, Schur.
caspius, Ruprecht, in *Gartenflora*, 1868, p. 132.
latifolius, Ruprecht, not Salisbury; see *Gartenflora*, t. 578.
reflexus, Herbert.
Imperati, Bertoloni, *Fl. Ital.* iv., 5.
præcox
serotinus fl.-pl.
2. *G. plicatus*, Marschal Bieberstein, = *G. latifolius*, Salisbury.
3. *G. Elwesii*, Hook., *Bot. Mag.*, t. 6166.
4. *G. reginæ* Olgæ, Orphanides; name only.

We have to thank Messrs. G. F. Wilson, Barr, and Melville, for living specimens, and we are also indebted to Mr. Baker for allowing us to see his notes on the plants grown at Kew.

To the above we may add, by way of conclusion, a fact that is not generally known—*i.e.*, that almost the whole of the Snowdrop bulbs sold by the trade in this country are grown in Lincolnshire, the proportion of home-grown to foreign bulbs sold being, we believe, at the rate of 100,000 of the former to 10,000 of the latter. The principal centres of the bulb trade in Lincolnshire are the towns of Holbeach and Spalding, and the bulbs are grown principally by small farmers and cottagers, from whom they are collected by the local traders in lots from 1000 upwards, then sampled to the leading houses in the trade, and subsequently distributed among the tens of thousands of flower-loving Britons.

ANTON DE BARY.

ANTON DE BARY, whose portrait is given on p. 241, is the Professor of Botany in the University of Strasburg. His labours have been directed chiefly to the morphology and physiology of Cryptogamous plants, especially fungi, and in this branch of botanical science there is no name to which so much distinction is attached, and no worker who has more justly earned it. To this subject, however, his work has by no means been confined, as the publication, in 1877, of his *Comparative Anatomy of the Vegetable Organs of Vascular Plants* (the result of twelve years' labour) sufficiently showed.

Anton de Bary was born in Frankfort on January 26, 1831. As a student in the Berlin University he had the advantage of the teaching of the late Professor Alexander Braun, and as a mark of his gratitude for this he dedicated to him his *Untersuchungen über die Brandpilze* (Uredineæ and Ustilagineæ)—the first work which brought his name into prominence. This was as early as 1853. In these researches he laid bare the remarkable life-history of this group of fungi, to which many of the most destructive diseases of vegetables belong, and the result was of so great importance to vegetable morphology while the difficulties in the investigation were so skilfully overcome that the name of the Berlin student became a recognised one in mycological science. Until 1858 we find nothing more of importance from his pen, the time being probably chiefly occupied with his university duties and the preparation of his *Untersuchungen über die Familie der Conjugaten* (Zygnemæ and Desmidiæ), which was published in that year. Much of this year was also devoted to his researches entitled *Die Mycetozoen; ein Beitrag zur Kenntniss der niedersten Thiere*, which followed in the next year (1859). In this treatise he contended that those organisms generally known now as Myxomycetes (fungi) were of animal nature, and as may be imagined raised a storm of criticism both adverse and friendly. In 1864 he published a second and more exhaustive edition of this work, in which he replied to his critics, and while maintaining his views, he leaves it to future research to confirm or to reject them,



FIG. 32.—(A) *GALANTHUS IMPERATI*; (B) *G. NIVALIS*; (C) *G. LATIFOLIUS*.

Galanthus reflexus is, according to Mr. Baker, a small-flowered form of *nivalis* with the green-tipped end of the petals turned up, "tilted like the petal of a flower."

GALANTHUS NIVALIS VAR. *LATIFOLIUS*, shown in the upper right-hand corner (C) of fig. 32, is easily known by its very broad strap-shaped leaves. In the flower it does not differ from ordinary *nivalis*.

Galanthus Imperati, shown in the lower part (A) of fig. 32, is, according to Mr. Baker, nothing but a very large form of *G. nivalis*, but the outer segments of the flower are so abrupt and so narrow at the base as to be almost stalked.

The double form of Snowdrop needs little to

GALANTHUS PLICATUS (A), fig. 31, a long-known species, but called the Crimean Snowdrop, since it was sent over from the Crimea in those terrible days which now seem so long past, is a very distinct species, native of Tauria, the Caucasus, &c. Its leaves are as broad as those of the broad-leaved types of the common Snowdrop, and, in addition, they are twice folded like the pleats of a fan. The common Snowdrop leaves are folded once in the middle, but in the Crimean species there is an additional fold, as is well seen in the section of the leaves.

A third species, *GALANTHUS ELWESII* (B), fig. 31, has only recently been introduced by Mr. Elwes, from the mountains north of the Gulf of Smyrna, and is figured in the *Botanical Magazine*, tab. 6166. It was discovered originally by Balansa, and thought to be the

Research has certainly not yet rejected them, and the position is very little altered. Of the life history of this unique group of organisms practically nothing was known before Professor de Bary brought it to light. In 1861 he published a popular account of the nature of the Potato disease, and in 1863 his important *Recherches sur le Développement de quelques Champignons Parasites*, in which our knowledge of the morphology of the Peronosporæ chiefly received large and important additions. In the same year there appeared his investigations *Über die Fruchtentwicklung der Ascomyceten*, which again shed the first light on the morphology of a great group of fungi. Also in the same year there was published, under the joint authorship of Professors de Bary and Woronin, a *Beitrag zur Kenntniss der Chytridiaceen*. In 1864 and in 1866 the same authorship produced the well-known *Beiträge zur Morphologie und Physiologie der Pilze*—a work which in value can only be compared with De Bary's previous contributions to the same subject. The classical handbook, *Die Morphologie und Physiologie der Pilze, Flechten und Myxomyceten*, which has proved of enormous value to all mycologists, was published in 1866. From that year to 1877 the time was chiefly occupied in the laborious preparation of his *Comparative Anatomy*, but now and then appeared short memoirs carried on in the intervals of his work and his professional duties. In the *Comparative Anatomy* we have another handbook exhaustively treating of its subject, and of constant service to workers in this field. The ground it covers is, as will be seen, of great extent, and a mark of the care with which it was traversed may be found in the fact that the Professor, in order to insure absolute accuracy, drew with his own hand on wood nearly every one of the 240 illustrations. Among the researches published in the interval was his treatise on the Potato disease (*Phytophthora infestans*), in the *Journal of the Royal Agricultural Society*, 1876, which is well known in this country. Since the appearance of the *Comparative Anatomy* several important researches have been published, the most recent being that on the *Apogamy of Ferns* in 1878. So far as we know, the latest work from his pen is a *Primer of Botany*, a copy of which reached us a few weeks ago. These are perhaps the most noteworthy of his works. It would occupy too much space and serve no farther end to cite the numerous original researches published by De Bary in the *Botanische Zeitung*, *Annales des Sciences Naturelles*, &c.

If one considers the extraordinary amount of this work, and the comparatively short time it has occupied, it will seem impossible for its author to have attended to other duties. Professor de Bary has, however, acted as Editor of the *Botanische Zeitung* since 1867, and while Professor of Botany at Freiburg, at Halle, and at Strasburg, he has attended to heavy professional duties both in the lecture-room and in the laboratory. Among the pupils whose names have done him honour may be named Professors Janczewski, Count Solms-Laubach, Max Reess, Drs. Stahl, Rostafinski, Bauke, Gilkinet, and Wilhelm, who have all worked under Professor De Bary's direction, and with whose names are associated some of the most brilliant work in morphology, &c. His pupils are the first to confess their debt of gratitude, which in the case of the writer of this memoir is certainly not a light one. *George Murray, British Museum.*

Foreign Correspondence.

CANADIAN NOTES.—We now have an old-fashioned Canadian winter, with plenty of snow and excellent sleighing for business and pleasure. Our bees are left out-of-doors with only the shelter of their usual house, and some additional warm clothing for the hives, as we find no advantage from keeping them in warm places for the winter, as the proper and exact temperature at which to maintain the atmosphere about them is still unknown in this part of the country. If any one in England could give us this valuable information it would be highly appreciated. Our Apple crop turned out a good one, but the Apples have not kept as well as usual. The Potatos generally in low districts were a failure, the rot having taken them; and even in high situations, especially in clay soils, a considerable portion were only fit to give the hogs, and perhaps it would not be an extravagant estimate to say that half the crop (which would otherwise have been a good one) is lost. It is many years since the Potato suffered from this disease here, and various causes are alleged, among which is, of course, the unusual quantity of rain which fell in the spring of last year. *J. M., Minesing, Ontario, January 20.*

Notices of Books.

The Rosarian's Year-Book for 1879. Edited by the Rev. H. H. D'Ombraim. Bemrose & Son.

The *Year-Book* for this present year of grace is a decided improvement upon its predecessor. There is more sound useful information in it, and less of that "exuberance of verbosity," and fewer attempts to be funny than characterise writers about Roses in general. The first article is on Rose judging, by the Rev. Allan Cheales, a brief practical sensible article, and as such we are not surprised to find that the rules have been "adopted, confirmed, and ordered to be printed and circulated at a meeting of the general committee of the [National Rose] Society, held May 28, 1878," and duly countersigned by the chairman and secretaries accordingly. It is curious to see how professional growers have placed size as superior to form in estimating the merits of Roses, but, as we think, the purer taste of the amateurs is, without exception, in favour of form as the premier quality. Colour, as a rule, holds the second place, while perfume is only mentioned by one arbiter. What is a Rose without perfume? And oh, Mr. Cheales! why didn't you look to *King John*, act iv., scene 2, before spoiling that beautiful passage by a misquotation? Suppose some one at a Rose show were to stage forty-nine instead of forty-eight, or allow a Noisette to step in where only Hybrid Perpetuals should be, what would you say? And you committee of the National Rose Society, how can you define a "truss" to mean a Rose?

"How I came to grow Roses" is a pleasant chatty article, which will be found serviceable by many a beginner. We have not space to comment on all the articles in this pleasant little volume, but we cannot help singling out Mr. Mawley's on "The Weather of the Past Rose Year" for special notice, as it is one of the best in the book, containing a great deal of information not merely of ephemeral interest, but valuable for reference, suggestive of future enquiry, and altogether of a nature contrasting very favourably with the "slop over" style of literature which so many think themselves called on to adopt when they write about Roses.

— *Hooker's Icones Plantarum.*—The last issued part of this publication contains twenty-five plates chiefly illustrative of those orders now in course of examination for the *Genera Plantarum*. Most of the plants are of botanical interest only, at least their portraits do not induce us to recommend them to the notice of those who care only for decorative plants. A New Zealand Eyebright, *Euphrasia disperma*, is a very remarkable creeping plant, with very long corolla tubes, and only a single ovule in each cell of the ovule. *Stilbanthus scandens* is an exception to the general unornamental character of the plants figured in this number. It is described as the finest *Amaranth* yet discovered, and is a climbing plant, festooning the forest trees of the Sikkim Himalaya with its copious foliage and abundant silky glistening flowers. Our nurserymen should make a note of this plant.

— We have pleasure in announcing that the Rev. W. A. Leighton has nearly completed the printing of the third edition of his *Lichen Flora of Great Britain, Ireland, and the Channel Islands*, which it is expected will be ready for issue early in March. This new edition is rendered necessary by the discoveries of Mr. Lorbalestier in the West of Ireland, those of Crombie, Stirton, and others in the North of Scotland, and his own researches in North and South Wales, whereby the number of our Lichens, in the former editions amounting to 1156, has been raised to 1706, thus rendering our Lichen flora quite equal in number, rarity and novelty, to that of any country in Europe.

AN EXHIBITION BUILDING FOR HORTICULTURAL PURPOSES IN HAMBURG. — The Hamburg and Altona Horticultural Union propose erecting a permanent building for the exhibition of horticultural products, appliances, and accessories. It is estimated to cost £15,000, of which sum £8000 had been collected at the end of November last, and a further £1500 was certain, leaving only £5500 to be raised to complete the sum required. With £9500 in hand they might commence operations this year.

Garden Operations.

FLOWER GARDEN, ETC.

The occurrence of a thorough thaw after a long-continued frost, which has kept the earth bound hard and fast for several weeks, will bring with it a number of operations which must be attended to at once. Plants intended for spring display, such as Arabis, Viola, Alyssum, Iberis, and Myosotis which had not become firmly rooted will be found heaped up, and occasionally scratched out in all directions by birds, and should be seen to at once. Most of them will require to be consolidated in their places, and such of them as have made growth of any length, particularly Pansies, will require to be further secured in their places with some of those small pegs which I formerly recommended to be made by thousands in inclement weather in winter. Cold harsh winds in spring are often very destructive to these kinds of plants, and as we may soon expect equinoctial gales, these kind of precautions become imperative. Before the more active work of the spring commences it will be as well to bring up all arrears of those minor operations on which much of the neatness of the flower garden during the summer will depend, such as levelling irregularities in the surface of the dressed lawn, making good all edgings of such things as Thrift, Saxifrage, grass, and Box; in the latter case, if the edgings are overgrown or very patchy, it is best to lift the whole and plant afresh, and now is the best time to do it. Alterations of all kinds should be pushed forward and brought to a conclusion as soon as possible, the planting of trees and shrubs may be carried on for some considerable time yet, but wherever it is in close proximity to the dressed grounds it cannot be finished off too soon, or it will interfere with the general keeping of the place at a time when the opening beauties of the spring display require to be enhanced by the greatest amount of neatness in the surroundings. Pricking up the borders of shrubberies is now an imperative operation, and should be pushed on with vigour. Each shrub should have sufficient room for development; at the same time, as a furnished appearance is necessary, they must not be too far apart. Occasionally it will be necessary to remove some, still much may be done to obviate removal by the free use of the knife, as with few exceptions they all bear to be cut back very freely. Many of the Coniferae of the smaller growing sorts now so much used for the production of variety in effect are greatly improved in symmetry and beauty of outline by being freely trimmed into shape with the knife or, what is more expeditious, a strong sécateur; by keeping an open trench during the process of digging the prunings may always be well disposed of with advantage to the ground. Lawns may now be consolidated by frequent rolling with great advantage, as after the long frost they have become spongy and waterlogged, and by no means pleasant for walking upon; they will also require an occasional brush over with a birch besom, particularly after high winds. Continued attention must be bestowed upon the preparations for the floral display of the forthcoming season, and amongst them some of the more showy of the hardy annuals will be found very useful for the mixed borders if sown now in small pots convenient for transplanting and placed for a short time under glass with a gentle bottom-heat, from which they must be removed as soon as they germinate and transferred to a cooler situation, frequently ventilating them to become inured to free exposure. Another way is to sow them in drills on a very warm and sheltered border, where they will be ready for transplanting early in April, but they will not bloom so early as those in pots; all depends upon the requirements, and operations must be regulated thereby. Beds of Pinks, Picotees, Cloves, and Carnations should be examined and the earth consolidated about them, incipient weeds removed, and a dressing of compost, consisting of loam and leaf-mould, spread over the surface, previous to which, however, a sprinkling of soot between the rows, but not to touch the plants, will be very beneficial. A mixture of soot and ashes in a rather dry state should be kept in hand at this season of the year, as it is very useful for sprinkling over damp surfaces where there are choice plants liable to the attacks of snails and other vermin, and amongst them beds and patches of choice seedling or named Polyanthus should have some of the mixture pricked in about them. The Crocuses, Scillas, and other bulbs and tubers planted in October and November are pushing through fast, and a dressing of the same will do them no harm as a preventive, and soot we know is a good fertiliser. The planting of Roses may still be continued, as probably the long frost may have interfered with this operation to some extent, but the sooner it is finished the better; well decomposed and rich manure should be liberally applied to the soil, and the surface mulched over with half decomposed litter. The pruning of the hardier sorts of China and the other hardier varieties of Roses about the lawns may be commenced at once. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

An effort should now be made to bring up all arrears of work as soon as possible, consistent with good workmanship and the particular requirements of individual gardens. The buds of fruit trees are this year more backward than is usual, owing to the prolonged severity of the winter, but the sun will soon begin to exert considerable influence, upon wall-trees especially. Apricots being the first to open their blossoms, it will be well to finish nailing and tying them with all proper dispatch in order that there may be no obstacle to duly protecting them when spring frosts occur. Use no more nails or ties than are necessary to properly secure each branch in its place, and guard against overcrowding by laying in no more branches than are required to form the tree or to fill up the spaces occasioned by the removal of dead branches. Long spurs may be shortened back, but be careful not to cut or bruise the trees in such a way as to induce gum and canker, as these latter are always sufficiently troublesome in Apricot trees, even when carefully managed. What may be termed fragments of trees, or such as are known to be "on their last legs," may be left until it is seen how they have withstood the storm; many such will probably die in two months' time, and will have to be removed. Endeavour to keep all trees fairly close to the walls, allowing each kind sufficient space to develop and fully expose its leaves. Some sorts of Plums require much more room than others, and the same applies to Pears, though perhaps not to the same extent, the large-leaved kinds, of course, requiring the most space. Aim at preserving or producing, as the case may be, something like symmetry in the shape of the trees, whatever form of training is adopted, but avoid distorting or twisting any branch that may have grown a little stubbornly in the wrong direction. It is better to bring such into position gradually—a little now and a little more another time. The ground in this locality is not yet in good condition for planting; indeed, it is again covered with snow. It will be well, therefore, where such is the case, not to be in too great a hurry, but to wait for a good opportunity, which is sure to occur after a while. Proceed with the pruning of Gooseberry and Currant bushes where any such work remains to be done, aiming at having sturdy bushes on short clean single stems or legs, the head being somewhat open in the centre and consisting of comparatively few branches, which should be regularly furnished with fruit-spurs from bottom to top. This, however, can only be attained where the bud-destroying birds are kept in abeyance, as where these latter are allowed to have their own sweet will, anything like a symmetrical and profitable bush is impossible, but only an unsightly lot of bare sticks, surmounted it may be with a wig of young growths at the top and smothered with suckers at the bottom. Get Raspberry canes thinned out and secured to their supports, finishing off with lightly pricking up the ground among them and adding a mulching of rotten manure. Strawberry runners that were planted last summer and autumn, especially the latest planted ones, will mostly be found to have been loosened by the frost, and will require firming in as soon as the ground is fit to tread upon. *F. Harrison, Knowsley.*

FRUIT HOUSES.

PEACHES AND NECTARINES.—Although we have milder weather, forcing, owing to the continued absence of sunshine, is still carried on by fire-heat, consequently the fruit in the early house is later than usual; but the trees are looking well, and where the roots are in good inside borders the time cannot be far distant when a rapid change will take place: in the mean time a steady course will be found the safest both as regards forcing, disbudding, and syringing. A night temperature of 50° to 55°, with a rise of 10° by day from fire-heat, and 10° more from sun-heat after closing, will not exceed the bounds of safety, and the trees will be in a good condition for sharp forcing when the long-wished-for light and warmth do put in an appearance. Disbudding must be regulated by the growth; if strong and healthy the whole of the foreright shoots may be taken off at once, and many of the side growths may be pinched back to form spurs, particularly where there is likely to be a scarcity of foliage, always bearing in mind that the best break from the base must have ample room for extension and full exposure to light. Trees that have broken weakly from past heavy cropping or languid root-action often set very freely, but no time should be lost in the removal of the least promising fruit from the lower sides of the shoots where the thinning of the blossoms has been neglected, and if the paths, walls, and floors can be syringed once a day with clear tepid liquid manure, considerable improvement in the colour and strength of the foliage will soon be apparent. Syringe freely backwards and forwards on fine days with water a few degrees warmer than the house, but avoid having the leaves wet at nightfall. Give a little air at 60°, and gradually increase it as the temperature rises, but carefully

guard against cutting draughts or sudden depressions at all times. Examine inside borders and water freely with warm water until it passes through the drainage, which should be of the most perfect kind, as the Peach delights in an abundance of this element, providing it is not stagnant. Early trees in outside borders have had a very trying but a favourable time for proving whether it is the use or abuse of fermenting materials—say a foot of good dry warm Oak leaves, with shutters over all—that does harm. Follow the usual routine in succession-houses, fumigate thoroughly before the trees open their first flowers, draw the finger down the lower sides of the shoots where they are very thick, fertilise every day when the house is dry and warm. Keep late houses well ventilated by night and day unless the weather is severe, and get the borders properly moistened before the buds begin to swell, otherwise many of them will fall off. If not already done the latest kinds of Peaches established in pots for giving the last supply of house fruit should be got into a position where they can have protection from sharp frosts when the flowers begin to show colour. Amateurs and others who wish to have really good late kinds worth eating, will do well to confine themselves to Barrington, Walburton Late Admirable, and the handsome Prince of Wales, in preference to the enormous balls of tasteless fibre that sometimes captivate the judges at the late autumn shows. *W. Coleman.*

FIGS.—The earliest started pot-trees that have been kept in a steady bottom-heat of 70° to 75° will now be very active, and having a great number of fully developed leaves exposed to the influence of light, particular attention must be devoted to the supply of water, as anything approaching dryness at the roots will prove fatal to the most forward fruit. If the pots are quite full of roots, hoops 4 inches in depth, made of lead or zinc, may be fitted inside the rims for the reception of rich top-dressings, little and often, as well as tepid liquid manure, in quantities that will pass through to the drainage. The atmosphere must also be kept in a moist growing state by the vigorous use of the syringe twice a day over the foliage when the weather is light and fine, and over paths, walls, and the surface of the bed when dull. Let the night temperature range from 55° to 65°, with an increase of 10° to 15° by day. Give a little air at 70°, and aim at 85° as the maximum from sun-heat. Attend to stopping and tying as growth advances, and guard against overcrowding as one of the greatest evils in early Fig culture. When properly grown a dish of Figs in May forms a valuable addition to the dessert, but to have flavour and colour they must have full exposure to light and a free circulation of dry warm air—hence the importance of keeping the young growths thin and evenly placed. Trees established in beds of earth that were started early in January will soon require disbudding and stopping, but where trellis room admits, the leading shoots should be allowed to extend to the extremity without stopping, as these always give very fine highly-coloured fruit. Examine the borders, mulch with rich compost as the roots rise to the surface, and water freely with tepid liquid-manure. If the trees are growing against walls stem roots may be obtained by packing with moss or light fibry pieces of turf, which may be made valuable auxiliaries if kept well moistened with liquid-manure. One of my best trees, thoroughly established on a stone wall, is capable of maturing a crop of fruit without the aid of underground roots. *W. Coleman, Eastnor.*

MELONS.—Reiterating my remarks in last Calendar, and to which I have little to add in the present, I would say, maintain a night temperature of from 65° to 70°—the latter will not be too high a degree of heat, now that the weather has become mild—and from 75° to 80° as a bottom-heat, with a day temperature of 75° with fire, running up to 85° with sun. On bright mornings—as we may reasonably expect to experience a change for the better in the weather now—put a little air on at 75° and shut up at 85°, and run up to 90°, with plenty of moisture. Plants shifted into 32's some time back will now be ready for planting, if not already done, on the hillocks in the Melon-house proper for trellis training. The plants being moderately moist at the roots before being turned out of the pots, the soil should be pressed firmly round each plant while being planted. Moreover, the base of the plants should be kept well up to or a little higher than the surface of the mound, in order to prevent the soil round the collar of the plants becoming too damp, which would cause canker in the stem—a disease to be guarded against. *H. W. Ward, Longford Castle.*

CUCUMBERS.—The weather still remains anything but favourable for early forcing. It has been wet, cloudy, and all but unless weather for the last ten or twelve days—circumstances which are very antagonistic to forcing in general. More especially is this the case where the forcing of the subjects of this paper, is being carried on in dung frames, wherein a superabundance of moisture may arise, probably to the

ultimate loss of the plants if not otherwise dispelled or absorbed, and in which case I would, at the risk of repetition—which, however, is inevitable in Calendar writing—recommend a dusting of new lime and soot to be made over the surface of the bed, which will be the means of neutralising the moisture, and thereby preventing the plants from "damping off." Let the airing, tying, stopping, temperature, and atmospheric moisture be attended to as recommended in former Calendars. Make a successional sowing in accordance with requirements. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

Sunshine and mild weather at last, and with it to plant cultivators comes a press of work that admits of no putting off. The first thing requiring prompt attention is that of propagating stock of soft-wooded stuff for winter blooming, chief among which are Chrysanthemums, for although cuttings of these put in later make exceedingly useful plants of a fair size for conservatory decoration or cutting from, the season is not sufficiently long to admit of growing them into fine specimens. A temperature such as that afforded by an ordinary Peach-house or vinery just put to work will be ample, where if inserted singly in sandy soil in small pots, or three or four placed around the sides of others of larger size, and stood under handlights on damp moss, they will soon root and be ready for removal to a more airy position. Next to Chrysanthemums in point of usefulness for winter blooming come such things as *Libonia penrhosiensis*, *L. floribunda*, and *Linum trigynum*, neither of which are half so much grown as their merits deserve, as they go far to make a greenhouse gay at a time when little else is available. So free of propagation are they that they strike like weeds if only the plants are put into a little warmth for a week or so to excite them before taking off the tips of the shoots, and if this is done and a bell-glass placed over them when inserted not one in a hundred will fail. In propagating *Linum trigynum* I greatly prefer the young tender growth when about 3 inches long, which taken off with a heel always make the best plants. The same may be said of the *Euphorbia jacquiniæflora*, one of the finest and most useful things for winter work among the occupants of the stove, well grown specimens of it affording an almost inexhaustible supply of flowers for cutting, the brilliant colour of which being such as to quite light up any vase and impart a most telling effect. To get good cuttings the best way is to head back a few of the old plants to within a foot or so of the pots, as the wood there being harder and riper makes firmer shoots, and any of these taken off in the manner advised for the *Linums*, root almost as readily if subjected to a close brisk heat where there is no lack of atmospheric moisture. Where space can be spared to plant one or two out and train the branches up near the glass so that they can get plenty of light and sun, they far surpass any that can be grown in pots, as the wreaths of bloom not only come finer and longer, but when cut they break again and afford a second supply. At no time of the year perhaps are flowers in greater request than at Easter, nor any more highly prized at that season than *Eucharis amazonica*, *Gardenias* and *Lily of the Valley*, to provide plenty of each of which it is necessary to begin betimes, especially with the two first-named that do not admit of being much hurried. *Eucharis* that have been rested for a time by being kept somewhat dry should be gradually put to work again by having the balls thoroughly moistened, and the pots stood where they can get a good brisk heat, which with a humid atmosphere soon brings the roots again into full play, when if the drainage is efficient it is not an easy matter to overdo them with water. Of all plants we have to deal with none are more subject to that pest of hothouses, mealy-bug, than *Gardenias*, for if there be one to be found it is sure to be on them; but thanks to paraffin, which fortunately their foliage bears if applied carefully, we have a sure and unfailing remedy. The most effectual way of using it is to lay the plants on their sides where they can be got at so as to drive the mixture both back and front of the leaves, and thus wet every part, while doing which it is necessary that some one should keep the water violently agitated by drawing some out, and syringing it back again, in order to prevent the oil from floating, as it otherwise would, on the top. By giving a dressing in this way, and repeating the same at the interval of a week or so, they will be no further trouble till the blooms are all cut, and it is time to head back the plants for them to become refurnished with fresh growth. A wine-glass of paraffin to 4 gallons of warm water is quite sufficient, as to exceed that quantity is to run risks of injuring the young buds, which in the embryo state are exceedingly tender. *Camellias*, so valuable for the adornment of cool houses in spring, are doubly so when they can be induced to flower early, and the only way to coax them to do this is to bring them into the habit by degrees, when, after a season or two, it becomes natural, and they go on with great regularity. *J. Sheppard, Woolverstone.*

THE Gardeners' Chronicle.

SATURDAY, FEBRUARY 22, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, | Feb. 24 | { Sale of Orchids, at Stevens' Rooms. Sale of Japanese Lilies, by Protheroe & Morris. |
| TUESDAY, | Feb. 25 | { Sale of Messrs. W. Rollisson & Sons' Stock, by Protheroe & Morris. Clearance Sale at Holmes' Nursery, West Ham, by Protheroe & Morris. |
| WEDNESDAY, | Feb. 26 | { Sale of Shrubs, Herbaceous Plants, Gladioli, &c., at Stevens' Rooms. |
| THURSDAY, | Feb. 27 | { Sale of Orchids, at Stevens' Rooms. |
| SATURDAY, | March 1 | { Sale of Miscellaneous Plants and Bulbs, at Stevens' Rooms. |

GREAT interest was excited in South Australia about ten years since by the discovery of a curious carboniferous substance resembling caoutchouc found on the surface of the soil, and serious attempts were made to utilise it. The origin of this substance was very uncertain, and a want of accurate knowledge led to considerable expense. It was supposed to be derived from subterranean deposits, which oozed through fissures in the ground, and consequently deep wells were sunk, which led only to a certainty that the received theory was wrong. Large quantities were sent to this country for experiment, but the supply instead of being, as was asserted, inexhaustible, proved very uncertain, and it was found that, though useful chemicals might be derived from it, it would not properly amalgamate with the indiarubber, so that it was useless to the manufacturers of indiarubber goods, and so, as far as they were concerned, the matter ended.

A notice, however, appeared in the *Adelaide Advertiser*, September 24, 1878, that a fresh deposit of COORONGITE, the name by which it is known, had been recently found to exist on the ground where it was first discovered between the Salt Creek and the Coorong; and attention accordingly was again directed to the subject. Specimens were sent originally to the writer of this article, who found on examination the sparingly necklace-like threads, and he was disposed to consider it as a vegetable production, and this observation accorded with those of Mr. G. FRANCIS of the Adelaide Institute, who has paid great attention to the subject, and has lately visited the place where it occurs. He writes:—"It has nothing to do with the lake, and has also no connection with petroleum. It is found on the limestone edges of a grassy flat that is surrounded by limestone banks or hillocks 8 or 10 feet high. The plain is sandy for 12 or 20 feet deep, and will not hold water. The Coorongite looks like the sun-dried droppings of cattle, and is confined to the limestone bank, and does not fall over it nor extend over the plain. I have always been of opinion that it is a fungus or lichen, and you confirmed the latter idea. It is granular in its structure, the surface covered with cups full of spores in chains or like necklaces, and, being very oily and sticky when new, retains the diatoms blown about. These have caused many surmises, and the idea that the stuff was a half dried-up fluid exuding from the strata below. It is simply a vegetable growth and a lichen, and is quite unconnected with the lake, being 6 miles inland."

Such was a portion of the letter received from Mr. FRANCIS, other parts of the same communication having already appeared in this journal in connection with the curious case of cattle poisoning from the waters of a lake being infested with an Alga which formed masses where thrown upon the shore, which exhibited very curious phenomena.

Mr. FRANCIS' letter was accompanied by two large packets of Coorongite in various conditions, sometimes forming continuous masses as thick as common oilcake on the sandy soil,

sometimes attached to twigs, and sometimes in little scattered patches on the surface of limestone. All these have been carefully examined microscopically by myself, and the most important of them by Mr. BROOME, and not the least sign was discovered of anything vegetable, much less of the necklace-like threads which were at first observed by myself and also by Mr. FRANCIS. On fresh examination of the original specimen I had long since supposed that the presence of these organisms was accidental, and the examination of the numerous specimens before me has left me where I was. I cannot now consider the substance as vegetable, but its nature is still problematical, and nothing is likely to solve the difficulty but examination of it in the moment of deposit. The question is now purely one of scientific interest, as the commercial value of the substance is more than doubtful. *M. J. B.*

— PROFESSORSHIP OF BOTANY AT EDINBURGH. —We learn that Professor BALFOUR has resigned this important professorship on the score of ill health. There will be but one feeling of regret at the necessity which has induced so able and energetic a teacher to resign his appointment.

— THE MAY SHOWS AT SOUTH KENSINGTON AND MANCHESTER. —On looking to the date which the Royal Horticultural Society has fixed for its great show at Kensington, we are sorry to see that the time chosen interferes with the Manchester Exhibition so far that the Society's show closes on the same day as that at Manchester opens, which, as a matter of course, precludes the possibility of the principal exhibitors putting in their appearance at both places except to a very limited extent; and so far as regards the best collections of private growers which it is so desirable to secure, their total absence from one of the two may be looked upon as a certainty. We do not know what it is that guides the Kensington authorities in the fixture of the date for their show, but holding it at the same time as the Manchester gathering is a decided loss to both, and it is well known that the Manchester meeting is, and has been for near a score of years, a permanent fixture for Whitsun week, and could not possibly be moved to any other date than that of the great manufacturing holiday without a certain and serious pecuniary loss. Consequently the Old Trafford management is not to blame for the clashing. I should not be forgotten that it is the productions, and these in quantity and of the best quality, that make these exhibitions sufficiently attractive to command the attendance of the public. The thinly covered stages of the London shows during some years past have been a subject for general comment amongst those who attend them, and according to present appearances there is not much likelihood of their improving, whereas if the arrangements were such as they might be, several of the finest West of England collections which each year go to Manchester would doubtless be forthcoming in London.

— THE LACK OF SUNSHINE. —The sun seems to sympathise in the general gloom that overshadows the welfare of the kingdom, and persistently withholds its face. The comparative absence of sunshine during the past three months has been generally remarked, and the effect is seen in the stagnation of vegetation. Except the earliest of spring flowers, such as Scillas, Snowdrops, Hellebores, &c., that will force themselves up almost in spite of cold, nothing pushes into growth, the sky is cloudy, the earth cold, and saturated with moisture. The general shallowness of water in the earth is a marked feature of the season, and tends to keep the soil exceedingly cold. Were severe frost again to visit us the result must be most deplorable, as plants are much weakened by past attacks, and the soil is wetter than at any time of the winter. No doubt there is a certain amount of good to be anticipated from the present stagnation—the longer the check is maintained the more cheerful the prospects for the later spring. For many past seasons we have had to deplore the intermittent nature of our spring seasons—now a few days of sunshine and almost summer warmth, then an interregnum of bitter blasts and keen frosts. This kind of weather following on for a couple of months, sadly as it tests the human constitution, must be even more

trying for the newly-expanding buds, leaves and flowers, and the chances are as ten to one against the setting of a healthy fruit crop. The longer our trees and plants of all kinds are held in check the better our prospects for the summer and autumn harvests, and this is the prime consideration in all garden work. The promoters of spring shows are doubtless troubled as to the forward state or otherwise of the material that is to beautify them, as even the most abundant use of artificial heat cannot compensate for the absence of solar light. This, however, is but a minor evil, and may be lightened by the adjournment of the shows to a later date, but the exhaustion of the winter forces now rather than later on will prove an unmitigated blessing.

— PEARLS IN PEA-PODS! —Here is a chance for advertisers of new Peas. We copy this from the *Queen*:—"At a recent ball a lady is stated to have appeared in a white silk dress with beautiful lace and sprays of green Pea-pods half open, showing the Peas inside, which were pearls. A wreath to match was worn." Surely a necklace of the medals gained by the Peas at various exhibitions might be worn, and perhaps even the Cross of the Legion of Honour. Seriously, the lady has outdone the dealers, for none of them have as yet advertised their Peas as pearls. We know of one lady who, last season, appeared in society with a live beetle attached to her neck by a fine chain. What would have happened if the beetle had met with the Peas? But then the beetle was not the Pea Weevil (*Bruchus pisi*), but one of a more ornamental character.

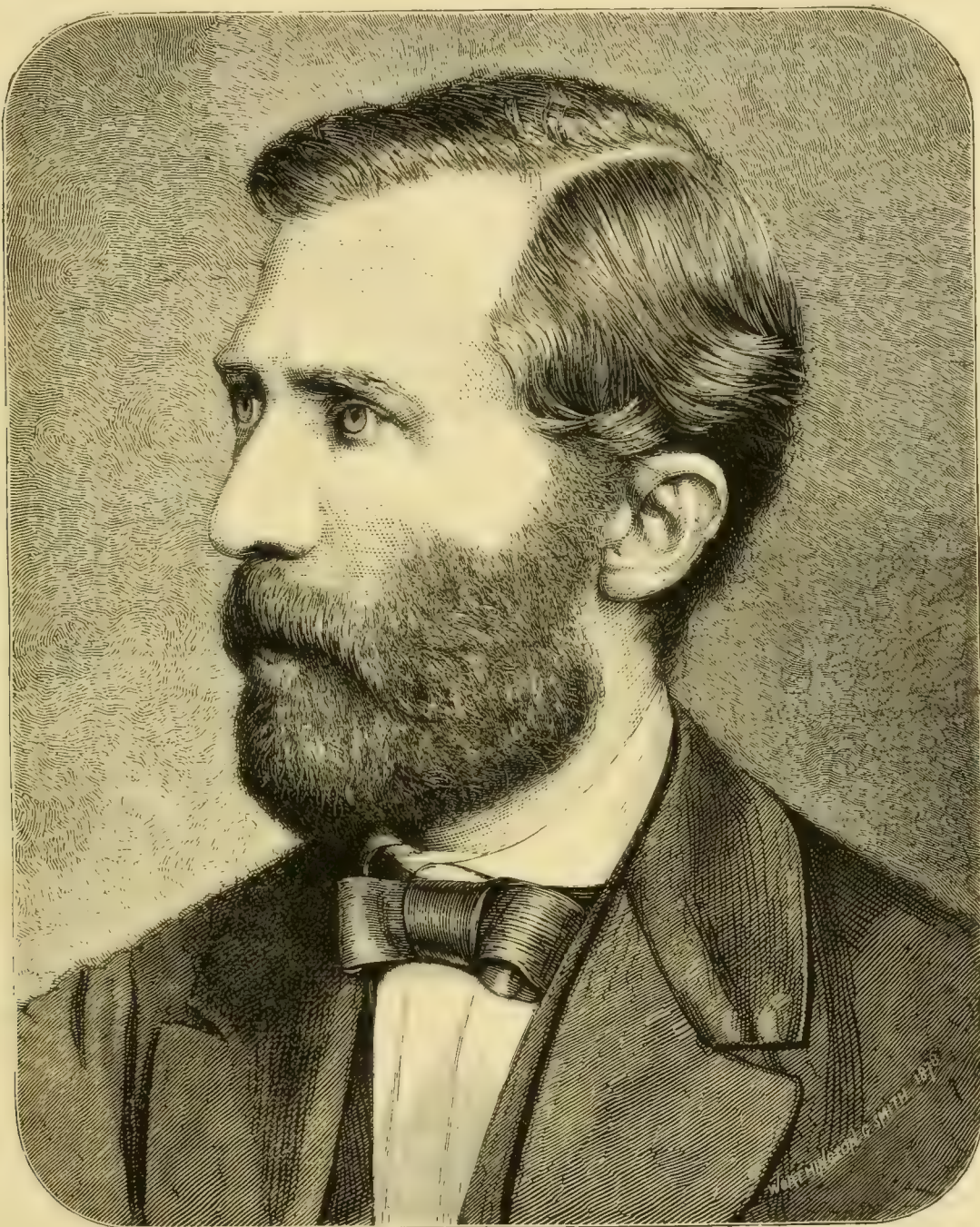
— CULTIVATION AS A TEST OF SPECIES. —As the general outcome of his numerous researches upon cultivation as a test of species, Professor HOFFMANN, of Giessen, says that he has come to the conclusion that existing plants are the descendants of those which have preceded them either in a modified state or unchanged since the most ancient geological period. The manner in which this evolution has been brought about and is still going on is progress—progress, that is, from the simple to the compound, according to the principle of the division of labour, limited in its action by the effect of competition. Species may be considered as the terminal link in a series of generations the connecting thread between which has been broken, so that the parent trunk is unknown or has disappeared, while the variety may still be referred by observation (and experiment?) to the parent trunk from which it is derived. To ascertain these relations well and scientifically devised cultivation is necessary. By cultivation it may be ascertained whether a given form is persistent or transitory, whether it reverts to the original type. Transitional forms between species do not of themselves prove anything because under cultivation they remain permanent. The reciprocal fertility also cannot be adduced in support of specific identity as some hybrids are fertile, and one between *Mimulus cardinalis* and *M. luteus* has produced fertile hybrids for several generations and yet under cultivation it is not possible to convert one species into the other. Geographical distribution also supports the notion of species, for while certain species of *Primula* and *Anagallis* occur mixed together in certain districts, yet in other districts one or other species is found without the other, as if it obeyed different climatic laws.

— COMPOSTS FOR POT-GROWN PLANTS. —As the season for shifting the generality of pot-grown plants is approaching, a word about soils may be of service. Notwithstanding that so much has been written on this subject, we are led to suppose, from the questions which often reach us, that there are many who do not fully realise the effect that the best soil of its kind, peat or loam, has upon plants. In many parts of the kingdom really good peat, such as the majority of subjects grown in pots that need a soil of this nature want, is not available without procuring it from a considerable distance; and when cost, carriage, &c., are put together, the expense looks formidable, the result being that such stuff as may be at hand is made to do duty. The effect of this is that the plants, even with the best attention in other ways, are never seen in such a condition as when grown in soil that will admit of their full and healthy development. Yet this is anything but wise economy, as the cost of good soil, even when difficult to obtain, is a very small item as compared with that of the houses

wherein to grow them, combined with fuel, labour, and cost of the plants in the first instance. The vegetable fibre existent in either the best peat or loam, and which consists of the roots of the Ferns and grasses that have grown on the land from which it has been dug, has been proved as not only affording the most agreeable food for by far the greater number of things cultivated in pots, but also, from its tough enduring character, it keeps the earthy portion of the soil for a long period in a healthy porous condition. Theoretically speaking this is usually accepted; but there are

bears reference to peat, it holds good with loam as well for most things. As will be easily understood, when soil of this description is employed, it becomes necessary to use the potting lath much more freely, so as to give the requisite solidity. In particular we may name Golden Tricolor Pelargoniums, many of the finest coloured varieties of which are well known as slow delicate growers, but potted in loam, nearly one-half consisting of the grass-root fibre such as is often used for laying over the crocks, with somewhat less manure added than usual, the growth

was one of the vastest undertakings ever attempted in botanical literature, and that, one might say, at a period when botany was in its earliest infancy. The history of it is briefly this:—During the war between Sweden and Denmark in 1658 the large herbarium collected by JOACHIM BURSER in his travels in various countries of Europe, fell into the hands of the Swedes, and subsequently it came into the possession of Court Councillor COYET. OLOF RUDBECK, the elder, no sooner heard of this than he tried to persuade the owner to present it to the Un-



ANTON DE BARY. (SLE P. 237.)

many engaged in the growth of pot-plants who do not attach so much importance to the presence of this vegetable matter in the soil in such quantity as is evidently conducive to their continued well-being. We have been led to these remarks from some experiments we have carried out in recent years with a number of plants, both hard and soft-wooded, in potting which a good deal more of the earthy portion of the material was removed than is generally done; and in every case the advantage was clearly perceptible in both healthy vigour of wood and leaves, as likewise in the size and colour of the flowers, and the way the plants kept on in a flourishing condition for years. Although what we have said more directly

made was almost double each season to that which we ever saw when the soil was of the description generally looked upon as suitable. With Fuchsias the effect was the same. Even in the case of *Amaryllis*, that are proverbially fond of a close-holding material, the increase in the size of the bulbs was marked; but for the latter it was rammed into the pots as hard as it was possible to make it.

—THE TEN LAST PARTS OF OLOF RUDBECK'S *CAMPI ELYSII*.—Under this title Dr. M. B. SWEDERUS has in the *Botanische Zeitung* "A Contribution to the History of Swedish Natural Research." OLOF RUDBECK's work, *Campi Elysii*,

versity of Upsala. This he finally succeeded in doing, his request being fulfilled in 1666. RUDBECK at once conceived the idea of drawing the whole of the plants, and he and his students and his son and two daughters speedily prepared a large number in their natural colours. CHARLES XI.'s attention being attracted to this great work was the cause of RUDBECK being able to employ the services of an engraver on wood, and commence the publication of the *Campi Elysii*. Parts 1 and 2 appeared between 1700 and 1702. Unfortunately, the fire which nearly destroyed the town of Upsala in 1702 consumed the greater part of RUDBECK's collections, including 7000 finished cuts.

After this little was heard of the work until the summer of 1831, when the parts 2 to 12 were discovered in a private library. According to Dr. SWEDERUS the total existing number of figures of plants executed for this work, including those printed and the ten volumes of drawings found, exceeds 6200, and they are for the greater part beautifully executed. Judging from the signatures, about forty persons took part in the work. The drawings are mostly true to Nature, and often very fine. In some instances the colours have faded, but generally speaking they are as fresh and bright as if they had been laid on yesterday, instead of more than 200 years ago.

— *IRIS SEMPERFLORENS*.—This fine, white, shrubby, free-flowering plant may be had in bloom early in the season by simply potting up the plants in the autumn, and wintering them in a cold frame. Some plants so treated in Mr. PARKER'S nursery at Tooting are now showing a profusion of blossoms which would be most valuable to many a gardener whose means for forcing are of a limited order, yet from whom his employers may have great expectations in the matter of cut flowers.

— *THE TREES AND SHRUBS OF ANCIENT GREECE AND THEIR ÆSTHETIC APPLICATION*.—From *Der Deutsche Garten* we learn that our esteemed colleague, Professor KARL KOCH, intends publishing a work bearing the above title. A fragment of it, "The Fig tree," appears in the number for this year of the periodical named. The ancient Greeks subsisted almost wholly upon the products of three trees, the Olive, the Fig, and the Vine. No doubt, says Professor KOCH, DIOGENES lived in his tub on Figs alone, and was contented therewith, so that he had only one favour to ask of the powerful Macedonian King ALEXANDER the Great, who desired to bestow something upon him, and that was "to stand out of his sunshine."

— *DESTRUCTION OF PLANTS BY HOGS*.—Goats, rabbits, collectors for commercial purposes, and greedy specimen hunters, are born enemies to botanists and horticulturists proper. Hogs must be added to the list; for, according to a writer in the *American Naturalist*, they have destroyed, over large tracts in Florida, the stems of the *Zamia integrifolia*. These trunks abound in starch, from which Florida arrowroot is made, and which is but too palatable to the hogs. It is probable that, except where taken into cultivation, this handsome plant will become totally extirpated.

— *HELLEBORUS NIGER*, VAR. MAJOR, is magnificently in flower at Kew. The specimen is one of a fine collection presented, with many other choice herbaceous plants, by B. HOOK, Esq., of Bradfield, Reading. There are no less than 170 flowers, eighty of which are expanded and in perfection; the leaves are drawn together with a tie, so that by standing a short distance away there is a full view of the mass of blossoms beneath. To see this is to feel a thrill of surprise and pleasure, and to have an expanded knowledge of the development possible in this favourite species. The flowers are of the purest white, without the familiar tinge of pink. These plants have made the most uprising growth since the thaw, and the majority of those forming the collection are showing flower.

— *TROPICAL BOUQUETS*.—Commenting upon the seeming waste of money involved in the planting of rare flowers and shrubs by the side of the roads in the government forest at Rio de Janeiro, Mrs. BRASSEY, in her delightful volume, *A Voyage in the "Sunbeam"*, remarks that the addition of flowers from other countries did not appear to be any improvement, though the feeling was otherwise there; and bears out this statement by mentioning the fact that she had more than once a bouquet of common Stocks given to her as a grand present, while Orchids, Gardenias, Stephanotis, large purple, pink and white Azaleas, Orange-blossom, and Roses, were growing around in unheeded profusion! While on the subject of bouquets, we may mention that in the Argentine Republic Mrs. BRASSEY had an opportunity of seeing some of the bouquets intended for presentation at the opera one evening, the flowers in which she describes as being "arranged in all manner of strange shapes and devices—full-sized tables and chairs, music-

stands, and musical instruments, and many other quaint conceits, composed entirely of grey Neapolitan Violets, marked out with Camellias and other coloured flowers." In a subsequent chapter we read of our authoress being presented, before leaving the River Plata, with "a most magnificent bouquet composed entirely of Violets, arranged in the shape of a basket, 3 feet in width, full of Camellias, and marked with my initials in Alyssum; altogether it was quite a work of art, but almost overpoweringly sweet." At Singapore, on March 18, 1877, Mrs. BRASSEY "bought some Gardenias for one penny a dozen, beautifully fresh and fragrant, but with painfully short stalks." At the same time, in Covent Garden, Gardenias were realising from 9s. to 18s. per dozen. Think of that, ye lovers of sweet-smelling posies.

— *STANDARD GOOSEBERRY TREES*.—A writer in the *Deutsche Gärtner-Zeitung* asserts that standard Gooseberry and Currant trees cannot be too highly recommended, on account of their greater productiveness and the superiority of their fruit. With regard to Gooseberries, if standard trees succeed better than dwarf bushes in Germany, where the summer is much hotter than ours, they should succeed here; but in this land of Gooseberries the practice is not recommended, on the contrary, it is discouraged. Whether the standard system has been fairly tried we are not able to say, but we should not expect the fruit to be superior.

— *THE GENUS CITRUS*.—The Italian Ministry of Agriculture, Industry, and Commerce, offer a prize of 3000 lire (about £120) for the best monographic essay on the structure, the vital functions, and the diseases of the acid fruits of species and varieties of the genus *Citrus* and kindred genera; provided that the essay, by a sufficient collection of original observations and experiments, should succeed in furnishing an important addition to the present knowledge concerning such subjects, and thereby supply a scientific criterion for the improvement of the cultivation of these acid fruits and for the cure of their diseases. The date for sending in the works competing for the prize is fixed for the end of May, 1881. Essays by Italians, or by foreigners written in Italian, are admissible to the competition; but if written in another language they must be accompanied by an Italian translation. The essays sent in for competition are to be sent to the Ministry of Agriculture, Industry, and Commerce, with the superscription: "Competition for the Prizes for the best Essay on the genus *Citrus*," and they must be distinguished by a motto, to be given also on a sealed cover containing the name and address of the author. The award upon the essays of the competitors will be issued by the Commission appointed in pursuance of the Royal decree of February 14, 1877, No. 3684, within ten months from the close of the competition. The cover that bears the motto of the essay to which the reward is to be granted will be opened; the covers corresponding with the unsuccessful essays will be burnt unopened. The copyright of the essays sent in for competition is reserved to the respective authors; but the essay that obtains the reward may be printed, entire or in part, in the *Annals of Agriculture*, published by the Ministry of Agriculture, Industry, and Commerce.

— *FRENCH AND GERMAN AGRICULTURAL AND HORTICULTURAL PRODUCTS*.—From the *Deutsche Gärtner-Zeitung* we extract the following statistics of the traffic in agricultural and horticultural produce between France and Germany in 1877:—

| French Imports from Germany. | | French Exports to Germany. | |
|------------------------------|---------------|----------------------------|---------------|
| | Value—Franks. | | Value—Franks. |
| Timber .. | 33,000,000 | Wine .. | 27,000,000 |
| Cereals .. | 10,000,000 | Grain .. | 23,000,000 |
| Oil seeds .. | 6,000,000 | Meal .. | 19,000,000 |
| Hops .. | 6,000,000 | Artificial flowers .. | 1,000,000 |
| Hemp .. | 5,000,000 | Tanning material .. | 5,000,000 |
| | | Seeds of all kinds .. | 5,000,000 |
| Total .. | 60,000,000 | Timber .. | 4,000,000 |
| | | Table fruit .. | 3,000,000 |
| | | Total .. | 87,000,000 |

The foregoing table is quoted by a Protectionist, to show that horticultural industries in Germany should be sheltered under protective duties. We have previously alluded to the influential protests against protection to the Minister for Agriculture.

— *SIR HENRY PEEK'S GARDEN AT WIMBLEDON HOUSE*.—A correspondent writes:—In one house here a Royal George Peach tree is a picture; it

just fills the roof, and has been a mass of flower, but is just going off now, and the fruit is setting well. Last year Mr. OLLERHEAD told me he had pulled twenty-five dozen fruit from it. I noticed a nice bunch or two of Bananas and a large tree of Castle Kennedy Fig taken up from the open wall is showing fruit well. It fruited last year for the first time indoors, and has produced as many as five dozen of ripe fruits all fit to gather on one day. Deutzias, Poinsettias, and Euphorbia jacquiniæflora were flowering well. Among Orchids in bloom *Odontoglossum Alexandræ*, *O. Roezlii*, and *O. caudatum*, were most noticeable. Several plants of *O. vexillarium* in pans are making vigorous growth suspended close to the light, and *Pleiones* treated likewise were luxuriant. The best of all introduced *Cœlogynæ*, *C. cristata*, was also in bloom, its snow-white blossoms hanging most gracefully among the dark green bulbs and leaves.

— *CUT FLOWERS*.—Mr. PAYNE, gr. to JOHN MARSHALL, Esq., Belmont, Taunton, has sent us a photograph of a plant of *Angræcum sesquipedale*, with two spikes of three flowers each, and a cut spike with three flowers, showing the quality of the flowers produced on so small a plant. Mr. PAYNE also enclosed a few cut samples of leaves and flowers of other plants, which amply illustrate the health and vigour of the plants at this season, after such a dreary winter as we have had, and, as our correspondent observes, "with inside shading."

— *CASSIA LIGNEA*.—Under the name of Cassia lignea the barks of several species of *Cinnamomum* are known in commerce, and used for similar purposes with cinnamon. These barks are of different qualities, the best being the produce of certain provinces in Southern China. It is remarkable, considering the large quantities of Cassia lignea and Cassia oil that are annually imported into this country, that so little is known as to their botanical origin. FLUCKIGER and HANBURY in their *Pharmacographia* say:—"We have no information whether the tree which affords the Cassia bark of Southern China is cultivated, or whether it is exclusively found wild," and no information on this point seems to be derived even from residents in the country, such as the British Consuls; thus, in a recent report on the trade of Pakhoi, Mr. Consul BULLOCK refers to this product as follows:—"The largest Cassia-producing district in the South of China is situated near Taiwu in the south-east of Kwang-si. Though the export of Cassia lignea is only permitted through Canton, where a small body of merchants have for many years held the monopoly of the trade, 400 or 500 piculs of Cassia oil find their way yearly from Taiwu to Pakhoi, and thence *via* Macao, either to the north of China, or to Hong Kong and Europe. The fact that Cassia oil from Taiwu is exported through Pakhoi, leads one to suppose that Cassia from the same district would also be brought here if the Government permitted it to select the most convenient route. While the west river was closed by the Taiping rebellion the trade in Cassia lignea was actually carried on through Pakhoi by special permission, but on the restoration of peace the prohibition was again imposed."

— *HORTICULTURE IN JAPAN*.—In a recent Government report from Hakodate we are told that a "horticultural department" has been established about a year at Sapporo. The flower garden, although only a small part of it is as yet under cultivation, is tastefully laid out, the European plants that have been introduced looking uncommonly well. Consul ENSDEN says:—"It has been constantly remarked by visitors to Yezo that the European flowers here are far superior both in colour and fragrance to those growing in the South of Japan, and that they grow to a much larger size; still the long winters make it a hard task to protect them from the severity of the frost. The Japanese are great admirers of our home flowers, and numbers of young plants are sold to them at Sapporo at the cheap rate of 3 cents each. I wish I could say that the vegetables had as ready a sale as the flowers. When I was there, at the end of September, the gardens were full of the finest vegetables I have seen in any part of the globe, but they were left to rot in the ground for want of purchasers, notwithstanding that only a nominal price was put upon them, not even sufficient to cover the expense of raising them. Why they remain unsold I cannot

understand, as the Japanese think a good deal of European vegetables, and there is no doubt they would be a great addition to their daily bill of fare. I was told that the farmers come to Sapporo from the neighbourhood to buy their seed, which they get for a ridiculously low price, in order to encourage the use of foreign seed; and I have remarked all along the road at the better class of farmers' houses, and in their gardens, foreign fruit trees and flowers." Attar, it seems, has been obtained from the wild Roses growing on the beach at Ishcari, the fragrance of which is said to be exceedingly powerful. In the same way on the beach at Hakodate grows the Clematis, with a strong perfume; and just beyond Hakodate the Lily of the Valley grows abundantly, covering acres of ground. Great praise is given to the superintendent of the "horticultural department," who is said to be an Englishman.

— **HARDY SPRING FLOWERS.**—Hardy plants of all kinds have brightened up wonderfully during the past fortnight, but there is not much in bloom yet. In Mr. PARKER'S nursery we noted the other day as being in flower:—*Cyclamen Atkinsii*, a charming cluster of blossoms; *Galanthus Imperati*, *Crocus Imperati*, and *C. Sieberi*, the latter most conspicuous by reason of its lovely purple-shaded mauve blossoms; *Helleborus niger*, fine clumps of showy white flowers, and *H. niger maximus* or *altifolius*, whose large showy pink flowers are very charming; *Saxifraga Burseriana* and *S. Rockeliana*, both gems of the order. Several species of *Galanthus* and many forms of *Helleborus* will shortly be in bloom in Mr. BARR'S grounds close by.

— **PRODUCTION OF CAMPHOR IN CHINA.**—True camphor—that is, the camphor of ordinary commerce, which is produced from the wood of *Camphora officinarum*, and which is obtained from China and Japan—has been prepared in much larger quantities during the past year or two than for many years preceding. With the exception of tea, camphor is stated to be the most valuable article exported from the districts of Tamsui and Kelung, representing in the Customs' returns a value of some £23,710. The trade returns for 1877 show that the entire produce of the year was, with the exception of about 28 piculs sent direct to Hong Kong for transmission to other foreign countries, chiefly to Great Britain. A hydraulic press for the purpose of pressing the camphor before shipment has lately been set up by one of the foreign firms trading with the above-named ports. Hitherto, owing to its being comparatively loosely packed, and containing a large percentage of water absorbed during its sublimation from the wood, the loss by evaporation between Tamsui and Hong Kong was very large. The Customs allow for an estimated decrease of 5 per cent., in former years as much as 11 per cent. was the allowance; but it is said that the loss in the camphor submitted to the hydraulic press is much less than the Customs' allowance, and that the new system of packing is attended with most beneficial results. At present Chinese shippers have not taken advantage of the press, preferring for some inscrutable reason the old method of packing. They are, however, far too much alive to their own interest to continue to do so, and before long it is expected the bulk of the camphor shipped will be packed by the press.

— **LIBERIAN COFFEE.**—Dr. GOEZE writes:—"The excellent qualities of this new species are now pretty well known, and I should not venture a repetition, only I fancy that I may, by the following lines, add one more good character to those already attributed to it. A writer in the Brazilian journal, *Revista de Horticultura*, 1878, speaks of the hardness of the *Coffea liberica* as being superior to that of *Coffea arabica*. M. JOÃO FRANCO, resident in the province of S. PAULO, had some young plants, only a few inches high, of the former species, planted out in the centre of a large Coffee plantation, established three years ago. During the two nights of July last, 17-18, 18-19, a severe and quite unusual frost (it is to be regretted that the degrees are not noted) visited that district, and destroyed almost the entire plantation. The small Liberian plants, on the contrary, had not been injured at all, and continued to show a vigorous growth. Apparently the Brazilian agriculturists are rather suspicious of new things, and the introduction of the Liberian Coffee had met there with but a very feeble interest. But this single

fact of its hardness, even in quite a young state, in comparison with three-year-old trees of *Coffea arabica*, needed no further eulogy, and the writer reports that two landowners in the same province are about to plant, one 2000, the other 3000 seedlings of Liberian Coffee."

— **RHAPHIS HUMILIS.**—This, without doubt, is one of the most graceful of fan-leaved Palms in cultivation, and in addition is one of the rarest. Two handsome plants are in the Kew collection, and fortunately it is possible of increase by removing the suckers—rather a slow process, no doubt, but one sufficient in nurseries to keep up a stock of *R. flabeliformis*. Compared with this species it is infinitely more graceful, and coming from China and Japan it should be suited to the same comparatively low temperature. The stem is remarkably slender, and so also are the petioles, the former as it were a reed, and the latter like wires. If its progenitor had any degree of stiffness of contour, it has evolved into a model of gracefulness for garden purposes. The fronds are thin, almost papery, and their narrow segments, curving to the points, have quite the line of beauty. Together they form the neatest possible crown of foliage, and this on a dwarf stem, so as to form an elegant table plant. It is equally beautiful, too, when so tall as to tower clear above the smaller specimens of an ordinary arrangement.

— **LONDON CENTRAL FRUIT, VEGETABLE, AND FLOWER MARKET.**—A return has been made pursuant to an order of the Central Markets Sub-Committee, dated January 23, 1879, of the receipts and expenditure on account of the London Central Fruit, Vegetable, and Flower Market, up to the present time. The following are the receipts:—Loans raised, and premiums thereon, 1875, £5,000; 1876, £110,725; 1878, £15,440—total, £131,165. Transfer from Central Poultry and Provision Market for land and approaches, £63,000—making the total receipts, £194,165. The payments during the four years that the preliminary work has been going on are: Purchase of premises, and interest on purchase-moneys, less rents for temporary occupation, £136,523 10s. 11d.; law charges, &c., £2333 14s. 11d.; stamp duty on conveyances, £800; surveyor's charges, £857 19s.; accountant's charges, £26 5s.; rates, taxes, &c., £88 10s. 2d.; lithographing and printing bonds, £147 2s. 6d.; plans, £64; contract for excavating site, and constructing western roadway and approaches, £57,800; constructing vaults, &c., and reforming roadway, £459 10s.; sundry works, £1 14s. 5d.; interest paid on loans, less allowed on balances in chamber, £10,525 10s. 9d.—total expenditure, £209,627 17s. 8d. The amount authorised to be raised is £250,000, of which £131,000 has been raised, leaving a balance to be raised of £119,000. The balance at present overdrawn is £15,462 17s. 8d. *City Press*.

— **FORCING FLOWERS IN GERMANY.**—Judging from what we read in the German gardening papers, it would seem that the Berlin florists are not keeping pace with those of other large cities, especially in the matter of providing the public with choice flowers in winter. The principal question under consideration at a recent meeting of *Die Gesellschaft der Gartenfreunde Berlin's* was, "What is to be done in order that Berlin, with her numerous intelligent gardeners, may effect that in Rose forcing which in Paris, London, Hamburg, and even in St. Petersburg and Moscow, excites our envy and admiration?" In the course of the discussion which followed upon this question it was submitted that many of the Berlin florists are not sufficiently enterprising to become specialists, hence the non-development of Rose forcing, &c., with the details of which many travelled Germans must be thoroughly acquainted. Florists were recommended to devote themselves to the cultivation of special plants on a large scale, and also to keep pace with the fashion. Certain flowers come into and go out of fashion like the cut of a coat or the style of a hat, but the Rose goes on for ever. Incidentally it was mentioned that a Berlin florist, through disregarding fashion, had lost a good order for a wedding. He had prepared everything, and procured a quantity of white Lilac (it was in winter), but Orange blossom was ordered, and Orange blossom alone would give satisfaction. The communications respecting Rose forcing in St. Petersburg and Moscow were specially interesting to the fraternity in Berlin,

and some of the particulars are not devoid of general interest. Mrs. Bosanquet, Mathilde, and Cramoisi Supérieure are the varieties chiefly grown for forcing, and Maréchal Niel is also in favour. One man alone forces from 70,000 to 75,000 plants annually. They are forced in narrow lean-to houses, with steep roofs and of a southern aspect. Although the roof is covered with ice almost continuously, the steepness of the roof prevents dripping. On account of the extreme cold the plants are not placed very near the glass, nevertheless they flower well. The principal thing the growers aim at is thorough ripening of the wood in summer. The result of the discussion was that the Society determined to offer a prize of £7 10s. for the best essay on Rose forcing, and call upon some of the most prominent gardeners of London, Paris, St. Petersburg, &c., to compete for it; it was also resolved to offer special prizes for the best and earliest Roses next winter. This is better than seeking protection.

— **THE BRITISH MUSEUM.**—It is stated that the botanical collections will be among the first to be removed to the new building at South Kensington in September next. We are glad also to see that greater facilities have been lately offered to the public in the matter of admission. While Kew is opened to the public every day in the year except Christmas Day, not even excepting Sundays in the case of the gardens, the Museum, which appeals to a much larger and more varied constituency, is still to be closed at intervals, which to outsiders seem unnecessary, but we must be thankful for any improvements in so conservative an institution. The Museum will now be open free to the public on every week day—Monday till Friday from 10 o'clock, and on Saturday from 12 o'clock till the ordinary hour of closing. Students of natural history will have Tuesday and Thursday reserved for their studies, students of archæology Wednesday and Friday. Thus the public will not again be refused admission to the British Museum, save on Sunday, Ash Wednesday, Good Friday, Christmas Day, and the first week in February, May, and October respectively, reserved for the cleaning of the departments.

— **KENDAL HORTICULTURAL SOCIETY.**—The annual flower show in connection with this Society will be held on July 17 and 18.

— **SOUTHAMPTON HORTICULTURAL SOCIETY.**—The seventeenth annual summer exhibition of this Society is announced to take place on August 2 and 4; and the third Chrysanthemum and Fruit Show on November 11 and 12.

— **THE WEATHER.**—We learn from the report issued by the Meteorological Office for the week ending February 17, that the weather was generally dull and wet, but with a few fine intervals during the early part of the week, especially in the more northern districts. The temperature was a little above the mean in "England, S.W." and "Ireland, S.," and about the mean in England, S., but rather below it in all other districts. The highest readings were at the beginning of the week, when the maximum varied from 40° in Scotland to rather above 50° in England and the south of Ireland. The temperature then fell gradually, so that by the end of the week the maximum varied from about 35° in Scotland and Central England to 45° or rather more in the southern and south-western districts, the minimum at the same time being a little below the freezing point in many parts of the country. The low reading of 25° in the Midland Counties occurred at Shrewsbury on the 13th. The rainfall was about the mean in "Scotland, W.," and a little below it in "Ireland, N.," but a few tenths above it in all other districts. At our more northern stations the fall was usually in the form of snow, and sleet was reported from some of the southern stations also on the 17th. An exceedingly heavy snowstorm occurred in "Scotland, E." on Sunday, the 16th; at Glenalmond the amount of snow when melted was as much as 1½ inch. The wind at the commencement of the week was generally light or moderate in force—northerly to north-easterly in Scotland, but south-westerly in the more southern districts. On the 13th strong southerly to south-easterly wind set in, blowing a moderate gale at some western and northern stations, and subsequently shifting to E. From the 15th to the 17th two distinct currents prevailed in our neighbourhood, viz., a north-westerly one in the west and south-west, and a south-easterly one in the north and north-east; both were strong, and the south-easterly one increased to a gale in the north-east and north on the 16th and 17th.

ERANTHIS HYEMALIS.

FEW flowers are there which are greeted with a keener welcome than this—the so-called Winter Aconite (fig. 34). The manner in which the palmately cut leaves thrust themselves up above the soil, their gradual expansion, and then the appearance of the modest flower itself begirt with its leafy collar, are sure to attract attention. Indeed the plant is not only welcome as a harbinger of spring, but its structure is at once pretty and interesting. First of all there is the involucre or collar aforesaid, then the sepals of the calyx, which in this case are yellow and irregular in number. Within them are placed the curious funnel-shaped petals, formerly styled nectaries, and which really do secrete a honied juice. Within these, again, are the very numerous stamens, and in the centre, uplifted on short stalks, the carpels, which are destined ultimately to ripen into seed-pods. Though called popularly Winter Aconite it has closer relations with the Hellebores, the so-called Christmas Roses, which, by the way, have nothing of the Rose about them but the name. The *Eranthis*, the Hellebore, the Aconite, the Larkspur, the Nigella, and the Pæony, all belong to the Buttercup family (Ranunculaceæ), a kinship not easy to detect by a beginner, but if he will look to the stamens and pistils he will see that in essential points all these plants agree, while in less essential particulars, calyx and corolla, there is considerable diversity, the Buttercup being regular, in this particular the true Aconite (*Aconitum*) presenting the maximum of irregularity.

The *Eranthis* is a native of the mountainous parts of Europe, and is well suited for growing in shrubberies and woodland walks, as it prefers shade to exposure. It is propagated by dividing its thick fleshy root-stock. It is sometimes forced, but to our thinking it is out of place as a forced flower.

Home Correspondence.

The Future of the Royal Horticultural Society.—In your report of the general meeting, February 11, you make me say we "ought to pay a rental subject to a division of profits." It is my fault no doubt that I have been misunderstood. I intended to say, and I certainly meant, that our payment of rent ought not to be mixed up with any contingency. There should be a definite payment, and if our incomes exceed our outgoings, the financial advantage should be wholly ours. Our non-payment of rent is a blotch on our scutcheon, and its blackness is but slightly diminished by the consideration that we were liable to pay only in the event of having a cash surplus. I do not forget how Major-General Scott, at an annual general meeting, hurled at the Fellows the reproachful words, "You don't pay your rent; and so long as you don't pay your rent you cannot expect from Her Majesty's Commissioners any consideration." The Society will not grow stout on such food as the "consideration" of the Commissioners, but it may acquire a measure of health by ensuring a definite arrangement as to rent, provided, of course, that, having taken that step, it can take the next and fulfil its obligations. *Shirley Hibberd*.

Quick Hedges.—I have had to do with some Quick hedges, and have seen many others that were considered well managed. It may help "Engineer" and others if I state how they were cared for. The best way of managing these fences is that carried out in some parts of Hertfordshire, where, after being planted, little is done to them beyond keeping them clean for the first few years till the plants have grown up some 6 or 8 feet, by which time the stems have attained sufficient strength and size to be used as stakes. Those intended for this purpose are selected at regular intervals apart, and trimmed closely up to the height required and then topped, after which the hedger commences at one end, and bends down the first piece he comes to, which he works in on alternate sides of the stakes in the same manner a dead hedge is made. By continuing on in this way a living wall, as it were, is built up, and one which time only makes stronger, as each season's growth adds to the size and fixity of the wood, and renders the whole more rigid and stable. I have seen fences formed after this plan that were so impenetrable as scarcely to admit of a rabbit getting through, but it matters not however good a hedge may be at starting if it is not properly looked to after, for should clipping or trimming at the right season be neglected it soon runs bare below—the tendency of all plants being to get away from restraint and make the strongest and best of their growth from the extreme terminal buds. Quickset is no exception to this rule, and that is why we see such wretched apologies for

fences around the fields and along roadsides, the plants standing in which are allowed to rush up of their own will, and form such heads as to stifle all the buds beneath that under proper treatment would be forced to break and furnish the base with shoots. The same thing occurs when a hedge is allowed to become foul with nettles and coarse weeds, or gets top-heavy through unskilled trimming, as then the bottom portion must of necessity become bare and naked, to keep which part well-furnished the only way is to have the fence wedge-shaped, and the sharper the apex the more dense and serviceable will the whole be. This of course applies more particularly to such as are planted and treated in the ordinary manner, that is, not laid in as touched on above, although in that case the top should always be kept as narrow as possible so as to expose the whole surface to the same share of light. The system of allowing Quick to run up, and cutting it down periodically, is an irrational one, as it serves no useful purpose, and the only explanation I ever heard of such a proceeding is, that the top afforded stuff to mend gaps with; but then with different treatment and a live plant stuck in in case of failure, there would be no gaps to mend. Putting in dead stuff is like using an old patch to repair a rent in a new garment, or worse, as the part in the hedge so filled up soon becomes larger and is a constant source of trouble and annoyance by opening a way of escape for cattle, and affording an easy road for intruders. In the formation of fences I never could understand why in light lands, where no ditches are required for the purpose of draining, huge banks should be thrown up preparatory to planting, and the Quick put in near the top of a sharp slope facing the sun perhaps, where, let it rain ever so hard, it is next to impossible that any of it can ever reach the roots. The evil, however, does not end here, as the bank fosters weeds and rubbish, and is just the home rats and vermin require, as the soil being always dry and warm, they breed at a great rate, and sally forth on the crops. Next follow ferreters, who have to be employed for their destruction, and these men dig and delve, tearing up all that comes in their way, when after a time what should have been a good serviceable hedge is no longer of use for the purpose required. Planted on the same level as the field, or nearly so, Quick grows at a great rate, and will make a strong durable fence in less than a quarter the time, besides which there is not nearly so much ground taken up and spoiled as when a ditch is dug out in addition. Any one having neglected hedges will find this a good time to take them in hand, and by trimming and laying them in after the way remarked on in the early part of this note, they will soon reap the advantage of the time and labour expended. In case of any of the stems being too large and stiff for bending, they may be cut part of the way through and then brought down, as the portion of bark on the under side will keep them alive and allow sufficient sap to pass to cause plenty of growth. Railway banks having a tendency to slip show that they contain a good deal of water at that particular part, and if so, Poplars or Willows planted and their tops kept cut would be a great help in holding the soil together, as would also any kind of shrub that makes a large quantity of roots. Seeing the vast surface of bare land by the sides of our railways, it is a great pity it is not utilised and turned to profitable account for growing fruit trees, such as Pears and Apples, the produce from which would after a time bring in a large revenue and help up the dividends of expectant shareholders. Even if this desired result did not take place, those who reside in our cities and towns and who seldom taste such things would be benefited, as the price at which they might then be purchased would place them within their reach. *J. S.*

Wintering Ferns.—The following may be of interest to some of your readers as showing with how small an amount of heat a large number of species of exotic Ferns can be kept alive if the fernery be properly constructed. Last summer I built a fernery 18 feet by 12 feet on to the end of an old-fashioned vinery heated by one course of 4-inch pipes only. As the floor of the vinery is about 3 feet higher than that of the fernery, as also is the boiler supplying the pipes, I could not take pipes into the fernery, and consequently resolved to try whether sufficient heat could be obtained by cutting a hole 2 feet square through the wall level with the pipes in the vinery. This plan has proved perfectly successful, and though the thermometer outside has been as low as 9°.4 (in a Stevenson screen and carefully corrected), yet in the house it has never been lower than 31°.5, and of 145 species of exotic Ferns, many of them reputed stove species, I have only lost twelve, and even of these some may have only lost their foliage and be alive at the root. This result, which far exceeds anything that I expected, I attribute to the construction of the house. In the first place the span-roof only is glass, and that is double, with, of course, a space between. The walls are 14 inches thick, with rough "burs" built in to form pockets from 4 feet above the ground upwards. Below this is rough rockwork made of large pieces of the common red sandstone of this

place, below which again is good soil mixed with small pieces of broken sandstone, and at the bottom of all broken bricks, &c., to secure good drainage. There is a pool of water at one end, which, however, was let off when the frost set in severely, and there is a pipe running round the walls pierced with holes for watering when required, and an arrangement for a spray-jet over the pool. Of course these are not used in cold weather. Ventilation is provided for by three oblong openings under the wall-plate closed by double shutters, those inside hinged at the bottom, and those outside sliding in grooves. I think it is clear from the above that anybody may have a first-rate fernery opening out of a living room without any means of heating except leaving the door open at night into the room and keeping up the fire in the room provided the house is constructed as above. [How about damp?] The pipes for watering and spray-jet are not only not necessary but may easily do more harm than good. I forgot to say that the roof was covered with shading of thin canvas, and partially also with mats during the severest weather when there was no snow on the roof. I could send a list of the Ferns if required, and should add that as the house was only planted in the first week in September the plants had barely time to get established. *Alfred O. Walker, Chester.*

Hardiness of Gardenia Fortunei.—In a winter such as this, when the frost for duration and severity is so excessive, every one who has an interest in gardens and pleasure grounds is noting with careful anxiety what will be its effect on trees and shrubs of recent introduction, as well as on those which are already known to be of a somewhat tender constitution. I have no doubt it may surprise some, as I know it did me, to find that this plant, usually grown in a warm temperature, will remain alive and healthy through a greater degree of cold and ill usage than many of our common shrubs. Some time about the end of November, when re-arranging our stove, a plant of *Gardenia Fortunei*, about 3 feet high and growing in a 10-inch pot, had become very badly infested with brown-scale. We decided to get rid of it, so taking a few cuttings we pitched the unclean thing on to the rubbish-heap, never expecting to take any further notice of it. About six weeks afterwards, when the ground was bound hard with frost and the foliage of plants was drooping all around, one of the men observing what appeared to him a branch of Portugal Laurel, had the curiosity to go down the bank and look at it, and subsequently came to me with the announcement that the plant of *Gardenia* which we had thrown away was the freshest evergreen about the place even though the ball was lying exposed or only covered with a few inches of snow and frozen as hard as a stone. I went to examine it, found his statement correct, and determined that since it had done so well, I would test its endurance still further by letting it remain while the storm lasted. I only brought it up a few days ago quite green, I had almost said growing, and intend as soon as the frost is sufficiently out of the ground to plant it in a prominent part of the garden, where I hope it will attain to a handsome bush and be a greater credit to us both for flowering and cleanliness than it ever appeared when more gently nurtured. *Alex. Scott, Auchendennan, Dumbartonshire.*

Who was the Raiser?—The discussion as to the paternity of the Schoolmaster Potato resembles very much the old question "Whether is it the hen who lays the egg, or the hen who hatches it which is the mother of the chicken?" It is recorded that this subject had been hotly debated one evening in a nigger debating club, with the result that the votes were equal on both sides. The President decided by his casting vote that "the hen who hatched the chicken was the mother thereof." A nigger who had been listening to the debate put the question "Suppose they was ducks eggs?" This upset the President's theory, and put matters in a new light, forever settling the momentous question of chicken maternity. It is said that the President, in order to get out of the fix of having voted the wrong way, ruled "Hens eggs am de question, not ducks eggs." *Pict.*

Vines Bleeding.—On taking charge of these gardens on March 4 last I found a late vinery with strong canes of the following kinds:—Lady Downe's, Gros Colmar, Black Alicante, Black Hamburg and Pearson's Golden Queen, of which the three first-named were bleeding, and three days later every Vine began to bleed rapidly. Not knowing a better remedy than starting the Vines into active growth I did so, and the bleeding ceased in a fortnight. They broke very weak, but with plenty of feeding soon began to gain strength, and bore a hardy and well-finished crop, some bunches weighing from 7 lb. to 8 lb. per bunch, at the same time making strong and vigorous growth which ripened well; but thinking I may still have done better had not the bleeding taken place, to stop that evil this season I pruned early and dressed wounds with "knotting," which I have proved to be

as effectual as any styptic. I do not as yet see any signs of bleeding, nor do I want to. *G. Williams, Peasmarsh Place, Peasmarsh, Sussex.*

Autumn Planting Evergreens.—After the winter we have just passed through it would be interesting to hear what the advocates of autumn transplanting of evergreens have to say now in its favour, and how any shrubs operated on at the end of summer now look and are likely to do. The experience of most of us so far is that established plants have had a hard time of it, and judging from this, those disturbed and which had to face the cold weather with the loss of a portion of their roots, must have fared worse, and if alive, are struggling on for existence. It is, however, yet early to count up the loss of killed and wounded, as many, no doubt, that are hard hit will hold on a little longer, although they will have

sure of a gathering in one or other of the houses, and from one or other of the sorts. We only grow President and Vicomtesse Héricart de Thury, as we find these two to be everything we wish. It used to be a general practice to place saucers under the pots, not exactly to keep them filled with water for the plant's benefit, but to save water, for formerly gardens were not so well supplied with water as they are now. I have no doubt in some positions saucers are still in use and useful in keeping, if for nothing else, the drip from the plants beneath, but where the shelves are conveniently situated I prefer no saucer, but simply the pot filled with water once or twice a day, as required. The dirty practice which some writers advise for Strawberry fruiting on shelves, such as employing saucers with holes in them, and filling these saucers with soil and manure, is enough to disgust employers who see the filth this practice must cause, and not only this,

from frost, but from the wilful inclination of some to damage them unnecessarily in the vain and imaginary idea of improving the fruit by such means. *Chevalier.*

Peach Trees Injured by Wire.—There is here a cold lean-to Peach-case in which the trees are trained to a horizontal wire trellis on the back wall, and up 3 feet of the front at 9 inches from the glass I seldom find the wood injured on the wall, but every bit of young growth that touches the wires in front is affected in the same way as enclosed specimens. The reason I assign for it is that the wire being nearer the glass and more exposed to the sun becomes sufficiently hot to injure the wood when young and tender. Have any of your correspondents noticed a similar circumstance? *G. Fennell, Fairlawn, Tonbridge.*

Mottos in Gardens.—All visitors to the late Mr. Smee's garden at Hackbridge will remember the pleasure with which Mr. Smee used to point to a certain stone on the croquet lawn, inscribed, "IN LUCEM, LUCRUM, LUDUM." Mr. Smee used to say that he had seen many similar stones, but with different mottos, elsewhere; but I do not remember having seen many such. The following curious inscription is copied from a stone which once was placed in the gardens at Llanidan, Anglesey:—

HOMO { LOCATUS IN
DAMNATUS EX
HVMATUS IN
RENATUS IN } HORTO.

W. G. S.

Peach Blossoms Destroyed by Ants.—I have often been troubled by these pests on Peach trees; but for several years back have had no trouble in getting rid of them. I take 8-inch pots and place some moss in them with a small quantity of honey or jam mixed with the moss, then place the pots near the bottoms of the trees, and in a very short time the moss will be covered with ants; take the pots away and empty them into the fire, or into boiling water. Keep on in this way for several days, and the ants will soon be very few. *J. Webster, Gr., Lilies, Aylesbury.*

An Orchid-house.—During the dull days of our dreariest winter my Orchid-house has been aglow with the following varieties of form, colour, and fragrance:—

| | |
|---|---|
| <i>Aerides cylindricum</i> (very beautiful) | <i>Cypripedium Harrisonianum</i> |
| <i>Vanda Cathcarti</i> (very curious) | " <i>Roezlii</i> |
| " <i>tricolor</i> Dodgsoni | <i>Epidendrum cochleatum</i> |
| " " <i>plaiilabris</i> | " <i>odoratissimum</i> |
| <i>Phalaenopsis Schilleriana</i> | <i>Ornithidium Sophronitis</i> |
| " <i>amabilis</i> | <i>Sophronitis grandiflora</i> |
| " <i>grandiflora</i> | " <i>violacea</i> |
| <i>Angraecum sesquipedale</i> | " <i>coccinea</i> |
| " <i>superbum</i> | <i>Oncidium ornithorrhynchum</i> |
| " <i>eburneum</i> | " <i>Insleyi leopardinum</i> |
| " <i>virens</i> | " <i>cuscutatum</i> |
| <i>Dendrobium speciosum</i> Hillii | " <i>Barkeri</i> |
| " <i>Wardianum</i> | " <i>Phalaenopsis</i> |
| " <i>crassinode</i> | " <i>nubigenum</i> |
| " <i>teretifolium</i> | " <i>Rogersii</i> (true) |
| " <i>heterocarpum</i> | " <i>varicosum</i> |
| <i>Cattleya marginata</i> | " <i>fuscum</i> |
| " <i>Trianæ flammea</i> | " <i>cheiroporum</i> |
| " <i>bulbosa</i> | " <i>Cavendishianum</i> |
| <i>Lælia autumnalis</i> | " <i>murinum</i> (curious, not pretty) |
| " <i>anceps</i> | " <i>flexuosum</i> |
| " <i>furfuracea</i> | <i>Masdevallia polysticta</i> |
| " <i>Dayana</i> | " <i>melanopoda</i> |
| " <i>superbiens</i> | " <i>amabilis</i> |
| " <i>albida</i> | " <i>ignea</i> |
| <i>Odontoglossum crispum</i> | " <i>Har.yana</i> |
| " <i>Bluntii</i> | " <i>chimæra</i> |
| " <i>Pescatorei</i> | " <i>Lindeni</i> |
| " <i>nebulosum candidulum</i> | <i>Saccolabium Harrisonianum</i> |
| " <i>citrhosum</i> | <i>Helcia sanguinolenta</i> |
| " <i>roseum</i> | <i>Neottia picta</i> |
| " <i>Rossii majus</i> | <i>Brasavola glauca</i> |
| " <i>grande</i> | <i>Bletia hyacintha</i> |
| " <i>leopardinum</i> | <i>Zygopetalum species</i> |
| " <i>triumphans</i> | " <i>Mackayi</i> |
| " <i>madrense</i> | <i>Restrepia species</i> |
| " <i>bictoniense</i> | <i>Ceologyne media</i> |
| <i>Calanthe Veitchii</i> | " <i>cristata</i> |
| <i>Cypripedium niveum</i> | " <i>elegans</i> |
| " <i>Boxalli</i> | <i>Mesospididium sanguineum</i> |
| " <i>venustum</i> | " <i>vulcanicum</i> |
| " <i>villosum</i> | <i>Lycaste Skinneri</i> |
| " <i>Lowii</i> | <i>Maxillaria grandiflora</i> (true) |
| " <i>barbatum nigrum</i> | " <i>sanguineum</i> (bought as grandiflora) |
| " <i>insigne</i> Maulei | |

Edward W. Cox, Moat Mount, Mill Hill, Feb. 17.

Classification of Gardeners for Exhibition Purposes.—I have read your article on this subject, and am glad you invite discussion, as I am convinced by experience that the grievance is real and not a fancied one, more especially in the case of defining an amateur. In the case of gardeners I have seen various methods of exhibiting, but hitherto have found none to work better in practice than providing large and small classes for the same subject, which gives both large and small growers an opportunity of competing; but, as you point out, this is open to objections. As a case in point I have heard it observed that A., with a large place and commanding plenty of labour, ought not to compete in the smaller class with B., who has a small place, and may be single-handed,



FIG. 34.—ERANTHIS HYEMALIS, OR WINTER ACONITE.

to succumb in the end. Even Rhododendrons, enduring as they are in places where exposed, looked scorched in the leaf, and have many buds browned, so that the bloom, which at one time promised to be so abundant, will, I fear, be scant, as in putting some in to force I find they drop off after being in heat a short time. *J. S.*

Strawberry Forcing.—The Strawberry forcing season is now come to hand, and a few words with regard to its present necessities may be timely to some and not unacceptable to others. Strawberry forcing in most cases is a kind of catch crop, that is to say, all sorts of houses are used for the purpose, and no special house is devoted to it entirely. The pots are generally placed on shelves at the back and front of houses, Pine-stoves, vineries, Peach-houses, plant-houses, &c., and I may say here, after having to do with most ways, I prefer this mixed and varied way of distributing Strawberry plants, for we are always

but extra labour is devolved on the men, that is to say if cleanliness is looked to as part of the enjoyment of a garden. Turning the pots up and making the holes bigger with a hammer, is, to say the least, a piece of vandalism, damaging as it does the pots, and unfitting them entirely for other purposes, even if they withstand the shock of the hammer. If Strawberries are properly grown the previous year, they require no other root-room but what is still in the pot; if fed judiciously with weak manure-water, but very weak, this is ample for their wants. If I were to begin Strawberry culture to-morrow, I would not purchase a saucer for them more than what was really wanted—that is, in plant houses, where the shelf is over choice plants, and then, what water is collected in the saucer should the next day in watering be emptied out or put on the next plant that is dry. The cost of pots in a garden is a heavy item, even with the greatest care—and too much care, it is needless to say, cannot be taken not only to keep them

when in reality B. has more opportunities in the small place of competing successfully in certain classes than A. has in a much larger place, as in the large place it generally happens that a gardener has to provide a large household with a constant supply of fruit, flowers, and vegetables, with a limited quantity of glass; while in the smaller place it happens as often that the employer (as well as the gardener) is an enthusiast, and spares no reasonable expense in producing good plants and flowers, leaving the supply of other produce to the local greengrocer. These remarks apply chiefly to suburban societies, and as I have been a committee man of two suburban societies for some few years, I am speaking from actual experience and not from fancy. Although great difficulties present themselves in attempting to classify gardeners, the difficulty in defining an amateur is, I think, still greater. Speaking of the amateur you say (p. 178), one "who actively superintends, and in a great measure grows his own plants." Here is the difficulty. To what extent does he superintend or grow them? An amateur, who is an enthusiast, and allows no other person to touch his plants, may produce some moderate specimens, while another may have a love for flowers, but leaves the management of them almost entirely to a gardener, who attends three, four, or five days per week, or, what frequently happens in suburban places, a man attends certain hours in each day, to water, ventilate, and otherwise attend to the plants. If both these come under the designation of amateur, surely they do not compete on equal terms. But if in making a schedule an amateur was defined as a person not employing a gardener the question would arise, What is a gardener? which would prove more difficult to decide than the other, and, as a matter of course, it would prevent the greater part of them from competing at all. As you well know, there is a large class of persons in the suburbs of the metropolis who have an increasing love for flowers, but it would be absurd to expect them to dig their own garden, or generally to sweep and keep it clean. A case has very recently come under my own observation which proves the difficulty of defining an amateur. A., an amateur enthusiast competed for a silver cup; B., an amateur, also competed, and carried off the cup. In this case the schedule defined an amateur as a person not employing a regular gardener. A. employed a labourer, as he terms it, on an average of one day per week, but not to grow his plants, while B., the winner, employed a gardener several days per week who really grew the plants, and as a matter of course the case caused a little dissatisfaction. But what is to be done? Recently, in framing a schedule, it was adopted by a majority that the definition of an amateur should be a person not employing a gardener more than one day in each week, but I am afraid that this will not work well in practice. Meanwhile, I hope to get some light thrown on the subject through your pages. *R. Watson, Gr. to T. H. Bryant, Esq.*

Hardy Plants for the House.—Three very useful plants for a severe season like the present are *Reineckia carnea* and *Ophiopogon fol. aureis*, both liliaceous plants, and *Carex japonica* var., all with grassy leaves, nearly hardy, and the last as easily increased as *Dactylis glomerata*. For fringing at intervals a group of large plants, or dotting through a basket of round or flat-growing *Primulas* and *Pelargoniums*, they are very useful, giving with their linear, ensiform leaves the point that is wanted, and the variegated forms are most attractive. It is a great risk to bring stove or even greenhouse plants into rooms and entrance-halls in such weather as we have experienced the last two months, and it is much safer to use plants like those three I name than risk a narrow-leaved *Dracena*, *Cordylina*, or *Beaucarnea recurvifolia*; but, alas! *Carex* is a Sedge, of small money value, and a plant everybody might have, therefore it is not acceptable to that class of plant purchasers (neither lovers nor growers of such) who judge of a plant by its price, novelty, or fashion. Mr. Mackenzie, the manager of Methven's florist and decorative plant nursery, told me he had had to give up the growing of this *Carex*; his customers had found out it was merely a sedge, not fit therefore for their drawing-rooms; nevertheless, *Carex japonica* var. should be a Covent Garden plant. I have seen it do well in London rooms. Well-grown single plants are graceful and arching, most enduring, and never unsightly. I observed a good stock at Rollison's nursery at Tooting a few weeks ago. Sedges are not grown for their flowers, but the bloom-spike of *C. japonica* is interesting and useful. For ornamental purposes it and *Luzula* (Wood Rush) are perhaps the two earliest flowering grasses (using that word in a vague manner). *Ophiopogon* has a pretty lilac flower-spike. One has to be patient in increasing it, for the fleshy roots are slow of growth, and caution is required in cutting up a plant. *Reineckia carnea* I have never seen in flower, but it is easily propagated, and the flowers are fragrant I believe. If not much mistaken I have seen this plant in Italy used as a

Box edging, and as grass under trees, notably at Venice, where anything green or grass-like is a treat to the eyes; the so-called garden of one of the palaces was carpeted with *Reineckia* (the green form), but I must own I was not in the garden, but merely looked down from the windows upon green vegetation. Anyway it is a most persistent plant, bearing the extremes of heat, dryness, and cold, this last being the point at present I want to bring forward. *Phoridium tenax* for a large grower of the same sort of character has been invaluable this winter, and *Helleborus foetidissimus* makes a perfectly hardy substitute for a little Palm, or *Aralia*. Where old clumps are left undisturbed there are sure to be nice seedlings to select from, particularly if singled out and given room to form tidy shapely plants, before lifting and potting. I observe there is no use in giving the specific name, so I just call it a sort of Christmas Rose when obliged to confess it is neither a dark green miniature *Aralia* nor a Palm. When winter bedding was our hobby we found the seedlings very ornamental, either as an edging or as dotted plants. I must not forget the variegated *Iris foetidissima*, also useful in saving soft-leaved plants that in ordinary winters we would surely bring into the house. Here again the beautiful bunches of orange seeds are more acceptable, when called the fruit of the wild *Iris*, than the fetid. All the *Roses* of Shakespeare's time were sweet, and his hackneyed line was true then; but I am sure we persist in trying to find fragrance in hundreds of our coarse (excuse the word) double hybrids where no sweetness exists: but are not they *Roses*? And must not *Helleborus* and *Iris foetidissima* be banished on account of that name, which has no meaning in winter at least, when both plants are innocuous, and so useful and ornamental? *F. G. Hope, Wardie Lodge, Feb. 1879.*

The Winter Aconite.—This old friend appeared in my garden on the 9th of this month, but in 1878 on January 15; this of course is due to the winter being rather severe. I have the *Primrose* peeping out, thus showing some of our old friends do not forget to visit us. Mr. *Snowdrop* appeared January 23, 1878, and he will have a good welcome this season. *J. M., Bagshot.*

Lily of the Valley.—I have sent you some samples of *Lily of the Valley* (imported crowns) which have been plunged in bottom-heat for ten weeks. Thinking the crowns were extra fine, I purchased a large quantity from one of the chief seed-houses in Dublin, and potted ten or twelve crowns into 6-inch pots. I have for the last ten weeks tried to force them in various ways, some in bottom-heat of 75° or 80°, some standing immediately on the pipes. Here and there an isolated crown has started and invariably been blind. Have any of your correspondents experience with "single imported crowns"? or could you elucidate the mystery? *E. K.* [The late Mr. John Standish had a similar experience a few years ago, and satisfied himself that the cause was not owing to any defect in the crowns, but to the want of a sufficient supply of moisture in the atmosphere as well as at the roots. In this case we can scarcely think the roots are at fault, for they appear to be unusually good, and we should rather incline to think that our correspondent's treatment in the matter of moisture has not been liberal enough, and consequently the plants have become stubborn. *EDS.*]

The Effects of the Frost.—I herewith hand you a few particulars of the results of the late winter here. Our lowest temperature was 25° of frost. On several occasions we had 13°, and for seven weeks we hardly ever saw the sun. All the *Broccoli* and winter greens are destroyed. The *Rhododendrons* are not hurt, they are full of plump and perfect bud. *Sciadopitys verticillata* also seems very slightly injured. *Picea concolor* and *Picea concolor violacea*, perfectly hardy. *Tea Roses* on south wall damaged severely. *Magnolia grandiflora* and *conspicua* slightly damaged on same wall and situation, while M. Campbell proves itself thoroughly hardy on an east aspect. On this wall we planted some *Camellias* as an experiment; they had slight protection, and seem to have suffered no harm, the leaves and flower-buds being perfectly sound. *Berberis stenophylla*, *Darwinii*, &c., showing millions of bloom-buds, perfectly hardy. *Ilex crenata latifolia*, and *diphyrea*, *Ligustrum coriaceum*, *Laurustinus*, *Aucuba*, *Wellingtonia*, and *Arbutus*, are quite free from bad effects. *Eucalyptus*, killed. Slightly damaged: *Othya japonica*, *Skimmia japonica*, *Raphiolepis ovata*, *Mahonia Fortunei*, *Garrya elliptica*, *Olearia Haastii*, *Colletia cruciata*, *Viburnum plicatum*. *William Payne, Gr. to John Marshall, Esq., Belmont, Taunton.*

— Though it is too early to speak with any assurance, I am happy to inform you that at present there are no symptoms of any injury caused by the lengthened frost and very low temperature, which was here as low as 3°.2 of frost. One correspondent from the South of Ireland has spoken of *Pinu-*

canariensis as being injured; here, under more unfavourable circumstances, it has apparently escaped. The *Arthrotaurus selaginoides* has had some side points injured, but the leader of the plant seems quite unhurt. The *Deodara apicibus albis* I have lost, but it has never been in a healthy condition. The *Picea religiosa* and *Pinus Devoniensis*, both of which have the reputation of being tender, have at present stood well. I hope that I may be able to report about the end of March that the winter of 1878-79 has had as little effect upon us as the winter of 1866-67 and 1870-71. On the latter occasion the thermometer was 4° lower than the lengthened cold we have just experienced. *W. Parker Hamond, Pampesford Hall, Cambridge.*

The Schoolmaster Potato.—The following testimonial from Mr. Douglas appears at p. 164:—"I had two tubers from a friend about two years ago, and from those two tubers I have this day dug 60 bushels." I presume there must be a printer's error in the above statement; if not, will Mr. Douglas kindly detail his mode of culture, for the benefit of your readers—how to procure such enormous returns? *O. Thomas, Drayton Manor.* [In discussing the merits and demerits of certain Potatoes in this journal about the end of last year a letter was received by me from one who took a prominent part in that discussion, to the effect "that I held a brief from Mr. Chas. Turner, of Slough, to rub Schoolmaster up and International down." This aroused my indignation for the moment, and I wrote at once to Mr. Turner stating the facts, and also saying that I had not given the result of my trial of Schoolmaster Potato in the *Gardeners' Chronicle* lest it would look like boasting. The result I gave to him privately, without any thought of his using it again. Mr. Turner asked permission to use my letter, which I at once gave him liberty to do, in the full belief that I had explained that the two tubers were planted, the produce of these two saved and then planted; that produce being cut by our women and planted in the fields in the usual way, giving a produce of 60 bushels. I trust no one thinks that I intended to deceive the public, indeed I could not have done so, as the result of our trial was as well known to my employer and others as it was to me. I must also state that I quoted from memory, except the amount of the produce, which was weighed in the presence of myself and others. I may also say that the produce from Schoolmaster, after being carefully weighed, and the ground measured as carefully, gave over 11 tons of Potatoes per acre. It is perhaps as well to say that I did not have any tubers of Schoolmaster sent for trial from Mr. Turner, and that he did not ask me for the testimonial. *J. Douglas.*]

Cœlogyne cristata.—I have a plant of this beautiful and useful Orchid, *Cœlogyne cristata*, growing in a small pan 12 inches in diameter, with twenty-one spikes of flowers, and six flowers on each spike. I consider *Cœlogyne cristata* and *Dendrobium nobile* two of the most useful Orchids we have, either for cutting or decoration. *W. Driver, Standish House, Stonehouse, Gloucester, Feb. 18.*

How to Heat a Small Conservatory.—I have a window conservatory about 8 feet high, 4 feet deep, and 6 feet wide, from which I have been successful in keeping out the frost this winter, and without any apparent injury to the plants, by means of a small gas-stove placed in the centre, a vessel of water being kept constantly supplied on the top of the terra-cotta dome of the stove. I fancy that the moist atmosphere thus generated has counteracted the otherwise injurious effects of the gas. Perhaps this fact may be of interest to some of your readers. *R. H. N. B.*

Pot Vines for Late Work.—Having erected a range of glass last spring I was anxious to have some Grapes, and purchased a considerable number of pot Vines, principally late sorts—*Lady Downe's*, *Alicante*, &c., with a few *Black Hamburg*, all of which have done remarkably well. Many of the canes bore from eight to twelve bunches of average size and good finish. On New Year's Day four bunches were cut, including two *Black Hamburg*, all plump and firm; and yesterday we cut the last two bunches of *Black Alicante* equally fine. Is it usual for pot Vines to do so? [They have done no more than might have been expected of them.] When the Vines were received the bottoms of the pots were knocked out and the pots plunged between each of the permanent Vines, and the rods trained up the rafters. *Ross Hall, near Glasgow, Feb. 11.*

Winter Dressing Peaches and Vines.—"J. S." tells us at p. 119 that he does not consider a dressing impedes the progress of Vine or Peach buds. At p. 211 he tells us he dresses the main stems and trunks only, thus leaving the parts bearing the fruit-buds untouched. Well, that explains a great deal. During the present winter I have had to deal with

Peach trees infested with scale on the young wood, that is, the fruit-bearing parts. "J. S." leaves us in the dark as to what should be done in such a case. As regards his statement whether dressing retards the progress of buds or not is not of much moment, to me it appears—as I have had a little experience in the matter—a novel statement. I will only add, if I have again to deal with Peach trees infested with scale, or even Vines with thrips, I shall try "fiddling" with soap and water in preference to "fiddling" with clay. *W. H.*

Orchids in Flower at the Hall, Stamford Hill.

—In the East Indian house here panicle after panicle of the beautiful mauve-coloured *Phalenopsis Schilleriana* may be seen in company with the chaste *P. grandiflora*. These plants were all growing in teak baskets, with very little compost around them, and as they require more root-room they are simply dropped, baskets and all, into other teak baskets just large enough to receive them. The two baskets are then made fast to each other by means of a bit of copper wire. The roots take readily to the new teak, and, says Mr. May, the plant receives no check by the operation. In the *Dendrobium-house* is a fine plant of *D. Ainsworthii* in flower, and in the next, a cooler house, *Lælia anceps Barkeri*. *G. W.*

The Late Mr. Galloway.—You noticed, a few weeks ago, the melancholly death, through mental derangement, induced in part by the failure of the Glasgow Bank, of Mr. George Galloway, of the firm of Galloway & Graham, of Glasgow. I grieve to say that he has left a wife and five children, the eldest under thirteen, entirely unprovided for. A fund has been started, of which the Provost of Helensburgh is treasurer, for their relief. As one who knew and respected him in his better days, I have undertaken to do what I can for his family; and should any of the readers of the *Gardeners' Chronicle* be willing and able to assist, I should be thankful to receive subscriptions at the Horticultural Club, 37, Arundel Street; or they may be left with the hall porter. The following sums have been promised:—*J. McIntosh, Esq., £5 5s.; Mr. George Paul, £2 2s.; Rev. H. H. D'Ombra, £1 1s. H. Honeywood D'Ombra, Westwell, Ashford, Kent.*

Early Camellias.—Advantage should be taken of any plants being thin of bloom-buds to get them into moist heat, where they can be frequently syringed to encourage growth to commence at once, as, although they will bear and enjoy a high temperature in spring, forcing, or any attempt at it, in the autumn is sure to result in failure. Camellias appear as if they would have their own time, in which respect for plants they are very peculiar, and show their resentment in a most unmistakable manner at any abridgment by refusing to carry their load. *J. Sheppard, Wolverstone.*

The Rainfall at Cobham.—I send you an account of the rainfall for each month of last year. The rain-gauge is one of the Glaisher form, and is read each morning at 9 o'clock. It would, I think be not uninteresting if some of your correspondents would give us some statistics of the practical side of rainfall observations—I mean the provision made for the storage of water. Water supply is a question of increasing importance, and one which affects all interests:—January, 1.01 inch; February, 1.34; March, 0.84; April, 2.73; May, 4.01; June, 1.90; July, 0.71; August, 3.88; September, 1.32; October, 2.26; November, 3.48; December, 1.57; total, 25.05 inches. *J. Bailey Denton, in The Storage of Water (1874),* says:—"Every inch of rain falling on an acre of space supplies 22,622 gallons of water." *H. Noel Waldegrave, Bookham Lodge, Cobham, Surrey.*

The Weather.

LONDON: Barometer.—During the week ending Saturday, February 15, in the vicinity of London the reading of the barometer at the level of the sea decreased from 29.59 inches at the beginning of the week to 28.86 inches by the afternoon of the 10th, increased to 29.91 inches by the evening of the 12th, decreased to 29.51 inches by the morning of the 14th, increased to 29.63 inches by the morning of the 15th, and decreased to 29.40 inches by the end of the week. The mean daily readings were considerably below their averages on every day in the week, the amounts in defect being as follows:—9th, 0.62 inch; 10th, 1.05 inch; 11th, 0.84 inch; 12th, 0.20 inch; 13th, 0.30 inch; 14th, 0.44 inch; 15th, 0.52 inch. The mean reading for the week at sea level was 29.41 inches, being 0.26 inch below that of the preceding week, and 0.57 inch below the average.

Temperature.—The highest temperatures of the air

observed by day varied from 52½° on the 10th, 52° on the 9th, and 50½° on the 11th, to 41½° on the 15th; the mean value for the week was 47½°. The lowest temperatures of the air observed by night varied from 34½° on the 12th, and 36° on the 13th, to 46½° on the 9th, and 44° on the 10th; the mean value for the week was 39½°. The mean daily range of temperature in the week was 7¾°, the greatest range in the day being 11½° on the 11th, and the least 4° on the 15th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—February 9, 49° 4, + 10° 3; 10th, 47° 3, — 8° 3; 11th, 44° 5, + 5° 5; 12th, 38° 8, — 0° 1; 13th, 39° 3, + 0° 4; 14th, 44° 3, + 5° 5; 15th, 39° 3, + 0° 3. The mean temperature of the air for the week was 43° 2, being 4° 3 above the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 93° on the 12th, 73½° on the 11th, and 70½° on the 9th; on the 13th the reading did not rise above 45°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 32° on the 12th and 34° on the 13th; the mean of the seven lowest readings was 38°.

Wind.—The direction of the wind was S.W. and S.E., and its strength moderate.

The weather during the week was dull, mild, and wet. The sky was very cloudy.

Rain fell on five days during the week, the amount measured was 1.32 inch.

ENGLAND: Temperature.—During the week ending Saturday, February 15, the highest temperatures of the air observed by day were 57° at Cambridge, 55° at both Leicester and Norwich, 54½° at Bristol, and 54° at both Sheffield and Hull; the highest temperature of the air at Sunderland was 44°; the mean value from all places was 52½°. The lowest temperatures of the air observed by night were 29½° at Wolverhampton, 32° at both Hull and Nottingham, 32½° at both Sheffield and Liverpool, and 33° at Leicester; the lowest temperature of the air at Truro was 39°, and at Brighton was 37°; the mean value from all stations was 34°. The range of temperature in the week was the least at Sunderland, 9°, and the greatest at Wolverhampton, 23½°; the mean range of temperature from all places was 18½°.

The mean of the seven high day temperatures was the highest at Truro, 51½°, Plymouth, 50½°, and Bristol, 48½°; and the lowest at Sunderland, 40°, and Hull, 43½°; the general mean from all places was 46½°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 35°, Liverpool and Hull both 36°, Bradford 36½°, and Leeds and Sunderland both 36½°; and the highest at Truro, 43½°, and Plymouth, 42½°; the mean from all stations was 38½°. The mean daily range of temperature in the week was the least at Sunderland, 3½°, and the greatest at Wolverhampton, 12°; the mean daily range from all places was 8°.

The mean temperature of the air for the week from all stations was 42½°, being 1½° higher than the value for the corresponding week in 1878. The mean temperature was the highest at Truro, 47°, and Plymouth, 46°; and the lowest at Sunderland, 38°, and Hull, 39½°.

Rain fell on every day in the week at Bristol, and on five or six days at most other places. The heaviest falls were 2.10 inches at Truro, 1.37 inch at Bristol, 1.35 inch at Cambridge, 1.32 inch at Blackheath, and 1.25 inch at Brighton and Bradford; and the least falls were 0.37 inch at Leicester and 0.44 inch at Liverpool; the average fall over the country was 1.06 inch.

The weather during the week was dull and mild, with frequent rain, and the sky was very cloudy.

A very slight fall of snow was reported at Cambridge on the 15th inst.

SCOTLAND: Temperature.—During the week ending Saturday, February 15, the highest temperatures of the air varied from 44½° at Glasgow, and 43° at Perth, to 39½° at Edinburgh and Leith; the mean from all places was 41½°. The lowest temperatures of the air varied from 27° at Perth, and 28½° at both Dundee and Aberdeen, to 32½° at Glasgow; the mean from all places was 29½°. The mean range of temperature from all stations was 12°.

The mean temperature of the air for the week from all stations was 36°, being 6½° lower than that of England, and 3½° lower than the corresponding week in 1878. The highest were 38° at Glasgow, and 36½° at Leith; and the lowest were 34½° at Perth, and 35½° at Edinburgh and Greenock.

Rain.—The heaviest falls of rain were 1.64 inch at Perth, and 1.20 inch at Dundee, and the least falls were 0.13 at Aberdeen, and 0.33 inch at Leith; the average fall over the country was three-fourths of an inch.

DUBLIN.—The highest temperature of the air was 50°, the lowest was 31½°, the range was 18½°, the mean was 42½°, and the fall of rain 0.66 inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON FOR THE WEEK ENDING WEDNESDAY, Feb. 19, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|-------|------------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | | | |
| Feb. 13 | 29.49 | — 0.30 | 41° 0 | 36.1 | 7 9 | 29.3 | + 0.1 | 76.5 | 99 | S.S.E. In. 0.0 |
| 14 | 29.37 | — 0.44 | 38° 3 | 40.9 | 7 4 | 33.3 | + 5.5 | 42.1 | 93 | S.E. 0.1 |
| 15 | 29.29 | — 0.52 | 41° 3 | 37.2 | 4 1 | 39.0 | + 0.3 | 37.1 | 94 | S.E. 0.0 |
| 16 | 28.92 | — 0.87 | 42° 3 | 35.5 | 6 8 | 38.6 | — 0.1 | 35.3 | 83 | S.E. 0.2 |
| 17 | 28.81 | — 1.01 | 42° 0 | 31.5 | 10 5 | 36.6 | — 2.1 | 33.5 | 89 | W.N.W. 0.1 |
| 18 | 29.07 | — 0.74 | 40° 2 | 29.0 | 11 2 | 34.2 | — 4.6 | 32.6 | 94 | W.N.W. 0.0 |
| 19 | 29.20 | — 0.62 | 45° 8 | 32.2 | 13 6 | 38.5 | — 0.3 | 32.0 | 78 | W.S.W. 0.1 |
| Mean | 29.16 | — 0.65 | 43° 4 | 34.6 | 8 8 | 38.6 | — 0.1 | 35.7 | 92 | S.E. 0.0 W.N.W. 0.6 |

Feb. 13.—Overcast and dull throughout. Frequent rain after 11 A.M. Cool.
— 14.—A fine day, partially cloudy. Mild. Rain fell before 9 A.M.
— 15.—Overcast, dull day. Cold and damp. Miserable.
— 16.—Dull, very cloudy till 9 P.M. Rain fell in morning and evening. Cloudless after 9 P.M.
— 17.—Overcast and wet till noon; fine till 5 P.M. Overcast and wet till 9 P.M.; fine after 9 P.M. Sleet fell at 8 A.M. A cold day.
— 18.—A fine morning. Dull and cloudy rest of day. Occasional showers. Cold. Rain fell in early morning. Slight hoar-frost.
— 19.—Dull and wet before 9 A.M., then fine and bright till evening; overcast afterwards. Rain and snow at 8 P.M. A cold day.

Note.—The mean reading of the barometer for the fourteen days ending February 19 was 29.18 inches, being no less than 0.62 inch below the average.

The mean reading of the barometer at 9 A.M. this morning (Thursday) was 28.95 inches.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much. BACON.

GARDEN PRODUCE BOOK.—Where can I purchase a well-arranged memorandum book for recording the amount of garden produce sent into the house for use? *J. S.*

GOULD'S ARTIFICIAL MANURE.—Where can I obtain this? *J. S.*

Answers to Correspondents.

AMARYLLIS: Old Subscriber. The following varieties of *Hippeastrum*, *alias* *Amaryllis*, can be recommended:—Crimson Banner, E. Pilgrim, Caledonia, Duchess of Teck, Mooreana, Agatha, Thalia, Beauty of Reigate (for colour), and Chelsoni, are fine garden varieties; Roelzii, Pyrrochroum, and Leopoldii are imported species.

BRUSSELS SPROUTS: *John Lowndes*, and *R. P. Ker & Sons*. Next week.

CELERY: *T. S. M.* 1, Clayworth Pride; 2, Mr. R. Ogley, Clayworth, near Bawtry.

HORSE-RADISH: *T. S. M.* We know of no other means of eradicating Horse-Radish than digging out the roots carefully.

INSECTS: *H. W. T.* The minute white insects you have sent are the *Podura finetaria* of Linnæus. You will find a full account of the attacks of this species, and a second allied one, *P. viatica*, Linn., upon Cucumber and Celery plants, in *Gardeners' Chronicle*, 1847, p. 221. They reside in rotting vegetable matter, manure, guano, &c. Watering the soil and manure with lime-water would be beneficial. *I. O. W.*

MISTLETO: *P. S. L.* Put the berries on now, as soon as possible. Rub them well on the underside of the branches until they firmly adhere, and then protect them from birds, and wait!

MUSTARD AND CRESS: *W. A. S.* We know of no better way of washing the soil out of Mustard and Cress than placing it in a colander and rinsing it in some clean water; but if you grow it expeditiously—that is, by first steeping the seed then laying it on the seed-bed, and giving one good watering, it should not want washing.

NAMES OF FRUITS: *D. C. Powell.* Apple: Winter Majetin.—*G. O. Apple:* Cockle Pippin.

NAMES OF PLANTS: *T. D. M.* 1, *Luisia platyglossa*; 2, *Odontoglossum pardinum*. Why do you grumble? It is the plant's first effort. Nurse it well, and it will repay you with a wonderful panicle, laden with masses of golden flowers. An orchidist must have patience. *H. G. Robt.*—*A. G. A.* *Campyloneurum latum*.—*A. B.* 1, *Adiantum*, apparently decorum, imperfectly developed; 2, *A. Capillus-Veneris*, large form; 3, *Davallia canariensis*; 4, *Pteris tremula*; 5, *Adiantum hippidium*; 6, *Lastrea glabella*; 7, *Asplenium bulbiferum*; 8, *Polystichum capense*.—*W. D. B.* *Hippeastrum reticulatum*.—*J. Paine.* We do not undertake

to "christen" florists' flowers, which can only be done with good materials at hand for comparison. Your flower has some resemblance to *Mathotiana*.

PRUNING: *C. W. H.* You should proceed with the pruning of Apricots, Pears, Plums, and bush-fruits at once, and not delay the operation later than the natural swelling of the buds. The Roses should be pruned a few at a time, leaving the majority until such time as it may be anticipated that sharp frosts will not subsequently be experienced.

PRUNING SHRUBS: *F. M.* Wait until the shrubs show signs of making fresh growth, and then cut back to the growing buds.

SPRUCE FIR INJURED BY INSECTS: *Thos. Inrie & Sons.* The pseudo-cones on the Spruce Fir sprays is the work of an insect, *Adelges abietis* (fig. 35); it shows one of the pseudo-cones cut in half, and reveals a

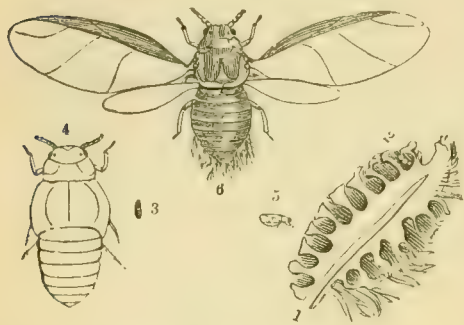


FIG. 35.—ADELGES ABIIETIS.

number of little cells on the outer margin, and in one of which (2) is to be observed a small insect, which is represented separately in 3, and magnified in 4; the winged insect being shown natural size in 5, and magnified in 6. The other illustration (fig. 36) represents a sprig of Spruce, with two of the pseudo-cones, a portion of the outer edge of a cone, *d*, to show the cavities with the enclosed insects; another portion, *b*, showing the mode in which the two lips of the cells open when the insects have attained their full size, and a portion of a leaf, *c*, springing from one of the cones on which the exuviae of the pupæ are observed sticking in considerable numbers—the pupæ creeping out of the cells, and being transformed in the open air to



FIG. 36.—SPRUCE FIR INFESTED WITH THE ADELGES.

winged insects. We know of no remedy other than cutting off the shoots and burning them before the insects are ready for flight.

VINES: *Old Sub.* Your Vines, which you describe as "cracking up," must have been full of sap, and disrupted by the severe frost.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED:—James Vick (Rochester, N.Y.), Floral Guide, Illustrated Monthly Magazine, and List of Wholesale Prices for 1879.—W. H. Rogers (132, High Street, Southampton), Descriptive Priced Catalogue of Seeds, &c.—Thomas Warner (69, Market

Place, Leicester), Catalogue of Kitchen Garden, Agricultural, and Flower Seeds.—Frederick Bax (143, Bishopsgate Street Without, E.C.), Catalogue of Vegetable, Flower, and Agricultural Seeds, &c.—William Thompson (Tavern Street, Ipswich), Descriptive Catalogue of a Choice Collection of Flower Seeds.—William Potten (Sissinghurst, Staplehurst, Kent), Descriptive Catalogue of Vegetable, Flower, and Farm Seeds.—John Cattell (Westerham, Kent), Spring Catalogue of Vegetable, Flower, and Agricultural Seeds.—Stephen Brown (Weston-super-Mare), Seed Catalogue.—Durant & Sons (North Tawton), Select List of Farm Seeds.—J. L. Schiebler & Sohn (Celle, Hanover), List of Plants, Seeds, &c.—Messrs. E. G. Henderson & Son (Pine-apple Nursery, Maida Vale, London, W.), Catalogue of Flower, Vegetable, and Agricultural Seeds.—Walter Ford (Pambes, Basingstoke), Catalogue of Vegetable and Flower Seeds, Potatoes, &c.—C. Pocock (Wincanton, Somerset), Priced Catalogue of Seeds.—Messrs. Vilmorin-Andrieux & Cie. (4, Quai de la Megisserie, Paris), General Illustrated Descriptive Catalogue.—Messrs. G. Cooper & Co. (The Chiswick Seed Warehouse, Derby), Descriptive Catalogue of Kitchen Garden, Agricultural, and Flower Seeds.—S. Shepperson (Prospect House, Belper), Descriptive List of Florists' Flowers, Seeds, &c.—R. B. Matthews (65 and 67, Victoria Street, Belfast), Illustrated Descriptive Seed Catalogue.—Messrs. Cole & Brothers (Pella, Marion Co., Iowa, U.S.A.), Illustrated Catalogue and Guide.—James Yates (29, Little Underbank, Stockport), Descriptive Catalogue of Seeds, Gladioli, &c.—Messrs. Phippen & Robinson (Broad Street, Reading), Illustrated Spring Catalogue.—James Marshall (184, High Street, Melrose), Catalogue of Seeds, Implements, &c.—Messrs. Ewing & Co. (Eaton, near Norwich), Spring Rose List; also List of Fruit Trees, Cherry, Plum, &c.—Messrs. Edmonson Brothers (10, Dame Street, Dublin), Spring Catalogue of Seeds, Roots, Implements, &c.—Messrs. Ormiston & Renwick (Melrose), Catalogue of Seeds, Implements, &c.—Edward Gillett (Southwick, Hampden County, Mass., U.S.A.), List of Native Plants.—Messrs. Harrison & Sons (33, Market Place, Leicester), Price List of Seeds for Garden and Farm.—Messrs. Peter Henderson & Co. (35, Cortland Street, New York), Catalogue of Everything for the Garden.—Messrs. W. Thomson & Co. (3, Melbourne Place, George IV. Bridge, Edinburgh), Catalogue of Seeds, Implements, Gladioli, Roots, &c.—Messrs. Thomas Milner & Sons (102, Godwin Street, Bradford), Catalogue of Vegetable and Flower Seeds.—T. Pierpoint (126, Bridge Street, Warrington), Descriptive List of Garden Seeds.—Messrs. A. Godwin & Son (Ashbourne), Catalogue of Garden and Flower Seeds.—William Scaling (Basford, Notts), Catalogue of Willows.—Messrs. J. A. Bruce & Co. (Main Street, Hamilton, Canada), Illustrated Descriptive Seed Catalogue.

COMMUNICATIONS RECEIVED.—T. C.—W. L. B.—W. B. H.—J. C.—H. W. T.—W. P. (many thanks).—A. McD. (thanks).—Harrison & Sons.—O.—The End.—Gardener (you should make enquiries in your own locality or advertise).—G. E.—W. F.—H. E. R. T.—W. C. (next week).—H. W. A. D.—H. G. R.—G. F. T. (many thanks).—Professor Bommer (a letter will follow).—T. S. B.—C. W. S.—C. R. H.—J. R.—J. T. B.—S. C.—L. R.—D. C. P.—O. R.—W. W.—G. G.—H. H. D.—A. T.—T. B. H.—H. E.—W. G. McL.—H. T. L.—G. S. B.

Markets.

COVENT GARDEN, February 20.

Trade is quiet, calling for no alterations in the fruit market. Vegetables are easier. *James Webber, Wholesale Apple Market.*

PLANTS IN POTS.

| s. d. s. d. | s. d. s. d. |
|--|--|
| Arum Lily, or Rich- ardia aethiop., doz. 9 0-18 0 | Ficus elastica, each 2 6-15 0 |
| Azaleas, per dozen 24 0-60 0 | Foliage Plants, vari- ous, each .. 2 0-10 6 |
| Begonias, per doz. 6 0-12 0 | Genista, per dozen 12 0-24 0 |
| Bouvardias, per doz. 18 0-24 0 | Hyacinths, per doz. 6 0-18 0 |
| Camellias, per dozen 18 0-60 0 | Mignonette, per doz. 6 0-9 0 |
| Cinerarias, per doz. 12 0-18 0 | Myrtles, per doz. 6 0-12 0 |
| Cyclamens, per doz. 9 0-30 0 | Palms in variety, each .. 2 6-21 0 |
| Cyperus, per dozen 6 0-12 0 | Pelargoniums, scar- lets, zonal doz. 6 0-12 0 |
| Dracena terminalis 30 0-60 0 | Primulas, per dozen 4 0-12 0 |
| —viridis, per doz. 18 0-24 0 | Solanums, per doz. 6 0-18 0 |
| Epiphyllum, per doz. 18 0-60 0 | Spiraea, per dozen 12 0-30 0 |
| Erica hyemalis, doz. 12 0-42 0 | Tulips, per dozen 8 0-12 0 |
| Euonymus, var., doz. 6 0-18 0 | |
| Ferns, in var., p. doz. 4 0-18 0 | |

CUT FLOWERS.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|---|
| Abutilon, 12 blooms 0 6-1 0 | Lily of Val., 12 sprays 2 0-6 0 |
| Arum Lilies, 12 blms. 4 0-12 0 | Mignonette, 12 bun. 6 0-12 0 |
| Azaleas, 12 sprays 0 6-1 6 | Narcissus, paper- white, 12 sprays 1 0-2 0 |
| Bouvardias, per bun. 1 0-4 0 | Pelargoniums, 12 spr. 1 6-3 0 |
| Camellias, per dozen 1 0-9 0 | —zonal, 12 sprays 1 0-2 0 |
| Carnations, per dozen 1 6-4 0 | Primula, double, per bunch .. 0 9-1 6 |
| Cineraria, 12 bunches 9 0-18 0 | —single, 12 bunch. 6 0-12 0 |
| Cyclamen, 12 blooms 3 0-1 0 | Roses (indoor), doz. 3 0-12 0 |
| Deutzia, 12 bunches 6 0-12 0 | Snowdrops, 12 bun. 1 0-6 0 |
| Epiphyllum, 12 blms. 1 0-3 0 | Tropeolum, 12 bun. 2 0-6 0 |
| Eucharis, per doz. 4 0-12 0 | Tuberose, per dozen 3 0-6 0 |
| Euphorbia, 12 sprays 3 0-6 0 | Tulips, 12 blooms 1 0-3 0 |
| Gardenias, 12 blms. 12 0-24 0 | Violets, 12 bunches 3 0-6 0 |
| Heliotropes, 12 sp. 0 6-1 0 | |
| Hyacinths, 12 spks. 4 0-12 0 | |
| —Roman, 12 spks. 0 6-2 0 | |

FRUIT.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|------------------------------|
| Apples, 1/2-basket 1 6-5 0 | Oranges, per 100 4 0-8 0 |
| Cobs and Filberts, lb. 0 9-1 0 | Pears, per doz. 4 0-8 0 |
| Grapes, per lb. 3 0-8 0 | Pine-apples, per lb. 1 0-2 6 |
| Lemons, per 100 3 0-10 0 | |

VEGETABLES.

| s. d. s. d. | s. d. s. d. |
|--|---------------------------------------|
| Artichokes, English Globe, doz. 2 0-4 0 | Horse Radish, p. bun. 4 0-.. |
| —Jerusalem, bush. 6 0-.. | Lettuces, Cabbage, per doz. 1 6-.. |
| Asparagus, Fr. sprue, per bundle 1 6-.. | Mint, green, bunch.. 1 6-.. |
| —Eng., per 100 10 0-15 0 | Onions, per bushel.. 4 0-.. |
| —Fr. giant, p. bun. 30 0-.. | —young, per bun. 0 4-0 6 |
| Beans, French, p. 100 20 0-.. | Parsley, per lb. 2 0-3 0 |
| Beet, per doz. 1 0-2 0 | Peas, per quart 12 0-.. |
| Brus. sprouts, bush. 10 0-.. | Potatoes, new, basket 1 0-.. |
| Cabbages, per doz. 1 0-8 0 | Radishes, per bunch 0 10-3 |
| Carrots, per bunch 0 4-0 6 | —Spanish, doz. 1 0-.. |
| Cauliflowers, per doz. 2 0-5 0 | —New Jersey, doz. 2 0-.. |
| Celery, per bundle 1 6-2 0 | Rhubarb, doz. 10 0-.. |
| Chilis, per 100 2 0-.. | Shallots, per lb. 0 6-.. |
| Cucumbers, each 0 9-1 6 | Seakale, per punnet 2 6-.. |
| Endive, Batav. dozen 1 6-.. | Spinach, per bushel 4 0-5 0 |
| Garlic, per lb. 0 6-.. | Sweet Potatoes, per lb. 0 6-.. |
| Herbs, per bunch 0 2-0 4 | Tomatoes, per dozen 2 6-3 0 |
| Potatoes:—Regents, 100s. to 130s.; | Turnips, p. 12 bunch. 3 0-6 0 |
| Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large | |
| supplies, and trade heavy. | |

SEEDS.

LONDON: Feb. 19.—The seed market to-day was thinly attended, and the business doing limited in extent. With favourable weather a brisk sale for the leading varieties may shortly be anticipated. As regards red Clover the position is unaltered; of secondary and inferior parcels of English growth there is an abundant supply, but choice samples continue scarce. The only foreign seed on the market this season is American, and the stock of this is very small. In Alsike and white Clover there is this week no quotable variation. Prices of Trefoil have lately shown some irregularity, and for the lower grades the tendency has been adverse to the holder. Imported and perennial Rye-grasses have met with more attention. Spring Tares have also been in improved request; there is an inquiry for Brunswick Gores, but the high prices asked in Hamburg prohibit business; the crop of Scotch Tares appears to be large. Hemp and Canary seed are obtainable on very moderate terms. There is less request for German Lentils, and rates are easier; split Egyptians, however, move off on former terms. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday there was perhaps a little more inquiry for Wheat, but the amount of business done was very small, and that noted in last report not at the extreme prices of last week. Fine malting Barley continued firm; other qualities were dull, and perhaps a trifle easier. Malt was steady, on former terms. Oats were steady at last week's rates. Maize about supported previous quotations, and no material change was reported in Beans, Peas, or flour.—Trade was quiet on Wednesday; but prices were perhaps a little better supported. Fine dry English Wheat was scarce, and factors held for full prices of Monday. Foreign Wheat too was not generally procurable on lower terms. Malting Barley was, as before, firm, while other classes attracted little or no attention. Oats and Maize were steady, with a moderate inquiry. Beans, Peas, and flour were dull, on former terms. Average prices of corn for the week ending Feb. 15:—Wheat, 38s. 1d.; Barley, 35s. 5d.; Oats, 19s. 2d. For the corresponding period last year:—Wheat, 50s. 11d.; Barley, 44s. 2d.; Oats, 24s. 4d.

CATTLE.

At Copenhagen Fields on Monday choicest qualities in beasts were more in demand than on Monday se'nnight, and our top quotations were more readily given. There was more activity in the sheep trade, consequently on the average prices rather improved. Calves sold about the same as of late. Quotations:—Beasts, 4s. 2d. to 4s. 8d. and 4s. 10d. to 5s. 4d.; calves, 5s. 4d. to 6s. 6d.; sheep, 5s. to 5s. 6d., and 6s. to 6s. 8d.; pigs, 3s. 8d. to 4s. 4d.—Thursday's trade was quiet, and without fresh feature. Beasts were in moderate supply, and sold slowly at about Monday's prices. For sheep the inquiry was limited, at previous rates. Calves on former terms.

HAY.

The Whitechapel market report for Tuesday states that there was rather more doing in Clover and straw on that than on the previous market-day; but business altogether was quiet, and prices unaltered. Prime Clover, 95s. to 102s. 6d.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 35s. per load.—There was a moderate supply of fodder on sale at Thursday's market. The trade was very quiet, except for best Clover, but there was no alteration in prices.—Cumberland Market quotations:—Superior meadow hay, 80s. to 88s.; inferior, 65s. to 72s.; superior Clover, 100s. to 110s.; inferior, 70s. to 84s.; and straw, 34s. to 38s. per load.

POTATOS.

The Borough and Spitalfields reports are to the effect that sound Potatoes continue in moderate request, and prices generally were steady. Flukes, 120s. to 140s. per ton; Victorias, 130s. to 150s.; Regents, 100s. to 130s.; rocks, 75s. to 80s.; foreign, 70s. to 120s.—The imports into London last week comprised 11,376 boxes from Hamburg, 2081 from Antwerp, 799 from Bremen, 1194 from Ghent, 756 from Boulogne, and 490 from Dunkirk.

COALS.

The market on Monday was steady for house coals, the top price for which was kept at 18s. per ton. On Wednesday quotations for the same were advanced 6d. per ton. Quotations:—Bedside West Hartley, 14s. 3d.; Walls End—Hetton, 18s. 6d.; Hetton Lyons, 15s. 9d.; Lambton, 17s. 6d.; Wear, 15s. 9d.; Salvin's Hetton, 16s. 3d.

WEBB'S IMPROVED SCHOOLMASTER POTATO.—This splendid new round Potato is of extraordinary flavour, and unequalled for general purposes. It is a great cropper, producing tubers of large size, uniformly round and handsome, with shallow eyes; skin white and rough, flesh snowy white and very mealy. It is free from disease, and a superior exhibition variety. Price 6s. per peck of 14 lb., or 21s. per bushel of 56 lb.

WEBB AND SONS, being probably the largest growers of Seed Potatoes in the kingdom, can offer the above and other excellent varieties in large quantities on advantageous terms. Potatoes of 20s. value carriage free; 5 per cent. discount for cash.

WEBB AND SONS, The Queen's Seedsmen, Wordsley, Stourbridge.

DARLEY DALE NURSERIES.—One Hundred and Sixty Acres of Ground covered with TREES and SHRUBS. Many thousands are grown for Ornamental Planting. Amongst them we have large quantities of *Picea nobilis*, *P. Nordmanniana*, *P. balsamea*; *Pinus Cembra*, *P. Strobus*, *P. Laricio*; *Cryptomeria elegans*, *japonica*, and *Lobbi*; *Yews*, Common and Irish, Golden in several varieties; *Retinosporas*, many kinds; *Cupressus Lawsoniana* and many beautiful varieties, including *lutea* and *Smith's argentea*; *Libocedrus decurrens*; fine *Wellingtonias*; *Cedrus Deodara*, &c. Also many fine specimens not mentioned in the CATALOGUE. Also large quantities of Flowering Shrubs, *Ribes*, *Lilacs*, *Weigelas*, &c.

Prices and sizes in CATALOGUE sent free on application to **JAMES SMITH**, Darley Dale Nurseries, Matlock.

SAMUEL AND JAMES SMITH, Tansley Nurseries, Matlock, Derby, beg to offer, viz. —

Per 1000.

ASH, Mountain, 2 to 3 feet, 16s.; 3 to 4 feet, 21s.; 4 to 5 feet, 27s.; 6 to 8 feet, 70s.; 8 to 10 feet, 100s.

BEECH, 2 to 3 feet, 25s.; 3 to 4 feet, 28s.; 4 to 5 feet, 35s.

CHESTNUT, Spanish, 1 to 1½ foot, 16s.; 1½ to 2 feet, 25s.

Horse, 4 to 5 feet, 35s.; 6 to 8 feet, 100s.

FIR, Spruce, 9 to 12 inches, 10s.; 1 to 1½ foot, 14s.; 2-yr., 15s.

BALM OF GILEAD, 1 to 1½ foot, 20s.; 1½ to 2 feet, 25s.; 2 to 3 feet, 40s.

PINUS MARITIMA, 9 to 12 inches, 10s.; 2-yr., 25s. 6d.

LIMES, 3 to 4 feet, 60s.; 4 to 5 feet, 80s.

POPLAR, Italian, 3 to 4 feet, 25s.; 2-yr., 8s.

„ Ontario, 2 to 3 feet, 20s.; 4 to 6 feet, 50s.; 2-yr. 8s.

„ Silver, 3 to 4 feet, 40s.

SNOWBERRY, 1½ to 2 feet, 18s.; 2-yr., 7s.; 3-yr., 10s.

PRIVET, 2-yr., 7s.; 1 to 1½ foot, 15s.; 1½ to 2 feet, 18s.

SYCAMORE, 1½ to 2 feet, 15s.; 2 to 3 feet, 20s.

WILLOW, Bitter, 2 to 3 feet, 20s.; 2-yr., 8s.

„ Huntingdon, 3 to 4 feet, 25s.; 2-yr., 8s.

BROOM and GORSE, 1-yr., 2s.; 2-yr., 3s.; 3-yr., 5s.

DOGWOOD, Red, 2 to 3 feet, 60s.; 3 to 4 feet, 70s.

FLOWERING SHRUBS, good variety, 20s. to 40s.

LAUREL, Portugal, 1 to 1½ foot, 50s.; 1½ to 2 feet, 70s.

IVIES, in sorts, 20s.

COTONEASTER MICROPHYLLA, 20s.

PERNETTYA, 2-yr., 12s.

JUNIPER, Transplanted, 25s.

RHODODENDRON PONTICUM, 1 to 1½ foot, 140s.; 3 to 6 inches, transplanted, 20s.; 2-yr., 4s.; 3-yr., 6s.

YEWs, 6 to 9 inches, 50s.; 9 to 15 inches, 70s.

ARBOR-VITÆ, 4 to 6 feet, 80s.

BERBERIS DARWINII and DULCIS, 70s.

BOX, Tree, 1½ to 2 feet, 100s.; 2 to 3 feet, 120s.

RHODODENDRON FERRUGINEUM, 100s.; and **HIRSUTUM**, 80s.

WHIN, Double, transplanted, 100s.; 2 yr., 50s.

NEW SEEDLING POTATO FOR SPRING, 1879.



THE
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POTATO
EVER
RAISED.

JOHNSTON'S DOWNSHIRE.

This variety is of Irish origin, raised by Wm. Johnston, Esq., M.P., Ballykilbeg, and selected by him from a large number of Seedlings, after repeated trials, for its extra fine Culinary, Disease-resisting, and Late-keeping qualities, being beautifully white, dry, and mealy when cooked, and of the most delicious flavour—keeping good for cooking from early Autumn till following June.

As a food producer this Potato must be placed in the foremost rank.

Grown for trial by us last season, under ordinary cultivation, with some 500 other kinds, it produced at the rate of upwards of 400 bushels per acre of sound, marketable tubers, of an Improved Victoria type—eyes rather fleet, skin roughly netted and of a light red colour.

Stock very limited. Can be obtained only direct from us.

Price 2s. per lb., 7 lb. 12s.

No Customer will be supplied with more than 7 lb.

DANIELS BROS.,
SEEDSMEN TO THE PRINCE OF WALES,
NORWICH.

NOW READY, GRATIS AND POST-FREE,

DICK RADCLYFFE & CO.'S
PRIZE MEDAL SEEDS.
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Judiciously selected, and only approved kinds included. For detailed list of contents see Catalogue.

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| No. 1 | contains a Season's supply in sufficient quantities for a very large Garden | ... | 63 | 0 |
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| No. 3 | " " " " medium-sized Garden | ... | 21 | 0 |
| No. 4 | " " " " small Garden | ... | 10 | 6 |

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FLOWER SEEDS, in Collections, 42s., 21s., 10s. 6d., and 5s. each, post-free.

DICK RADCLYFFE & CO., 128 and 129, HIGH HOLBORN, W.C.

A POTATO FOR EVERY GARDEN.



RECTOR OF WOODSTOCK.
(SECOND EARLY.)

One of the finest garden Potatoes; a good cropper; flesh lemon-white; skin, white and smooth; shape, flattish round; very handsome; boils mealy, and is of the finest flavour. This Potato should have a place in every garden, and is indispensable for exhibition purposes.

Price, 6s. per 14 lb.

Much cheaper by the sack (of 168 lb.) or ton.

PARTICULARS of OTHER KINDS on APPLICATION

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

Special Offer.

GEORGE FARNSWORTH has to offer large quantities of the following, which are good and well rooted:—

ALDER, 2 to 4 feet, 27s. 6d. per 1000.

ARBOR-VITÆ, American, 2-yr. seedling, 10s. per 1000.

ASH, Mountain, 1-yr. seedling, 3s. per 1000; 3 to 5 feet, 25s. per 1000.

„ Common, 2 to 3 feet, 20s. per 1000.

BERBERIS AQUIFOLIA, 2-yr. seedlings, 5s. per 1000; 1-yr. seedling and 1-yr. bedded, 10s. per 1000; 15 inches to 2 feet, bushy, 4s. per 1000.

COTONEASTER MICROPHYLLA, 1-yr. cuttings, 20s. per 1000.

WHIN or GORSE, Double, 1-yr. cuttings, 60s. per 1000; 1-yr. and 1-yr. transplanted, 12s. per 100.

HOLLY, Common, 9 to 15 inches, 100s. per 1000; 12 to 18 inches, 130s. per 1000; 1½ to 2 feet, 240s. per 1000.

IVY, Irish, 1-yr. cuttings, 30s. per 1000.

LAUREL, Common, fine, 1-yr. cuttings, 10s. per 1000; 15 inches to 2 feet, 70s. per 1000.

„ Portugal, 3 to 4 feet, very bushy, 9s. per dozen.

LIMES, 2-yr. layers, 1-yr. transplanted, 1½ to 5 feet, 80s. per 1000; 4 to 6 feet, 12s. per 100; 6 to 8 feet, 20s. per 100.

LARCH, twice transplanted, 1½ to 2½ feet, 22s. 6d. per 1000.

POPLAR, Balsam, 2½ to 5 feet, 30s. per 1000.

„ Black Italian, 2 to 3 feet, 20s. per 1000.

PRIVET, oval-leaved, twice transplanted, 1½ to 2 feet, 50s. per 1000.

RHODODENDRONS, 3-yr. seedling, 5s. per 1000; 3-yr. and 2-yr. bedded, 20s. per 1000; 6 to 10 inches, extra transplanted, 70s. per 1000; 1 to 1½ foot, 130s. per 1000.

„ ferrugineum, bushy, 15s. per 100.

„ hirsutum, bushy, 15s. per 100.

SPRUCE FIR, 1½ to 2 feet, 25s. per 1000.

Also other NURSERY STOCK as per LIST. Samples on application at

The Nurseries, Matlock.

SEEDS.—CABBAGE, Enfield Market, 2 cwt., £6; PARSNIP, 100 lb., £2; ONION White Spanish, 56 lb., 2s. per lb.

JOHN TINDELL, Nursery Gardens, Heckington, Sleaford.

SUTTON'S NEW GLOXINIA CRASSIFOLIA GIGANTEA is acknowledged to be the finest. From Mr. A. INGRAM, Gr. to the Duke of Northumberland.—"Your Gloxinia is the finest strain I have ever seen; strong robust habit, the leaves are so reflexed as to nearly cover the pots. The flowers are very large and beautiful in colour; some of the drooping flowered sorts have blooms over 3 inches in diameter. They make quite a show of themselves in a house."

5s. and 2s. 6d. per packet, post-free. Send for **SUTTON'S LIST** of NOVELTIES, gratis and post-free on application.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

JAMAICA DRIED FERNS for SALE.—Recently collected in Jamaica by a skilled collector. Sets consisting of 100 species of Ferns, dried, mounted and scientifically named. Price £2 10s. and £3 per set. Apply to **R. THOMSON**, Millerslee, Helensburgh, N.B.

COCOA-NUT FIBRE REFUSE.—

Reduced Price 1—In 4 bushel bags, bags included, at 1s. or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—**J. STEVENS** AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, as supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

RICH (late Finlayson & Hector), Cocoa-Nut Fibre Works, 24 and 25, Redman's Row, Mile End Road, London, E.

GARDEN REQUISITES.—**COCOA-NUT FIBRE REFUSE**, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners.

3d. per bushel; 10 for 20s.; truck (loose, 250 bush.), 30s. 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 24s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4s. each.

YELLOW FIBROUS LOAM, **PEAT MOULD**, and **LEAF MOULD**, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack. Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c.

Write for free **PRICE LIST**. Goods free to rail. **H. G. SMYTH**, 10, Castle Street, Endell Street, Long Acre, W.C.

PEAT SOIL, PEAT SOIL.—

BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. **BLACK**, good quality for American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s. per ton, or 6-ton truck for £4 20s. Delivered on rail at Blackwater, S.E.R., or Camberley, S.W.R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

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Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.

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Delivered on rail at Blackwater, S.E.R., or Farnborough, S.W.R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

Fresh **SPHAGNUM**, 10s. 6d. per bag.

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PEAT for **RHODODENDRONS** and ordinary **POT PLANTS**, in trucks containing 14 yards or loads, put on rail at Ringwood Station, £3 15s. Carriage paid to London or any Station on the L. & S.W. Railway, £5 5s. per truck of fourteen loads. Cash or reference.

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PEAT, Black or Brown fibrous, of superior quality for Rhododendrons, Azaleas, Orchids, &c., at £4 4s. per 6-ton truck, put on rail at Camberley Station, South-Western Railway.—Address,

W. TARRY, Bagshot, Surrey.

MILLER AND JOHNSON

(ESTABLISHED 1855)

Manufacture the highest quality of

ARTIFICIAL MANURES

For Root, Corn, and Grass Crops.

36, Mark Lane, London.

THE BEST MANURE.

CARTER'S FERTILISER FOR FLOWERS.

CARTER'S FERTILISER FOR POTATOS.

CARTER'S FERTILISER FOR VEGETABLES.

Professor **CHURCH** says, "I am much pleased with the thoroughly satisfactory character of Carter's Fertiliser."

Price 1s. 6d. and 4s. 6d. per tin. Cheaper in larger quantities.

CARTERS, The Queen's Seedsmen, High Holborn, London.

GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d.

Wholesale by **PRICE'S PATENT CANDLE COMPANY** (Limited).

A. JAMES' Genuine Roll-made TOBACCO

RAG and **PAPER**, for Fumigating Greenhouses, has always given great satisfaction to those who use it. Read testimonials, post-free. 10d. per pound; to the trade, 5 per cent. reduction.—44, Hampton Street, Walworth Road, London, S.E.

CLAY'S FERTILISER,

Or **PLANT FOOD**,

Is now respectfully offered to the Public, after having been thoroughly tested and approved, during the last three years, by the principal Market Growers and Gardeners. It is a powerful and lasting Manure, quick in action, and clean and safe to use. See correspondence in *Gardeners' Chronicle*, Oct. 5, 12, 19, and 26. To be had of Seedsmen, Nurserymen, and Florists, in packets, 1s.; and in bags, 1½ cwt., 7s. 6d.; 3½ cwt., 12s. 6d.; 1 cwt., 20s.; or by letter addressed to 174, High Street, Homerton, London, E. References can be given to over 200 of the principal Nurserymen and Florists.

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Acknowledged to be the most efficient and economical Fumigator yet introduced.

Price 10s. 6d., 12s. 6d., and 15s.

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See *Gardeners' Chronicle*, August 10, 17, and Sept. 7, 1878.

From **EDWARD TATE**, Gr. to Sir

Coutts Lindsay, Bart., Balcarres

Gardens, Colinsburgh, Fifeshire,

N.B.—Feb. 14, 1879.

"Mr. HARBER.

"DEAR SIR,—I have great pleasure in bearing testimony to the excellence of your Registered Worcester Fumigator, which has been thoroughly

REGISTERED MAY 20, 1878. tested here to my entire satisfaction.

It is the most efficient Fumigator I ever used, both as regards the saving of tobacco-paper, and the pleasure with which it can be used, when considered with the old system of being obliged to remain in the houses when fumigating. I shall make it known amongst gardeners in this district.

"Wishing you every success,

"Yours respectfully,

"EDWARD TATE."

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For COVERING, TYING, and PACKING,

are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. **SACKS** and **BAGS** of every description. **TARPAULINS**, **HORSE-CLOTHS**, **ROPES**, **LINES**, and **TWINES**.—**JAMES T. ANDERSON**, 149, Commercial Street, Shoreditch, London, E.

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J. BLACKBURN AND SONS

can now supply **HEAVY PETERSBURG MATS**, and all the usual kinds for covering and packing. **ARCHANGEL MATS** specially quoted. Price Lists of all on application at 4 and 5, Wormwood Street, London, E.C.

N.B. Buyers please state if Mats are required for covering, packing, or tying, and the goods will be selected accordingly.

Wholesale Russia Mat Merchants.

MARENDAZ AND FISHER, Importers of

ARCHANGEL and **ST. PETERSBURG MATS**, **RAFFIA FIBRE**, &c. Manufacturers of **TANNED NETTING**, **TIFFANY**, and other Garden Requisites.

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HELLIWELL'S PATENTED

NEW SYSTEM OF AIR and WATER-TIGHT IMPERISHABLE GLAZING. All Woodwork is covered, and no outside Painting is required. Old Roofs Reglazed. Any one can repair or take in pieces.

"It is suitable for Railway Stations, Mills, Weaving Sheds, &c., but is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."

The Builder.

"And will, in our opinion, supersede any other similar system before the public."—*Building News.*

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"Convincingly prove the new Glazing System to be worthy the attention of readers of the *Keystone*."—*The Keystone.*

For Estimates, Drawings, or Particulars, apply to the Patentee.

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TERRA-COTTA more durable than Stone.—

Vases, Tazzas, Flower Trays, Pedestals, Balustrades, Brackets, Terminals, Cornices, &c. For designs and prices apply to

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Rosher's Garden Edging Tiles.

THE ABOVE and many other **PATTERNS**

are made in materials of great durability. The

plainer sorts are specially suited for **KITCHEN GARDENS**, as they

harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense.

as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, **FOUNTAINS**, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES,

for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

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SILVER SAND,

fine or coarse grain as desired. Price by Post per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and **BRICK BURS** for Rockeries or Ferneries.

KENT PEATS or **LOAM** supplied at lowest rates in any quantities.

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N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade.

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Manufacturers of

IMPERISHABLE GARDEN EDGING,

Of various patterns, in

Terra Cotta, Stoneware, & Blue Staffordshire Ware,

VASES, PEDESTALS, PENDANTS, &c.,

In Terra Cotta and Doulton Ware.

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Chief Offices: High Street, Lambeth, S.E.

Depots: Wood Street, Birmingham; 100, Soho Street, Liverpool; and Hope Street, Salford.

Manufactories: Lambeth, Staffordshire, and Lancashire.

BELGIAN GLASS for **GREENHOUSES, &c.,**

Can be obtained in all sizes and qualities, of

BETHAM & SON,

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B. & Son have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. & 21-oz.

HORTICULTURAL WINDOW GLASS.

A large variety of sizes, 15-oz., 12s. 6d.; 21-oz., 16s. 6d., per 100 feet. Large sizes, in Cases, for Cutting up—15-oz. 4ths, 30s.; 3ds, 40s. per 100 feet—21-oz. 4ths, 30s.; 3ds, 40s. per 200 feet.—**ALFRED SYER**, Glass, Lead, Zinc, Oil and Colour Merchant, 8, Pentonville Road, London, N.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

Larger sizes if required.

From Mr. **CHARLES YOUNG**, Nurseries, Balham Hill, S.W., May 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS of **HOT-WATER PIPES** and **CONNECTIONS**, with Boilers, of all sizes and shapes; or **ESTIMATES** for **HOT-WATER APPARATUS**, erected complete, will be sent on application.

J. JONES AND **SONS**, Iron Merchants, 6, Bankside, Southwark, London, S.E.

When ordering Boilers please refer to the above advertisement.

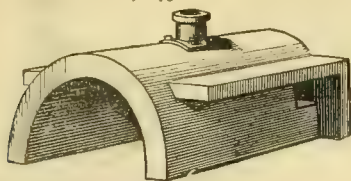
THE GRAVEL-WALK METAL

SCRAPER MATS.—They improve the appearance of Entrances, are suitable for all kinds of Gravel-walk Entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step. They are the width of an ordinary step, and being directly in the path cannot escape use, save much wear in other mats, floorcloths, and carpets, and their endurance is incalculable. Lengths, 2 feet 3 inches, price 10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.; 3 feet 8 inches, 18s.; 4 feet, 20s. All 12 inches wide.

Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

Silver Medal, 1874.

THE TERMINAL SADDLE BOILER.—
First-class Certificate, 1867; Highly Commended, 1873;
and First-class Certificate, 1875.



"This boiler possesses the rare merit of sucking all the heat from the fire."—*Gardeners' Magazine*, p. 254.
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Prospectus post-free.

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SLOW COMBUSTION STOVE, tile-lined, without grate, is the cheapest and most efficient heating power for Conservatories, Greenhouses, &c., being perfectly free from emitting sulphur fumes, it burns coke, cinders, or any refuse fuel without attention: no dust. Prices from 30s. to 60s. each.

Apply for Testimonials to C. PORTWAY, Patentee, Halstead, Essex; or to HYDE AND WIGFULL (Limited), Sheffield, sole Licencees and Makers for the North of England.

FOR SALE, a beautiful SPIRE, composed of SLABS of WHITE SICILIAN MARBLE. No longer required as a terminal to a monument. Useful for a Monument or on an Octagonal Tower. There are Ninety-six Slabs of Marble, more than an inch thick. Apply to Messrs. HENRY POOLE AND SONS, Johnson Street, Westminster, S.W.

PEACH WALL COVERS,

Portable or Permanent, either of the simple PAXTON ROOFS, or with projecting set-off from top of back wall.

Estimates given by return of Post, after receipt of Particulars, for Covering any Length, Height, or Width.

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HEREMAN AND MORTON,

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43, Highgate Road, London, N.W.

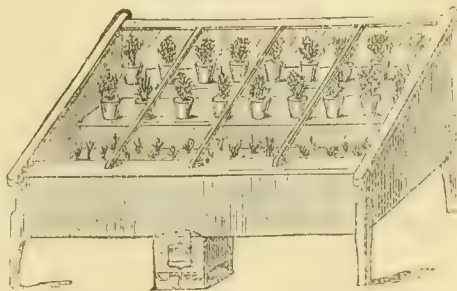
PRICE LISTS FREE.

A Pamphlet for Three Stamps, with Testimonials, Views of Conservatories, &c.



**RIPPINGILLE'S
PROPAGATING PLANT FRAME.**
HEATED BY PATENT STOVE.

The simplest and best ever introduced for Raising Seeds, Striking Cuttings, &c.



The *Gardeners' Magazine* says:—"A most valuable invention." (Copy of Testimonial.)

Yardley, near Birmingham, May 23, 1878.

DEAR SIR,—I am much pleased with the new Propagating Plant Frame which you supplied two or three months ago, heated by Rippingille's Patent Stove. The frame does its work in the most perfect manner, and at a very trifling cost for oil. I have used it with great advantage in raising plants from seeds, and in propagating trees from cuttings, and I think the apparatus just the thing for amateur gardeners who do not happen to possess luxurious and costly forcing houses.—Yours obediently, GEORGE LINDSEY.

Sent packed free and carriage paid to any railway station in England.

Write for Price List and particulars to—
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And say where you saw this advertisement.

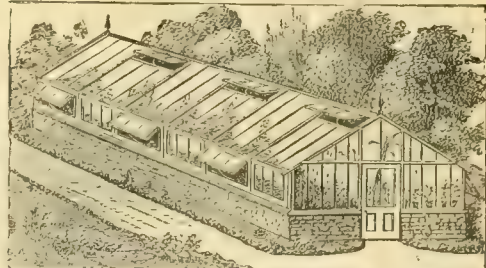
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All sizes in Stock or in progress. Made of best material, glazed or unglazed, 6 feet by 3 feet 10½ inches, painted three times, glazed with 21-oz. English glass, 16s. each. Special price for a quantity. Carriage free. Packing free.

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LIGHTS ONLY.

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| 3 feet by 4 feet light, not painted nor glazed | 3 6 |
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**RICHARDSON'S PATENT
HORTICULTURAL BUILDINGS**



SECTION OF PATENT ROOF VENTILATOR

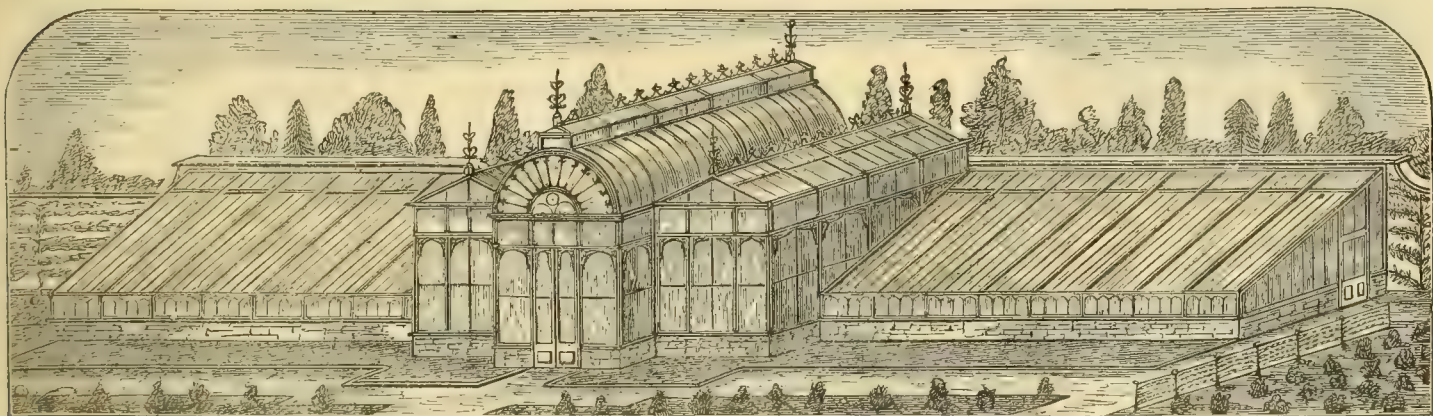
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Hot-water Apparatus fixed in any part of the Kingdom, and guaranteed.

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MANSSION HOUSE BUILDINGS,
QUEEN VICTORIA STREET, LONDON, E.C.,
CONSERVATORY AND GREENHOUSE BUILDERS,
AND
HOT-WATER ENGINEERS.

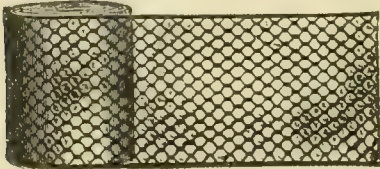
**HENRY ORMSON,**

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS ENGINEER,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

**THE BEST BUILT HOTHOUSES AND CONSERVATORIES.**

Surveys made and Gentlemen waited on in any part of the Country. Catalogues, Plans, and Estimates supplied gratis on application.
UNSURPASSED BOILERS AND HEATING APPARATUS.

MAIN'S GALVANISED WIRE NETTING.
REDUCED PRICES.
COMPARE PRICES and QUALITY.



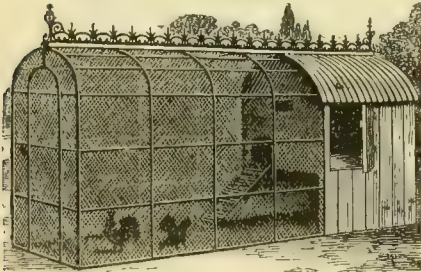
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Other widths at equally low prices.
200 yards sent carriage free to most railway stations.
Price Lists Free.

A. & J. MAIN & CO.,
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And at Glasgow, Edinburgh, and London.

BOULTON & PAUL, NORWICH.

IMPROVED PORTABLE POULTRY HOUSE,
PHEASANTRY or AVIARY.



The Roosting Laying House is made of wood, painted green outside and lime-whited inside, with run underneath for shade and shelter; new circular-shaped galvanised roof, which is very ornamental, and affords good ventilation; fitted with shifting perches, sliding window, large door and lock for attendant, small door for fowls, and hen ladder, no nest boxes. Strong galvanised Wire Run, as illustrated, with door, and lock, and all necessary bolts and nuts complete.

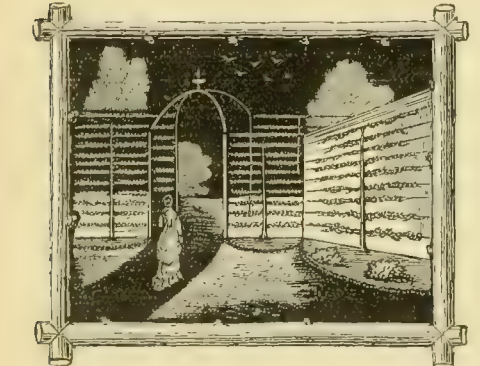
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Houses can be had without runs if required.
New Illustrated Catalogue free on application.

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BRIERLEY HILL IRON WORKS,
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and 180, BUCHANAN STREET, GLASGOW.



GALVANISED FITTINGS
FOR
Wiring Garden Walls & Training Fruit Trees.
Admitted by every practical gardener to be an immense improvement upon the old system of nails and shreds, no damage being done to the wall, and the tying being effected in a much better manner and in a quarter of the time; all the fittings are galvanised, thus making them imperishable.

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| GALVANISED EYES for Guiding the Wires upon the Walls | 0 | 4 per dozen. |
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| GALVANISED RAIDISSEURS, for Straining the Wires | 3 | 0 " |
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| EYE BOLTS, to use instead of Raidisseurs | 3 | 0 per dozen. |
| Best No. 14 GALVANISED WIRE | 2 | 0 per 100 yards. |


Carriage paid upon all Orders of 40s. and upwards

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IMPROVED ESPALIER FENCING AND WALL TRAINERS.
Estimates given free of charge for Espalier Trainers for Fruit Trees, &c. The Espalier can be easily fixed, wood or stone blocks being unnecessary. In writing for Estimates please give exact lengths required, with a rough sketch showing angles, if any.
FITTINGS for WIRING FRUIT WALLS.—Having a large stock, orders can be executed on receipt at reduced prices. Carriage Paid on Orders of 40s. value. Illustrated Lists, with full particulars, free on application.

WROUGHT IRON GARDEN ARCHES.

No. 1.



No. 3.



No. 1.—This Arch is very strong, and suitable for training Creepers of any kind.
Wrought Iron Frame, covered with stout galvanised Wire Netting, 7 feet high, 4 feet span, 2 feet wide, frame painted green, 17s. 6d. each.
No. 3.—7 feet high, 4 feet span, 1 foot 6 inches wide, painted green, 16s. 6d. each.
Orders executed on receipt. Carriage Paid when Orders amount to 40s.

BOULTON & PAUL, NORWICH.

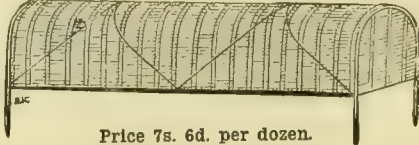
RALPH WALLER AND CO., 45, Dale Street, Manchester, Manufacturer of all kinds of GARDEN NETTING, &c., for protecting Fruit Trees from Frost; also HOTHOUSE SHADINGS of various thicknesses, superior to any other yet discovered for Lightness, Strength, and Durability, standing, as they do, all weathers.
TIFFANY of various kinds always on hand. Netting and Shading in pieces 30 yards long, by 1 1/2 yard wide. Tiffany in pieces 20 yards long, 38 inches wide. Also Tiffany mineralised. NETTING, No. 1, 4d. per square yard; No. 2, 3 1/2d.; No. 3, 4 1/2d.
HOTHOUSE SHADINGS. FINE NETTING, 5d. per square yard; No. 6A, 8d. No. 6, 9d.; No. 6, improved, 9 1/2d.
TIFFANY, No. 1, 3s. 6d. per piece, Mineralised, 4s.; No. 2, 4s. 6d. per piece, Mineralised, 5s.
Samples on application.

TIFFANY and ELASTIC NETTING (REGISTERED).—It is now twenty-five years since we introduced the article we called "SHAW'S TIFFANY" for horticultural shading and protecting, and up to the present all imitations have fallen short of the beauty, texture, and utility of the article. Our immense sale enables us at all times to put it on the market at a lower price than any other house.
Tiffany and Elastic Netting (REGISTERED), with Canvas and all other Shading and Protecting Materials, manufactured and sold by JOHN SHAW AND CO., 29, Oxford Street, Manchester. Samples and prices on application.



HIGHEST AWARD
GOLD MEDAL
TO
J. J. THOMAS & CO.
Paris Exhibition, 1878,
For Wire applied to Horticultural Purposes.

PEA AND SEED GUARDS.
GREAT SUCCESS.
REDUCED PRICES. SEASON 1879.
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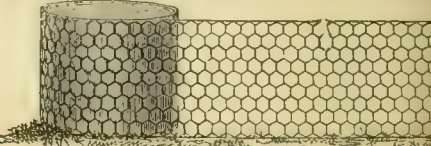
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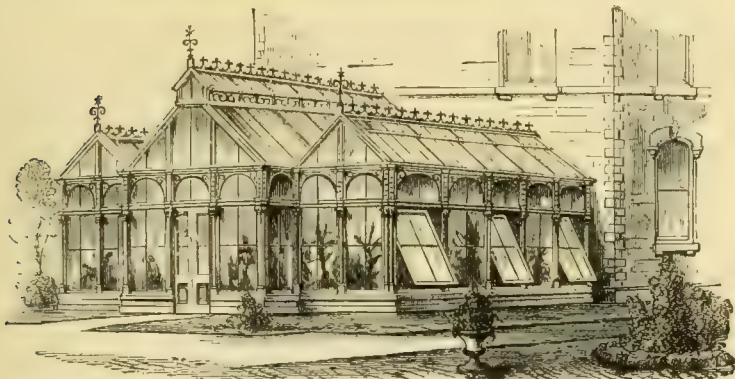
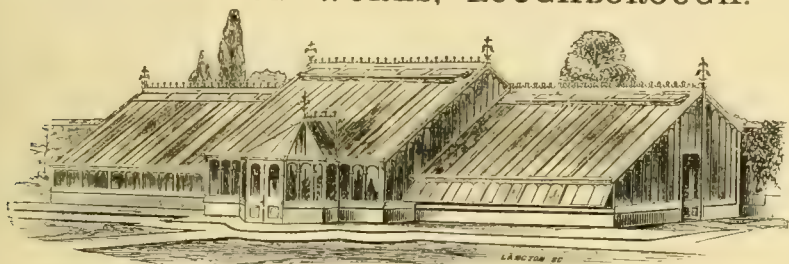
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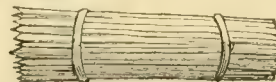


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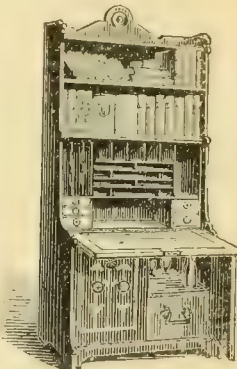
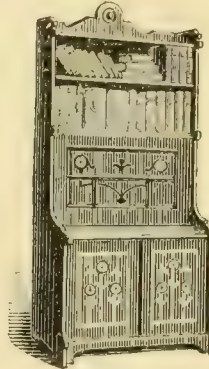
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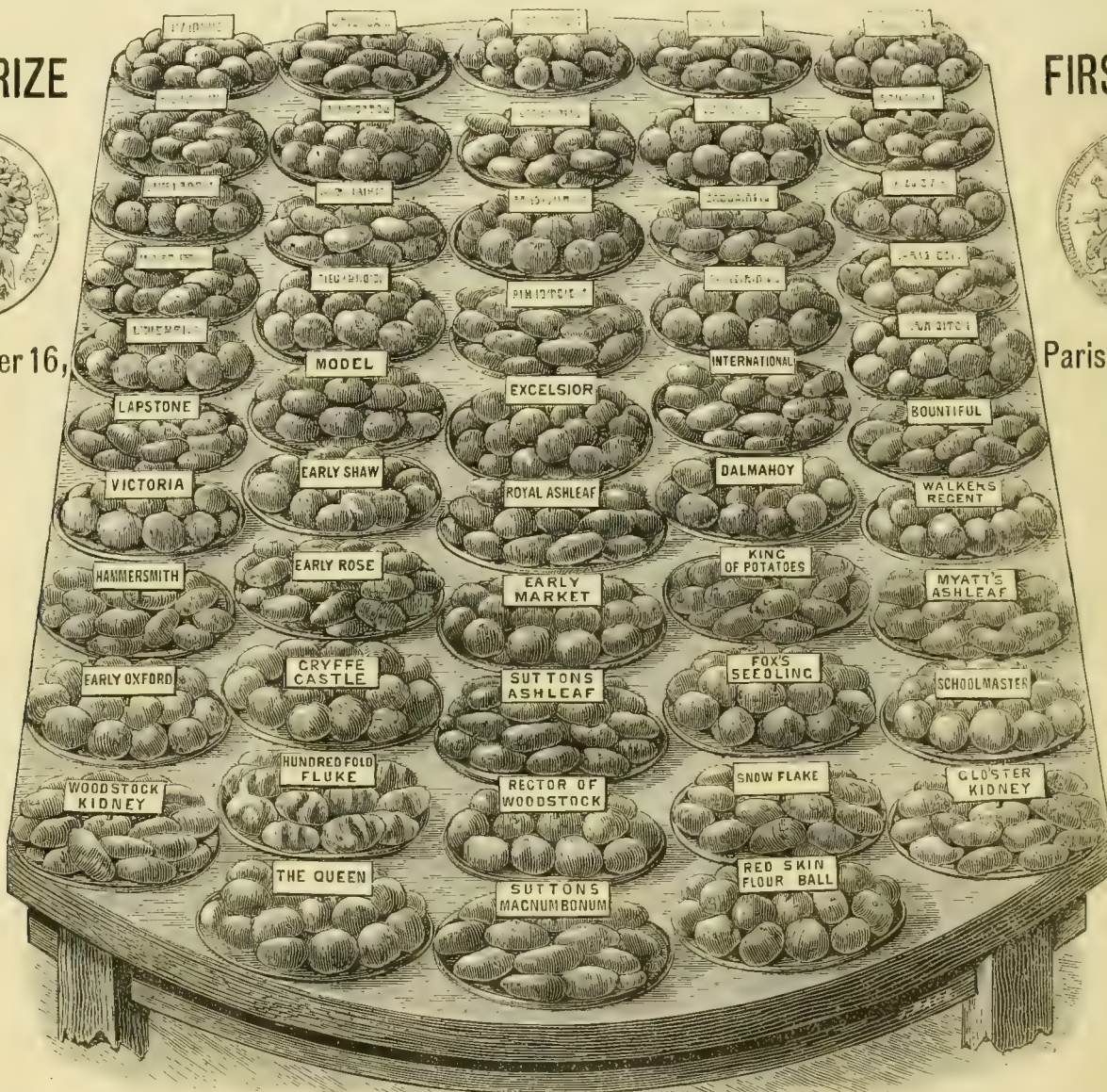


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Roses for 1879 is a most select one of the best New English and French varieties. Gratis and post-free to applicants.

EWING AND CO., Eaton, near Norwich.

Calceolaria, Cineraria, Primula, and Hollyhock. F. AND A. SMITH offer the above, saved

from their unrivalled strains, in 1s., 2s. 6d., and 5s. packets. Price, per weight, to the Trade on application.

The Nurseries, West Dulwich, S.E.

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

Now Ready, in cloth, 16s.,

THE GARDENERS' CHRONICLE VOLUME for JULY to DECEMBER, 1878.

W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park.

EXHIBITIONS of SPRING FLOWERS, WEDNESDAYS, March 26, April 23.

SUMMER EXHIBITIONS, WEDNESDAYS, May, 21, June 18.

EVENING FETE, WEDNESDAY, July 2.

SCHEDULES of PRIZES, TICKETS, &c., now being issued.

SHROPSHIRE HORTICULTURAL SOCIETY.—ROSE SHOW, July, 3; GREAT SUMMER SHOW, August 20 and 21; CHRYSANTHEMUM and FRUIT SHOW, November 20. Schedules from the Hon. Secs.,

Messrs. ADNITT AND NAUNTON, Shrewsbury.

THE KENDAL FLOWER SHOW will be held at Kendal on JULY 17 and 18. NURSERYMEN'S PRIZES, 52 GUINEAS. PRIZES for TABLE DECORATIONS, 21 GUINEAS, and 280 other PRIZES.

Schedules free on application to D. I. PENNINGTON, } Hon. Secs. JNO. MONKHOUSE, }

Kendal.—Feb. 18, 1879.

NEW CATALOGUE for 1879.—The most comprehensive Catalogue issued of reasonably-priced Plants and Seeds of the best quality, and suitable for all who love a Garden or Greenhouse. See last week's large advertisement, and write for a Catalogue.

WM. CLIFFRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to

The LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

CHAMPION POTATO is acknowledged to be, both in Kent and Scotland, the best Farmer's or Field Potato; most reliable in all soils and seasons, and its extended cultivation yearly is most marvellous.

Price per ton on application. H. ORMSBY, Swanley, Kent.

To the Trade, &c. ASPARAGUS, GIANT.—Splendid Roots for Planting, in immense quantity.

EWING AND CO., Norwich.

SEAKALE, ASPARAGUS, and RHUBARB ROOTS, for forcing; also for planting. For prices, apply to

H. THORNTON, 1, Maxwell Road, Fulham, S.W.

SCARLET RUNNER BEANS (New English).—For Sale about 10 Bushels of the above, in splendid condition. For lowest cash price apply to

W. R. HARRISON, High Street, Maidstone.

Mangel Seed. JOHN SHARPE is now prepared to make

special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs.

Bardney Manor, Lincoln.

SALES BY AUCTION.

Importations of Orchids and Bulbs from Japan, NEW JERSEY, and other parts.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY**, March 3, at half-past 12 o'clock precisely, an importation of **JAPANESE ORCHIDS** in fine condition, including *Angraecum falcatum*, *Calanthe Sieboldii*, *Aerides japonicum* and another new *Aerides*; 3000 fine bulbs of *Lilium krameri* and 10,000 splendid roots of *Tigridia grandiflora* from Japan; 5000 splendid roots of *Tigridia grandiflora* from New Jersey (see Coloured Plate in *Garden*, Feb. 15); Hardy North American Orchids, a quantity of New Holland dwarf Pitcher-plants, *Cephalotus follicularis*, English-grown *Lilies*, *Gladioli*, *Anemones*, *Ranunculi*, &c., from Holland. On view morning of Sale, and Catalogues had.

Rare Hardy Plants and Bulbs.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, March 5, at half-past 12 o'clock precisely, fine lot Standard, Dwarf, Climbing, and other **ROSES**, consisting of all the best varieties grown; a quantity of **BEGONIAS**, including flowering plants of *B. Frœbelii*, a quantity of Hardy **CYPRIPEDIUMS**, and a large quantity of first-class Hardy **PERENNIALS**, including quantities of **PRIMULAS**, **AGAPANTHUS**, **PYRETHRUMS**, **PHLOX**, **LILIES**, **CANNA**, **CAMPANULAS**, **LYCHNIS**, and French **MARGUERITE**, and many other first-class plants. On view morning of Sale, and Catalogues had.

Dendrobium superbiens.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, March 6, at half-past 12 o'clock precisely, some good plants of this magnificent **DENDROBIUM**. It produces from fifteen to twenty flowers on a spike, of a bright amethyst-purple colour. The rich hue of the flowers of this *Dendrobium*, together with its free-blooming character, and the remarkably persistent nature of the blossoms, lasting as they individually do nearly three months, makes it a most desirable species. On view morning of Sale, and Catalogues had.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, March 6, at half-past 12 o'clock precisely, a small **COLLECTION** of **ESTABLISHED ORCHIDS**, including some choice things, such as *Masdevallia tovarensis*, *M. trochilus*, *Oncidium zebrinum*, *Dendrobium MacArthurii*, *Cattleya Dowiana*, *C. Trianae* splendens, *Oncidium superbiens*, &c.; also some plants of a new and very distinct **DENDROBIUM** from Torres Straits, **DENDROBIUM SMILLIE**, introduced for the first time: the racemes of flowers are whitish, tinted with rosy purple and tipped with green; also some good plants of the new and pretty *Lalia-like* **ARUNDINA BAMBUSEFOLIA**; also **CELOGYNE CORYMBOSA**, **C. GLOANDULOSA**, **C. FLACCIDA**, **C. CRISTATA**, and **C. OCELLATA**. These white-flowered, sweet-scented *Celogyne*s are most useful where cut flowers are required, or for general decorative purposes. On view morning of Sale, and Catalogues had.

Importation from the Cape.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **FRIDAY**, March 7, at half-past 12 o'clock precisely, an importation from the Cape, consisting of several species of **PELAGONIUMS**, **OXALIS**, **HEMANTHUS**, **BRUNSVIGIA**, **AMARYLLIS**, &c.; a Collection of English-grown **LILIES**, consisting of *Brownii*, *pardalinum*, *giganteum*, and many other first-class varieties; also **Border PERENNIALS**, consisting of *Spiraea palmata*, *Senecio pulcher*, *Wahlenbergia*; *Iris*, seedling varieties of *pumila*; new *Primula* from Kashmir, *Orchis foliosa*, *Polygonatum giganteum*, *Cypripedium spectabile*, *Begonia Frœbelii* in flower, *Veitchii*, *rosæfolia*, and other varieties; *Calceolus*, and many other first-class plants. On view morning of Sale, and Catalogues had.

Lilies, Fruit Trees, Roses, &c.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **SATURDAY**, March 8, at half-past 12 o'clock precisely, **FRUIT TREES** of various sorts; Standard, Dwarf, Moss, and Climbing **ROSES**; Hardy **BULBS**, &c.; a quantity of *Agapanthus*, *Begonias*, and other good Conservatory Plants; **LILIAM AURATUM**, **KRAMERI**, and other first-class varieties, and a large quantity of first-class Hardy **Perennials**, consisting of *Heimerocallis*, *Primulas*, *Phloxes*, *Pyrethrums*, *Iris*, *Pæony*, *Delphiniums*, *Geum*, *Campanula*, *Viola*, *Lychnis*, and many others, &c. On view morning of Sale, and Catalogues had.

Imported and Flowering Orchids.

MR. J. C. STEVENS has received instructions from Messrs. J. Backhouse & Son, of York, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY**, March 10, at half-past 12 o'clock precisely, a valuable Collection of Imported and Flowering **ORCHIDS**, comprising fine plants of the newly reintroduced *Odontoglossum Londeborghianum*, which bears large and showy fine yellow flowers, heavily and richly barred with concentric bars of crimson; *Epidendrum nemorale*, grand masses, the finest ever offered; *E. vitellinum majus*, also very fine masses; *Lalia peduncularis* and *Cypripedium Irapeanum*, both very rare and beautiful. Amongst the Flowering Orchids will be found well grown plants of *Odontoglossum vexillarium*, exceedingly strong and promising; *Bollea celestis*, *Disa grandiflora*, *Cattleya Trianae tyrianthina*, a variety of great beauty; *Dendrobium Wardianum*, *Masdevallia Bella*, and several plants of the true *Trichopilia fragrans*, with pure white sweet-scented flowers; *Odontoglossum Phalaenopsis*, &c. On view morning of Sale, and Catalogues had.

Important Sale of about 200 choice Double Camellias, 2 to 4 feet, English-grown, beautifully set with bloom-buds, and in perfect health; choice **AZALEA INDICA**, a superb assortment of 500 handsome Standard **ROSES**, selected **FRUIT TREES**, Hardy **CONIFERÆ**, **SHRUBS**, and **AMERICAN PLANTS**, with some **ERICAS**, **EPACRIS**, and other **GREENHOUSE PLANTS**, **DAHLIAS**, **LILIUMS**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on **TUESDAY**, March 4, at 12 o'clock precisely. On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C.

Tooting, S.W.

Important to Gentlemen making Plantations, Builders, Nurserymen, and others.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to **SELL** by AUCTION, on the Premises, Exotic Nursery, on **WEDNESDAY**, March 5, at 12 o'clock precisely, a large quantity of remarkably well-grown young **NURSERY STOCK**, in excellent condition for removal, comprising several thousands of choice Evergreen and Coniferæ Shrubs for Borders, including handsome specimens, Ornamental and Forest Trees in splendid assortment, fine bearing Fruit Trees, Roses, Creepers, &c., together with miscellaneous Greenhouse and Stove Plants in variety.

May be viewed. Catalogues obtained on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

The Nursery, Leigham Court Road, Streatham, S.E. FINAL CLEARANCE SALE.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. G. Clark to **SELL** by AUCTION, on the Premises, on **FRIDAY**, March 7, at 12 o'clock punctually, the whole of the well-grown **NURSERY STOCK**, in capital condition for removal, comprising magnificent *Araucarias*, *Deodars*, fine common and Portugal *Laurels*, *Box*, *Green Hollies*, *Aucubas*, and other Evergreens, Fruiting *Apples* and *Pears*, Heavy *CART*, small *Rick* of *HAY*, and other effects.

May be viewed. Catalogues of Mr. J. NEVILLE, on the Premises; and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Lea Bridge Road Nurseries, Leyton, E.

PEREMPTORY CLEARANCE SALE, the Land having to be surrendered for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to **SELL** by AUCTION, without reserve, on the Premises, as above, on **MONDAY**, March 10, at 12 o'clock punctually, several thousands of Ornamental and Flowering **TREES**, Evergreen and Flowering **SHRUBS**, Standard, Pyramid, and Dwarf-trained **FRUIT TREES**, with about 2000 very fine Standard **ROSES**, arranged in lots to suit large as well as small buyers.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

N.B. Trains leave Liverpool Street for James Street Railway Station (which is within a few minutes' walk of the Nursery) every half hour.

Ascot, Berks.

Important Four Days' Sale of remarkably well-grown **NURSERY STOCK**, in splendid condition for removal, offering a grand opportunity to Gentlemen, Builders, Nurserymen, and others largely engaged in planting.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Standish & Co. to **SELL** by AUCTION, on the Premises, the Royal Nurseries, Ascot, Berks (one mile from the Ascot Railway Station), on **TUESDAY**, March 11, and the three following days, at 11 for 12 o'clock precisely each day, several acres of remarkably well-grown **NURSERY STOCK**, including 10,000 *Border Shrubs*, consisting of the choicest Evergreens and Coniferæ in cultivation; also planted in quarters, 12,000 *Common Laurels*, 1 to 4 feet; 2000 improved kinds; 8000 *Cupressus Lawsoniana*, 2 to 5 feet, including four of the best varieties; 5000 *Variegated and Hybrid Hollies*; 6000 *Common Hollies*; 8000 *Retinosporas*, 1 to 3 feet, pretty stuff for potting; 3000 *Aucubas*, 2000 *Euonymus*, 5000 *Thujas* and *Piceas* of sorts; 6500 *hybrid and pontica Rhododendrons*, and thousands of other *Shrubs*; 10,000 *Larch*, 5000 *Spanish Chestnuts*, 20,000 *Spruce Firs*, 8000 *Austrian* and *Laricio Pines*, 6000 *Scotch Firs*, 500 *Planes*, 6 to 8 feet; and other *Forest and Ornamental trees*; 3000 *Standard* and *Pyramid Fruit-trees*, 2000 *Standard Roses*, 1000 *Tea Roses* in pots, together with a choice assortment of *Pot Plants*.

The Stock may be viewed at any time prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, London, E.C., and Leytonstone, E.

Refreshments provided for purchasers.

Taunton, Somerset.

FINAL CLEARANCE SALE.—Land Sold for Building.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, by order of Mr. Wm. Hockin, on the Premises, the Nurseries, Taunton, on **TUESDAY** and **WEDNESDAY**, March 11 and 12, at 12 o'clock precisely each day, the remaining **NURSERY STOCK**, including 3000 *Fruit Trees*, thousands of *Laurels* and other useful shrubs, Standard and Dwarf *Roses*, Stove and Greenhouse *Plants*, 2000 *Bedding Geraniums*, 1000 *Calceolarias*, *Lily of the Valley*, *Liliums* and *Ferns*; together with the erections of four **GREENHOUSES**, quantity of *Garden FRAMES*, Hot-water *PIPING* and *Utensils*, and numerous effects.

May be viewed. Catalogues had on the Premises; and of the Auctioneers, 98, Gracechurch Street, E.C.

Tottenham, N.

PEREMPTORY CLEARANCE SALE on land taken by the Great Eastern Railway from Mr. T. S. Ware.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, Hale Farm Nurseries, Tottenham, on the east side of the line and close to the Tottenham Railway Station, without reserve, on **TUESDAY**, March 18, at 12 o'clock precisely, a large assortment of **CONIFERÆ** and **EVERGREEN SHRUBS**, quantities of *Standard* and *Dwarf ROSES*, *FRUIT TREES*, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

Tooting, S.W.

PRELIMINARY NOTICE.

In Liquidation.—Re William Rollison & Sons.

FINAL CLEARANCE SALE OF PLANTS, together with the SHOP FIXTURES AND UTENSILS IN TRADE.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to **SELL** by AUCTION, on the Premises, The Nurseries, Tooting, S.W., on **WEDNESDAY**, March 19, and following days, at 11 for 12 o'clock precisely, the remaining Stock of choice **STOVE** and **GREENHOUSE PLANTS**, the whole of the extensive collection of **HERBACEOUS** and **ALPINE PLANTS** in pots, together with the whole of the *Utensils* in Trade, *Shop Fixtures*, *Loose Frames*, and *Sashes*, *Horse*, *Van*, *Carts*, thousands of *Pots*, and numerous other effects. Further particulars will appear.

FOR IMMEDIATE DISPOSAL, a **NURSERY, SEED, and FLORIST'S BUSINESS** (in consequence of the ill health of the Proprietor), old established, with good connection. For particulars apply to **HENRY BAKER**, The Nurseries, Atherstone.

FOR SALE, by Private Bargain, a **NURSERY and SEED BUSINESS**.—The Business of Galloway & Graham, Nurserymen and Seedsmen, carried on at 138, Queen Street, Glasgow, with Nurseries at Old Kilpatrick, is offered for Sale, on account of the death of Mr. Galloway. The Stock at present is valued at £1832 9s. 5d. The Firm have had a large connection. The Nurseries are favourably situated, and the Stock is in good condition for a profitable Business being in prospect.—Further information can be obtained on application to the Subscribers, with whom Offers are to be lodged on or before March 12.

MOORE and BROWN, C.A., 128, Hope Street, Glasgow.

To Florists, Hothouse Produce Growers, and Others.

TO BE LET, AVONDALE VILLA, Queen's Road, Hampton Hill, Middlesex. These Premises are admirably adapted for above businesses, having an acre of Land and three Span-roof Hothouses, showing 3000 feet super of Glass, heated with Deard's Patent Boiler. The house contains eight rooms, and is pleasantly situated. Rent £70 per annum. For full particulars apply only to Mr. BRADSHAW BROWN, Auctioneer, 16, London Street, Fenchurch Street, E.C., and Millwall, E.

TO BE LET, together or separately, a **MARKET GARDEN, FARM, and ORCHARD**, with immediate possession, by direction of the Executor; from 50 to 90 acres of Land, with House and Homestead; near Sunbury-on-Thames. Apply to Mr. NIGHTINGALE, Land Agent, High Street, Kingston, Surrey.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

MESSRS. PROTHEROE AND MORRIS' **HORTICULTURAL REGISTER** contains full particulars of the above, and can be obtained gratis at 98, Gracechurch Street, E.C.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKKITH and CO. (established 1822), Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the world.

Horticultural Valuations.

MR. EDWIN COOLING, LICENSED VALUER, undertakes the VALUATION of all kinds of **HORTICULTURAL PROPERTY**. Terms on application. Mile Ash Nurseries, Derby.

The Lovely Cape Water Lily.

APONOGON DISTACHYON.—Strong native roots, 14s. and 21s. per dozen, 1s. 6d. and 2s. 6d. each. Price to the trade on application. HOOPER and CO., Covent Garden, London, W.C.

QUICK, strong, up to 3 feet, also cheap, to clear.

- 1000 **ROSES**, choice dwarf, fine plants.
- 300 **PINE**, Specimen Austrian. And about
- 1000 **CONIFERS**, Specimen, and other Trees.

WM. GROVE, Nurserymen, Hereford.

To Florists and the Trade.

CAMELLIAS, Double White, and Red do.; **LILY OF THE VALLEY**, **SPIRÆA JAPONICA**, **ROSES**, White **AZALEA**, Scarlet **GERANIUM**, **MAIDEN-HAIR FERN**, &c. Prices on application. C. WILSON, The Nurseries, Summerhow, Kendal.

To the Trade.

IRISH IVIES, staked, in pots, strong, 5 to 6 feet, 50s. per 100. **AUCUBA JAPONICA**, 2 to 2½ feet, fine bushy plants, splendid foliage, 50s. per 100, for cash with order. Delivered free within 6 miles of nursery. W. FROMOW, Sutton Court Nursery, Turnham Green, London, W.

BLACK ITALIAN POPLARS, 8 to 10 feet, 10 to 12 feet, and 12 to 15 feet, stout, well-grown trees, to be sold cheap. Sample and price on application. G. W. PIPER, The Nurseries, Uckfield.

ENGLISH OAKS.—Tall straight Standards, 10 feet high, 20s. per 100, £8 8s. per 1000, for cash. J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

BLACKTHORN for Covert Planting, one million of strong transplanted, 10s. to 15s. per 1000. THOMAS PERKINS and SONS, 34, Drapery, Northampton.

Dahlia Pot Roots.

THOMAS BURY begs to offer the above, in all the leading varieties, at 18s. per 100. Cash with order. The Nurseries, Osbaldeston, near Blackburn.

To the Trade.

SEED POTATOS.—Our **SPECIAL LIST**, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application. H. AND F. SHARPE, Seed Growers, Wisbech.

To the Trade.

MYATT'S ASHLEAF KIDNEY POTATO —For Sale, a fine even sample of these, quite free from frost or disease. Price, per ton, on application to W. TAIT and CO., Seedsman, Dublin.

NATIVE SCOTCH FIR, extra strong, and all other **FOREST TREES** grown in exposed situations. DICKSONS and CO., Nurserymen and Seedsman, 1, Waterloo Place, Edinburgh.

MAHONIA AQUIFOLIA.—Transplanted, 6 to 12 inches, 12s. per 1000; 1 to 1½ foot, 20s. per 1000. THOMAS PERKINS and SONS, 34, Drapery, Northampton.

RASPBERRY CANES.—For Sale, 150,000 Fastolf, at 17s. per 1000, free on rail. Cheque or reference to a London house required with order. R. BATH, Crayford

CHARLES SHARPE & CO.

STERLING NOVELTIES.

SHARPE'S INVINCIBLE PEA.
The finest Blue Marrow Pea in cultivation.
Extraordinary cropper: pods containing 12 to 13 peas.
Per Quart, 2s. 6d.; per Half-pint, 1s., post-free.

SHARPE'S RAUCEBY HALL MELON.
Unequalled for flavour, and abundant cropper.
Per Packet, 2s. 6d.

SHARPE'S CONQUEROR LONG-POD BEAN. As an exhibition variety unexcelled; pods 12 to 14 inches long.
Per Pint, 2s. 6d.

SHARPE'S EMPEROR RED BEET.
The perfection of Red Beet, either for bedding or culinary purposes.
Per Packet, 1s.

SHARPE'S PRIZE WHITE SPANISH ONION. There is nothing finer in White Spanish Onions than this variety. For exhibition it has no equal.
Per Packet, 1s.

SHARPE'S LINCOLN GREEN PARSLEY. Deep green, well curled, and not affected by hot weather.
Per Packet, 6d.

All sent Free by Post, except Peas.

PRICE TO THE TRADE ON APPLICATION.

Catalogues Post-free.

CHARLES SHARPE & CO.,
SEED MERCHANTS AND GROWERS,
SLEAFORD.



EDELWEISS.

(GNAPHALUM LEONTOPODIUM, Jacq)

CHARLES SHARPE AND CO.
having received a small supply of Seed of the above little Alpine Plant with woolly silvery-white bracts, can offer Packets post-free at 1s. 6d. each. Its cultivation presents no difficulty, and full instructions will be sent with each packet.

SHARPE'S extra choice CALCEOLARIA.
Per Packet, 2s. 6d.

SHARPE'S extra choice CINERARIA.
Per Packet, 2s. 6d.

SHARPE'S extra choice PRIMULA SINENSIS. Red, White and Mixed.
Per Packet, 2s. 6d.

These three varieties of Florist's Flowers are the finest ever offered, having been carefully selected for years and grown specially for us.

FREE BY POST.

SLEAFORD

PARIS EXHIBITION, 1878.



The Medals of Paris for Vegetable and Flower Seeds.

EXCELLENCE
COMBINED WITH
ECONOMY.

Ed Webb & Sons
HOME-GROWN

VEGETABLE SEEDS.

PEAS.

WEBB'S TRIUMPH PEA (New).—A wrinkled marrow of fine flavour, very prolific, the best for main crop. Per quart, 3s. 6d.

PEAS.

WEBB'S PERFECTION.—The earliest and most prolific. Per quart, 1s. 6d.

BEANS.

WEBB'S VICTORIA DWARF FRENCH.—A splendid variety, remarkably prolific and of dwarf compact habit. Per quart, 2s. 6d.

BEE.

WEBB'S IMPROVED DARK RED.—Excellent for the table. Splendid colour, very tender, and of delicious flavour. Per ounce, 1s. 6d.

BROCCOLI.

WEBB'S CHAMPION.—The finest variety grown; should be in every garden. Per packet, 1s.

BRUSSELS SPROUTS.

WEBB'S MATCHLESS.—A most excellent variety—unsurpassed. Per packet, 6d. and 1s.

CABBAGE.

WEBB'S EMPEROR.—The best for general use. Very hardy and early, with close, compact heads. Per ounce, 1s.

CAULIFLOWER.

WEBB'S EARLY MAMMOTH.—The best for main crop; heads large, firm, and beautifully white. Per packet, 1s.

CELERY.

WEBB'S MAMMOTH RED.—The hardiest Celery in commerce. A very large variety, of excellent flavour. Per pkt., 1s.

CUCUMBER.

WEBB'S PERPETUAL BEARER.—Very free bearer, fruit large, handsome, and of delicate flavour. Per packet, 2s. 6d.

LETTUCE.

WEBB'S SUMMERHILL CABBAGE.—The best summer Lettuce that can be grown. It folds in quickly and is of excellent flavour. Per packet, 6d. and 1s.

MELON.

WEBB'S WOODFIELD.—An exquisite green-fleshed variety. Per packet, 2s. 6d.

POTATOS.

WEBB'S IMPROVED SCHOOLMASTER.—A splendid new round variety, great cropper, of excellent flavour. Per peck, 6s.; per bushel, 21s.

RADISH.

WEBB'S EARLY FRAME.—The best early kind for forcing. Per ounce, 4d.; per pint, 1s. 9d.

For full Particulars, and of other Varieties, see

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SPRING CATALOGUE
For 1879.

Post-free 1s. Gratis to Customers.

THE QUEEN'S SEEDSMEN,
Wordsley, Stourbridge.



DANIELS BROS.'
"DUKE OF EDINBURGH"
CUCUMBER.

"The finest in Cultivation."



From Mr. THAIN, Wortley Park, January 29.

"I have grown your 'Duke of Edinburgh' Cucumber every year since you sent it out, and have always taken First Prize at our Show."

"I have grown your 'Duke of Edinburgh' Cucumber for four seasons, and like it better than any other."

From J. W. HALLIWELL, Esq., Stratford House, February 8.

DANIELS BROS.'

"Duke of Edinburgh" Cucumber.

Per Packet, 1s. 6d. and 2s. 6d.

Trade price on application.

A magnificent variety, of a fine robust constitution; its fruit growing rapidly to the length of 30 to 36 inches, being at the same time of the most beautiful proportions and splendid quality. Immensely prolific, and unrivalled for exhibition or general use.

DANIELS BROS'
Seed Growers & Nurserymen.
9 EXCHANGES
NORWICH.

HOOVER'S ROUND WHITE
POTATO. Price 35s. per bushel, 10s. 6d. per peck.
HOOVER AND CO., Covent Garden, London, W.C.

HOOVER'S ROUND WHITE
will please alike Gardener and Farmer.

HOOVER'S ROUND WHITE
is handsome, prolific, and of UNEQUALLED QUALITY FOR TABLE. No coarseness, no earthiness, no disease.

FRUITING PLANTS
of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE
of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps.
CATALOGUES OF ROSES and ORCHARD-HOUSE TREES post-free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Verbenas in Single Pots.

WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash.
Cemetery Nursery, Gravesend.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 5s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.
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Special Offer of Pelargoniums.

WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100, Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash.
Cemetery Nursery, Gravesend.

SCIADOPITYS VERTICILLATA (Sieb. and Zucc).—From this fine Coniferous plant I expect good Growing Seed from Japan in March, which I can offer at 10s. 6d. per ounce, with usual allowance to the Trade.

FRIEDRICH ADOLPH HAAGE, Jun., Nurseryman and Seedsman (Established 1822), Erfurt, Prussia. —January, 1879.

To the Trade

THOMAS METHVEN AND SONS have a large and fine Stock of strong transplanted SCOTCH FIR and PINUS LARICIO, and will be happy to send special quotations on application.
Leith Walk Nurseries, Edinburgh.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Roses, Fruit Trees, and General Nursery Stock.

W. B. ROWE solicits the inspection by Nurserymen of his extensive stock of the above, which are well-grown, and fit for removal.
Barbourne Nurseries, Worcester.

Balsam Seed

F. AND A. SMITH beg to state that their collection of the above is the only one which has been awarded prizes and certificates for the last twenty years, and are generally admitted to be the finest in cultivation; Sold in 1s. and 2s. packets mixed, and in 2s. 6d. collections of nine colours.
The Nurseries, West Dulwich, S.E.

SUTTON'S MAGNUM BONUM
POTATOS for Sale. For Seed Bag of 4 stones, 8s. Post-office Orders payable at Uppingham.
J. W. KINGSTON, Glaston, Uppingham.

VICTORIA RHUBARB.—Strong plants, 5s. per dozen, 24s. per 100. For cash only.
R. BATH, Crayford, Kent.

Special Offer to the Trade.

STRONG STOCK PLANTS of POINSETTIA.
W. M. KNIGHT has to offer an immense Stock of the above, at 4s. per dozen, or 25s. per 100, in 32-size pots, for cash with order. Packing free.
Floral Nurseries, Hailsham.

Larch and Scotch Fir.

LARCH, extra fine, transplanted, 2 to 3 feet, and 3 to 4 feet.
SCOTCH FIR, extra fine, transplanted, 1½ to 2 feet.
For sample and price apply to
JOHN TUCKER, The Nurseries, Bridgewater, Somerset.

GLASTONBURY or HOLY THORN.—Strong plants of above, 3 to 4 feet high, 2s. 6d. each. Always blossoms at Christmas.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

THORNS, LARCH, SCOTCH FIR, HOLLIES, PINUS AUSTRIACA. 1-yr. seedlings; **LARCH, SCOTCH FIR, ASH**, 1-yr. seedling, 1-yr. transplanted. Prices on application.
D. AND W. CROLL, Nurserymen, Dundee, N.B.

Manetti Stocks.

EWING AND CO. have a few thousands more than they require, of very fine quality, which they are offering at a low price.
Eaton, near Norwich.

SPANISH CHESTNUT, ASH, BIRCH
ALDER and HAZEL—stout, well-rooted, transplanted A large quantity to be sold.
Mr. GEO. CHORLEY, Coaster's Nursery, Midhurst.

CHOICE NAMED RHODODENDRONS, fine bushy Plants, are offered at £5 per 100, or selected, 18s. per dozen, by
W. H. ROGERS, Red Lodge Nursery, Southampton.
CATALOGUES free on application.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

CEANOTHUS DENTATUS

JAS. GARAWAY AND CO. offer Strong Plants of the above, in pots, 6s. per dozen, 40s. per 100.
JAS. GARAWAY AND CO., Durdham Down, Clifton, Bristol.

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CUCUMBER.—New Improved Telegraph, 12 seeds, 1s. per packet.
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CELERY.—Dixon's XL, red, 1s. per packet.
1 packet of each for 30 stamps, post-free.
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To SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 122s. per quarter. Samples on application to
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CEDRUS DEODARA, 2½ to 3½ feet, 24s. to 30s. per dozen.
ABIES DOUGLASSII, 5 to 7 feet, 20s. to 30s. per dozen.
CUPRESSUS LAWSONIANA, 2½ to 3½ feet, 10s. per doz.
The above are very fine and well-rooted.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

ENGLISH YEW.—Extra transplanted and well furnished, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 90s. per 100.
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DOWNIE AND LAIRD are now sending out the above, the Finest Varieties in Cultivation, at 9s. per dozen, selection left to D. & L.
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Special Offer.

WM. AND D. STEWART have large quantities of fine transplanted LARCH, 2 to 3 feet, 3 to 4 feet, and 4 to 5 feet. Prices on application.
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WEBB'S PRIZE COB FILBERTS AND OTHER NUTS.
Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to
THE MANAGER, Calcot Gardens, Reading.
CATALOGUES post-free on application.

WEBB'S CHOICE POLYANTHUS AND OTHER SPRING PLANTS.
Early orders are solicited for the above choice plants. Apply to
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NURSERY STOCK to be Sold, cheap, as the ground must be cleared.
LIMES, 12 to 14 feet. MAPLE, Norway, 12 to 15 ft.
BIRCH, 12 to 15 feet. LAURELS, 5 to 6 feet, &c.
SEED POTATOS—White Emperor, Ruby, Porter's Excelsior, Sutton's Magnum Bonum, Late Rose, &c.
Prices on application to
HY. MINCHIN, The Nurseries, Hook Norton, Oxon.

CALCEOLARIA, Golden Gem.—Strong healthy autumn-struck, 6s. per 100, 50s. per 1000.
GERANIUM, Vesuvius.—Strong, from stores, 8s. per 100. Package free, cash.
W. FIELD, Tarvin Road Nursery, Chester.

SEEDLINGS for TRANSPLANTING.—Common HOLLIES, 1-year, 5s. per 1000; MAHONIA AQUIFOLIA, 1-yr., 3s. 6d. per 1000; Common LAURELS, 1-yr. cuttings, 15s. per 1000; BLACKTHORNS, 3-yr. drills, 6s. per 1000.
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To the Trade.

NEW POTATO, "PRIDE OF ONTARIO," and **F. SHARPE** are now sending out the above most prolific and handsome shaped new Potato. Full description and price may be had on application.
Seed Growing Establishment, Wisbech.

DARLEY DALE NURSERIES.—One Hundred and Sixty Acres of Ground covered with TREES and SHRUBS. Many thousands are grown for Ornamental Planting. Amongst them we have large quantities of Picea nobilis, P. Nordmanniana, P. balsamea; Pinus Cembra, P. Strobus, P. Laricio; Cryptomeria elegans, japonica, and Loblii; Yews, Common and Irish, Golden in several varieties; Retinosporas, many kinds; Cupressus Lawsoniana and many beautiful varieties, including lutea and Smith's argentea; Libocedrus decurrens; fine Wellingtonias; Cedrus deodara, &c. Also many fine specimens not mentioned in the CATALOGUE. Also large quantities of Flowering Shrubs, Ribes, Lilacs, Weigelas, &c.
Prices and sizes in CATALOGUE sent free on application to
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HAMPTON COURT BLACK HAM-BURGH VINE.—Strong fruiting well ripened Canes of this well known Grape, 5s., 7s. 6d., and 10s. 6d. each; Planting Canes, 3s. 6d. each. Also a good stock of most of the best kinds.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE
for the present season is now ready, and may be had on application. The stock is very large and most healthy.
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TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.
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SCOTCH GROWN SEED POTATOS.—The following unsurpassed main crop varieties, genuine and sound, viz.:—Dalmahoy Early, Edinburgh or Red Bog Early, Fortfydd, Dunbar Regent, Paterson's Victoria, Walker's Early Regent, and Rintoul's Early White Don, 5s. per bushel.
CHAMPION REGENT, true, 4s. per bushel.
TODD AND CO., Seedsman, Maitland Street, Edinburgh.

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CABBAGE PLANTS.—Can now supply the following good strong healthy plants:—Early Battersea, Early Nonpareil, Early Enfield Market, Early Oxheart, Robinson's Drumhead, and Red Pickling Cabbage. Prices on application.
W. VIRGO, Womersley Nurseries, near Guildford.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers AZALEA INDICA of all sizes, AZALEA MOLLISS, and A. PONTICA; CAMELLIAS, DEUTZIA GRACILIS, DIELYTRA SPECTABILIS, SPIRÆA JAPONICA, PALMS for Table use, DRACÆNAS, FERNS, and YUCCA VARIEGATA.
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HARDY HEATHS.—60,000 good plants, in great variety—fine for Edging, Bedding, Covering Banks or raised mounds. The prices, which are very low, will be found in the CATALOGUE, free per post.
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To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown MANGEL WURZEL and SWEDE, and other TURNIP SEEDS of 1878 growth, and raised from transplanted Bulbs.
Seed Growing Establishment, Wisbech.

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JOHN SOLOMON offers White, Scarlet, Purple, and other mixed sorts, good, strong, autumn-struck Plants, with plenty of good Cuttings, from store pots, at 1s. per store pot. Package free. Cash to accompany all orders.
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RHODODENDRONS—Ponicums, hybrids No. 1 and No. 2, Catawbiense and its hybrids. The best named kinds, and thousands of dwarf kinds. Forty Acres are covered with Rhododendrons, and the plants are suitable for any Garden, and cheap enough to plant for Covert, and are mostly grown on land 100 feet above the sea. For 5000 or 10,000 of one kind special offers will be made.
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THOMAS IMRIE AND SONS, SEEDSMEN, have at present to offer:
CHAMPIONS, PORTER'S EXCELSIOR, VICTORIAS, FORTYFOLDS, and a few others, all specially selected for Seed. Price per Ton or Cwt. on application.
Also samples and prices of Genuine Machine-cleaned AYRSHIRE PERENNIAL RYEGRASS SEED on application.
Ayr, N.B., February 18, 1879.

ASPARAGUS, ASPARAGUS. — Strong roots, 2-yr. old, Conover's Colossal and Giant, 15s. per 1000.
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STANDARD SCARLET RHODODENDRONS, &c., finest named varieties, with straight stems and fine heads, full of blooming buds, are offered at 5s., 7s. 6d., and 10s. 6d. each, by
W. H. ROGERS, Red Lodge Nursery, Southampton.

VERBENAS, VERBENAS, VERBENAS.—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s. Terms cash.
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KENTISH FRUIT TREES, of every description, in 300 varieties, including some Dwarf Pyramid Fruiting APPLES, suitable for windy districts, at extraordinary low prices. Before purchasing elsewhere, send for SPECIAL LIST to
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JOHN WATERER AND SONS, Bagshot, Surrey, beg to offer:—5000 LAURELS, Portugal, 3 to 4 feet. 5000 YEWs, English, 3, 4, 5, and 6 feet. 5000 FIRs, Spruce, 3, 4, 5, and 6 feet. 5000 HOLLIES, Green, 2, 3, and 4 feet. Price on application.

LARCH, 1-yr. seedling; transplanted PEAR STOCKS; SPANISH CHESTNUTS, 6 to 9 inches; Champion and Walker's Regent POTATOS for seed; a splendid collection of PHLOXES, bedding VIOLAS and PANSIES.
DICKSONS AND CO., 1, Waterloo Place, Edinburgh.

SCOTCH FIR, LARCH, Seedling and Transplanted, for sale cheap. Carriage paid to London.
LEVAVASSEUR AND SON, Nurserymen, Ussy (Calvados), France.

SUTTON'S MAGNUM BONUM POTATOS, 10s. per cwt. Apply to W. W. PEARCE, Measham, Atherstone.

IMPORTED AND FLOWERING ORCHIDS.

J. BACKHOUSE AND SON have again instructed **Mr. J. C. STEVENS** to SELL, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, March 10**, at half-past 12 o'Clock precisely, a valuable **COLLECTION** of **IMPORTED** and **FLOWERING ORCHIDS**, comprising fine Plants of the newly reintroduced

ODONTOGLOSSUM LONDESBOROUGHIANUM,

Which bears large and showy pure yellow flowers, heavily and richly barred with concentric bars of crimson.

EPIDENDRUM NEMORALE, grand masses, the finest ever offered.

LÆLIA PEDUNCULARIS, and

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CYPRIPEDIUM IRAPEANUM, both very rare and beautiful.

Amongst the Flowering Orchids will be found well-grown Plants of **ODONTOGLOSSUM VEXILLARIUM**, exceedingly strong and promising; **BOLLEA CÆLESTIS**, **DISA GRANDIFLORA**, **CATTLEYA TRIANÆ TYRIANTHINA** (a variety of great beauty), **DENDROBIUM WARDIANUM**, **MASDEVALLIA BELLA**, and several plants of the true **TRICHOPIA FRAGRANS**, with pure white, sweet-scented flowers; **ODONTOGLOSSUM PHALÆNOPSIS**, &c.

YORK NURSERIES.

THERE WAS ONLY ONE GREAT INTERNATIONAL EXHIBITION

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POTATOS
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WAS AWARDED TO
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A
WONDERFUL
POTATO CROP.

Mr. PENNY, Head Gardener to H.R.H. the Prince of Wales, has produced 15 TONS of handsome POTATOS of CARTER'S Improved Magnum Bonum in a Field Crop of 2 Acres.

This is not the result of a Small Trial Plot.

All Potatos are twice hand-sorted, and all mis-shaped tubers discarded.

WANTED, Transplanted LARCH, 2 to 2½ feet, and 2½ to 3 feet; must be stout, well-rooted, and have perfect leaders. Send three or four fair average Plants as samples (doubled up), by post, with the lowest price, to F. & A. DICKSON AND SONS, Upton Nurseries, Chester.

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EIGHTY ACRES.

ROSES, FRUIT TREES, CONIFERS, FOREST TREES, &c.

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Cultivators of
FRUIT and FOREST TREES,
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
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WOKING NURSERY, SURREY.

A POTATO FOR EVERY GARDEN.



RECTOR OF WOODSTOCK.
(SECOND EARLY.)

One of the finest garden Potatos; a good cropper; flesh lemon-white; skin, white and smooth; shape, flattish round; very handsome; boils mealy, and is of the finest flavour. This Potato should have a place in every garden, and is indispensable for exhibition purposes.

Price, 5s. per 14 lb.

Much cheaper by the sack (of 168 lb.), or ton.

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DEFIANCE

CABBAGE.

Giant Early Marrow.

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CABBAGE.

THE EARLIEST IN CULTIVATION.

"It is a splendid Cabbage. Mrs. Williams cut some last season only eight weeks planted out, weighing 7 lb. each."—Mrs. Williams, Kilmaganny, Ireland.

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THE BEST FLAVOURED CABBAGE.

"I am greatly pleased with your DEFIANCE CABBAGE, which is in all respects the best flavoured, mildest, and finest I have ever seen."—Rev. H. N. Ormsby, Carrig Vicarage, Jan. 13, 1879.

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THE BEST EXHIBITION VARIETY.

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THE MOST PROFITABLE KIND TO GROW.

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DANIELS'
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CABBAGE.

Is the finest and best Cabbage in the world for all purposes, beating every other variety for earliness, quality, flavour and size.

Price in our own Sealed Packets, 1s. 6d. each, 5s. per oz.

DANIELS BROS.,
SEED GROWERS, NORWICH.

SUTTON'S PAMPHLET

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LAWNS, CROQUET GROUNDS and CRICKET
GROUNDS.

May be had gratis, post-free, of
SUTTON AND SONS, The Queen's Seedsmen, Reading.

SAMUEL AND JAMES SMITH, Tansley
Nurseries, Matlock, Derby, beg to offer, viz. :—

Per 1000.

ASH, Mountain, 2 to 3 feet, 16s.; 3 to 4 feet, 21s.; 4 to 5 feet, 27s.; 6 to 8 feet, 70s.; 8 to 10 feet, 100s.

BEECH, 2 to 3 feet, 25s.; 3 to 4 feet, 28s.; 4 to 5 feet, 35s.

CHESTNUT, Spanish, 1 to 1½ foot, 16s.; 1½ to 2 feet, 25s.

Horse, 4 to 5 feet, 35s.; 6 to 8 feet, 100s.

FIR, Spruce, 9 to 12 inches, 10s.; 1 to 1½ foot, 14s.; 2-yr., 1s.

BALM OF GILEAD, 1 to 1½ foot, 20s.; 1½ to 2 feet, 25s.; 2 to 3 feet, 40s.

PINUS MARITIMA, 9 to 12 inches, 10s.; 2-yr., 2s. 6d.

LIMES, 3 to 4 feet, 60s.; 4 to 5 feet, 80s.

POPLAR, Italian, 3 to 4 feet, 25s.; 2-yr., 8s.

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ARBOR-VITÆ, 4 to 6 feet, 80s.

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WHIN, Double, transplanted, 100s.; 2 yr., 50s.

Per 100.

CEDRUS DEODARA, 1½ to 2 feet, 80s.; 2 to 3 feet, 120s.

CRYPTOMERIA ELEGANS, 1 to 1½ foot, 15s.; 1½ to 2 feet, 25s.; 2 to 3 feet, 35s.

CUPRESSUS LAWSONIANA, 2 to 3 feet, 20s.; 3 to 4 feet, 25s.; 4 to 5 feet, 50s.

MEZEREON, Red, 1 to 1½ foot, 12s.

LAUREL, Caucasian, 1½ to 2 feet, 20s.

OAK, Fulham, 6 to 8 feet, 25s.

Scarlet, 6 to 8 feet, 40s.

PINUS CEMBRA, 4 to 6 feet, 40s.

THUJOPSIS BOREALIS, 1 to 1½ foot, 40s.; 1½ to 2 feet, 50s.; 2 to 3 feet, 65s.; 3 to 4 feet, 100s.

HARDY HERBACEOUS PLANTS, 100 distinct varieties, 25s.

NARCISSUS and SCILLAS, in sorts, 8s. per bushel, &c.

ARAUCHARIA IMBRICATA, 12 feet to 17 feet,

THUJA LOBBII, 3 feet to 18 feet.

" GIGANTEA, 3 feet to 10 feet.

THUJOPSIS BOREALIS, 8 feet to 15 feet.

CUPRESSUS LAWSONIANA, 4 feet to 18 feet.

" ERECTA VIRIDIS, 2 feet to 6 feet.

CEDRUS DEODARA, 3 feet to 8 feet.

CRYPTOMERIA ELEGANS, 2 feet to 6 feet.

YEW, Irish, 6 feet to 8 feet.

CABBAGE PLANTS, SEEDS, ROOTS,
&c.—Finest Selected Stock of all kinds, for the Farm or Garden. Largest and Best Stock in the Kingdom.

"Gee's superior Bedfordshire-grown plants and seeds have attained much celebrity."—"The soils of the district offer facilities enjoyed at few places for bringing away plants, seeds, roots, &c., and under the skill and perseverance of Mr. F. Gee they are turned to good account."—*Vide* Opinions of the Press.

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PEARS, Williams' Bon Chrétien and Hessel, Standards,

75s. per 100; **PLUMS, Maiden Victoria, suitable for training,**

35s. per 100; **Victoria, Dwarf-trained, 140s. per 100;**

CHERRIES, Standard, 75s. per 100; also trained PEACHES,

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Special Offer.

GEORGE FARNSWORTH has to offer

large quantities of the following, which are good and well rooted :—

ALDER, 2 to 4 feet, 25s. 6d. per 1000.

ARBOR-VITÆ, American, 2-yr. seedling, 10s. per 1000.

ASH, Mountain, 1-yr. seedling, 3s. per 1000; 3 to 5 feet, 25s. per 1000.

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BERBERIS AQUIFOLIA, 2-yr. seedlings, 5s. per 1000;

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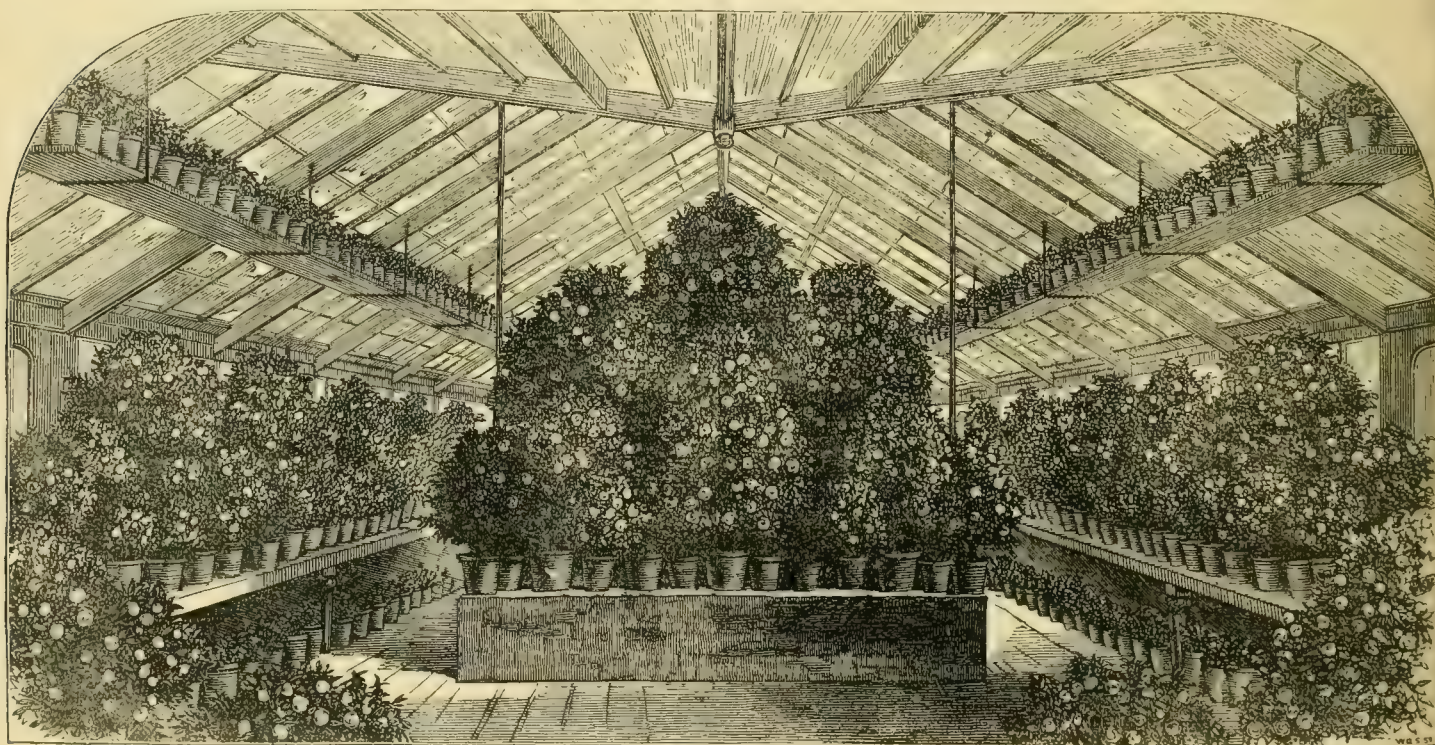


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SATURDAY, MARCH 1, 1879.

INJURIOUS INSECTS.

FOR some time past some very useful work has been done in a very quiet unobtrusive manner in the matter of noting the occurrence and studying the habits of insects injurious to garden and field crops. A certain number of common insects, easily recognised with a little attention, and some of which indeed are apt to force themselves somewhat too prominently on the notice of the cultivator, are selected for observation, and the results recorded. The points to be observed are the time of appearance, the conditions of weather, the amount of damage done to various crops, the means of prevention and of remedy, and other matters which will readily suggest themselves to the observer. The results thus obtained are correlated and digested by Miss Eleanor Ormerod, a Fellow of the Meteorological and Entomological Societies, and a highly competent observer. From her report* we extract the following observations, which will show the utility of the work and the desirability of increasing the number of observers.

"During the past season the most remarkable feature of economic insect observation has been the unusual absence in most places of any great amount of damage from even the most common of our injurious insects, excepting in the case of wireworm ravage in the North. A mild and moist winter was followed by luxuriant vegetation in leafage of trees and wild plants (as shown in the general returns from many of the stations of the Meteorological Society), as well as in the crops, and the rapid healthy growth proved of great service in keeping off insect attack. This may be observed especially in the coincidence of general moisture, or showers at sowing-time, with good Turnip crops; but whether the effect lies in strong growth, keeping the plant ahead of the injury ('growing past' as it is technically termed), or in the state of the sap being less healthy to the insect-feeder than the more condensed juices of drier seasons, requires to be more fully made out.

"Whilst returning our hearty thanks to all those who have kindly rendered assistance by sending the results of their observations (and especially for the fuller notes of the state of the weather, presence or absence of weeds, and also of soils, or action of artificial manures), we cannot help expressing a wish that these had been more generally given. Information on these points is very essential, and observations lose so much of their real value from want of these details that we trust the observers who have kindly promised their notes for the coming year will allow us to press on them the importance of adding to the record of direct injury as much as possible of these coincidences. . . . The details which are particularly wished for are:—

"1st. With regard to weather; a very few lines as to general state through the year, such as any marked succession of warm or cold days, of great rainfalls, or drought.

"2d. Any observations as to the spread of common crop insects from common crop weeds. For instance, with regard to observations of Charlock and Blackthorn in connection with Turnip-fly and Gooseberry caterpillar. These two plants supply food or shelter for two insects that certainly come under the head of 'pests.' Their presence is either agriculturally bad or of little use, but they keep up the supply of successive insect generations in safety because little noticed on these worthless growths.

"3d. Observations as to infested farm stores and seeds might throw much light on the intermittent appearance of some destructive insects. Thus the Wheat midge, *Cecidomyia tritici*, is kept safe in the larval state during winter in neglected chaff-heaps, and the red Clover weevil may be seen in legions creeping from the recently stored Clover. The amount of loss from this insect has

* Notes of Observations on Injurious Insects. 1878. (West, Newman & Co., Hatton Garden.) Pp. 27.

been observed for more than eighty years, and still Apion apricans is at work in the Clover as hard as ever.

"Sometimes the larva is in the seed, as in the case of the Pea and Bean beetles (*Bruchus pisi* and *B. rufimanus*); sometimes the pupa is sown with it, as is the case of the Lettuce fly (*Anthomyia Lactuceæ*), and if more attention was directed to these various details, it is probable that what appear as sudden outbursts might, with many of our farm insects, be traced back to some slight and consequently neglected centre, where they could have been nipped in the bud.

"There seems little doubt but that it is in the small appearances that we shall probably find the key to the great devastations. In themselves it is truly said they are scarcely worth notice (though all the same the smallest loss of crop has its inconveniences), but when the sweep of insect injury comes it is often past the point at which we can tell its origin, as well as how to terminate it."

From the notes relating to the Turnip fly (*Haltica nemorum*) we learn that it was scarcely seen last year.

"At Maxwelltown, Dumfries, the 'fly' was scarcely noticeable, and in the neighbourhood of Dalkeith, where the weather is noticed by Mr. Malcolm Dunn as highly favourable during the sowing season of May and June for quick and healthy growth, the plants were thus run past the stage at which the 'fly' attacks them, and less injury was inflicted than has been observed for many years. He draws attention to anything that promotes healthy rapid growth, till the young plant is well into the rough leaf, being the best preventive of the 'fly,' and that, could the remedy be applied, probably heavy waterings in the evening in dry weather might be of great service, and notes, in the shape of special applications, caustic lime, soot, and guano, which have each their advocates, applied in the morning when the dew is still on the plant, or gas-water applied in the evening, and also benefit from the use of a small quantity of salt. At Welbeck Abbey, Worksop, N. Noits, Mr. R. A. Rolfe notices the 'fly' as rarer than last season, and probably checked by the wet weather of May and the beginning of June. The Turnip crop escaped, whilst last year it had to be sown three times, and he suggests it would be desirable to draw attention to Mr. Benjamin Brown's communication in last year's Report, p. 6, as to Turnip fly appearing first on Charlock, suffered to remain as a weed, and then spreading to Kohl Rabi and Turnips, so as to induce further observations. Mr. Rolfe notices that the locality where 'fly' was particularly destructive last year, is one where Charlock is prevalent. This weed is common throughout the county, more or less plentiful according to agricultural care, some fields being completely yellow with it, others comparatively free, showing where one farm ends and another begins; and he mentions an instance in which a farmer harvested 22 stone of Charlock seed (sold at a good price as bird-seed) from one Wheat field. He draws attention to the benefit of eradicating the food-plant of the 'fly' during the years in which the land is unoccupied by Turnips, and thus preventing, or in some degree checking, its annual multiplication. At Maldon, Essex, from the small amount of Turnips grown on the heavy land, there was little notice of 'fly' ravage, but early in August about a quarter of an acre of Broccoli was seriously attacked by a bronze coloured species. This attack was cured by the application of gas-lime in the early morning for several successive days, together with the influence of the wet weather from August 10 to 17, which enabled the plants to grow away from the attack, those left unattended to in the seed-bed being completely destroyed. Mr. F. Sylvester, The Hedges, St. Albans, notices that as a general rule where superphosphate or other special artificial manures are applied, with or without farmyard manure, the Turnips succumb less to the 'fly,' from the more rapid growth induced by their constituents being presented to them in a soluble and immediately available form. In the present season his first sowing of Swedes so treated, and accompanied by heavy rainfall at sowing time, turned out a splendid plant untouched by 'fly,' whilst in the case of the later ones, where no artificial manure was used and only a few showers occurred whilst they were coming up, the 'fly' attacked and ruined half the crop. Mr. Brown, of Knebworth, mentions the 'fly' as found in great numbers on banks of adjoining fields where Swede Turnips had been grown last year; their numbers decreased as the distance from such fields increased, but here as elsewhere little damage was done, their numbers diminishing with the long-continued wet in May. In my own garden near Isleworth, a plot of white Turnips sown during August on fresh loamy soil, trenched more than 2½ feet deep in the previous winter, and unmanured excepting by a profuse dressing of lime given in the course of experiment to the Potato crop which had been taken off it in the summer, was scarcely touched, whilst a patch of Cabbage in the seed bed a few feet off was overrun by the 'fly.' The Turnip plants

grew rapidly and strongly on the fresh soil, and an analysis taken of the plants when about four weeks old showed the percentage of ash to plant as 1.21; the percentage of lime to ash 20.0. It will be noticed that a thread runs through all the observations, of the advantage of a rapid, vigorous growth in resisting the attack of 'fly,' whether brought about naturally by plentiful rain, or artificially by manure containing the superphosphates or other chemical constituents required; and a word may be added as to the physical effects of rain and dew on the insect. A single drop is enough to clog the legs temporarily and puts an end to its leaping powers for the time being, and the occasional failures of remedies which have answered well on other occasions (such as Mr. Tanner's method of driving the sheep through the infested field—Report, 1877, p. 6—dusting the crop, and various applications also to be made in the early morning) might probably be traced to their being tried too late in the day, or when the morning was dewless.

Where clods prevail
Turnips fail.

If the beetle is free to leap it will put itself very rapidly under shelter from attack. With regard to spread of 'fly' from weeds, it would be very desirable to have some further notes of the extent to which it takes place both from Charlock, and other allied wild plants."

"During the past season all the sowings of Carrots were more than usually affected; the extent of the attack was first made evident by the hot weather about June 24, and all the long kinds of Carrots were destroyed. The French Horn variety is noted as comparatively exempt at all times of the year. A gardener near Guildford succeeds in raising a crop by using the same piece of ground yearly, and manuring it heavily with lime and soot, and a small quantity of salt. Salt is also found to answer well as a remedy by Mr. Dunn, at Dalkeith. By using ground that had been previously salted for a crop of Asparagus a good crop of Carrots, tolerably free from injury by the rust maggot, was obtained on soil which had been used as a kitchen garden for forty years, and on which all attempts to gain a crop by any other methods had failed. . . During the past season I have found great benefit from watering with a very dilute application of the fluid sold under the name of 'Soluble Phenyle,' by Messrs. Morris & Little, of Doncaster. Towards the end of June the Carrots in my garden at Isleworth were so severely attacked that, being past hope from any common remedy, I tried this fluid in various proportions, usually about a tablespoonful to a gallon of water, watering the ground frequently. The insect attack was very soon checked, and the plants started into healthy foliage, and the Carrots that sprung on the infested ground, after the application, were straight and perfectly uninjured. How far the great luxuriance of leafage may tell on the formation of large roots remains to be seen by further experiment, but the check to the rust larva was complete. The main ingredient in this fluid is nearly allied to carbolic acid, and its use chiefly as a disinfectant and for destroying parasitic insect-attack in animals, but it appears to act as a stimulant to vegetation, whilst poisoning the insect-feeder."

Mr. Norgate draws attention to the importance of encouraging insectivora of all kinds.

"Amongst birds he especially mentions swallows, martins, swifts (said to feed on high-flying Coleoptera), cuckoos (which feed on lepidopterous larvæ, and more especially select the hairy ones), all the warblers, and the titmice. Also woodpeckers—the green woodpecker appears to be the special enemy of the Ceruræ (puss-and-kitten moths)—and the spotted woodpecker is said to feed its young largely on flies. Flycatchers, tree creepers, wrens, starlings, rails, and partridges, are included in the list. In fact, all birds that mainly, or even in part, feed on insects deserve encouragement so long as the other part of their diet does not trench too much on the crops; and such measures as leaving some quiet nooks, as old trees, sheltering bushes, or eaves, undisturbed for them to build in (adding protection from idle boys in nesting time), throwing up the ground roughly to allow them to get at the grubs, and also allowing them free scope when they settle in flocks manifestly in search of some special larvæ (as with the crane-fly grub in grass-land), would all be serviceable. A word might also be said for bats, the shrew mouse, and the mole—the latter especially plays his part as an insect-feeder more than is usually supposed."

Our space forbids us from entering at further length into this subject at present, but we have said enough to show the value and importance of such observations, and in the interests of horticulture and agriculture we trust that all who can do so will help on the good work, and lend their willing aid in support of the disinterested labours of Miss Ormerod and her associates.

New Garden Plants.

ODONTOGLOSSUM ASPERSUM* AND MACULATUM
(Lex.) EROSUM.

No doubt this is a new hybrid, the third one (after *Humeanum* and *vexativum*) in this affinity, standing between *Odontoglossum maculatum* and *Rossii*. It has bulbs much like those of *O. maculatum*, but smaller, while the flowers are thinner in texture and as large only as those of a small *O. maculatum*. The bracts are broad and short; the sepals whitish yellow, mottled inside with numerous brown blotches, and keeled on the back of the middle vein. The petals are of the same colour, but much broader, and with a few brown spots at the base. The lip is wholly whitish, and the callus at the base yellow, with brown lines. The column is green at the base, white above; the border of stigmatic hollow rose-coloured.

The short broad bracts and the short sepals exclude the idea of *Odontoglossum cordatum* (so much resembling those of *O. Humeanum*). The white lip and the blotches of the sepals belong to *O. Rossii*. It must be regarded as *Odontoglossum maculatum* var. *Rossii*. For this very curious novelty I have to thank Messrs. Veitch, who sent full materials.

I may state at once that we have very indistinct varieties of *Odontoglossum maculatum*, not to mention my old "integrale," only seen once from Mr. B. S. Williams, and in Galeotti's collection. The old one has smaller, more pallid flowers, and an entire lip (seldom crenulate, as represented in *Bot. Reg.* 1840, p. 30), and is usually smaller. Then there is a fresh showy variety with very many teeth around the lip's blade, and called var. *polyodon*. It is splendidly coloured. The sepals inside are of a beautiful chestnut-brown, with dark blotches on the deeply yellow lip and petals. Just when writing these lines I have to hand a specimen of extraordinary beauty from Braxfield House, Lanark, from Mr. Charles Wather's collection, under the care of Mr. Alexander MacGregor. I suppose this comes from M. Roelz's introductions by myriads, so that the American government may presently send their representatives to Mr. Stevens' rooms to get something back, so as to save, if possible, this species. I am indebted to Messrs. Veitch for the present specimens. *H. G. Rehb. f.*

RHODOLEIA CHAMPIONI.

A FEW observations on this beautiful and rare tree as seen in its native island may be of use to cultivators—to the few who are fortunate enough to possess plants of it as yet, as well as to those who will probably in a little time be able to obtain it, as I hope that through the efforts now being made to increase it the supply will be greater than it has yet been.

In Hong Kong all the trees, without exception, blossom most profusely, beginning about the second week in January, being in perfection about the middle of February, and nearly over in the middle of March. Each branchlet, according to its strength, produces from about six to thirty-six flower-heads. If it could be induced to produce flowers in anything like the profusion that it does here it would be a splendid object for large conservatories. Even when not in flower the large dark green leaves are in themselves striking and beautiful.

The soil of Hong Kong consists of decomposed granite of a reddish colour, the surface soil for a depth of about 1 foot containing more or less of humus. The only three trees known in a wild state in the world are growing in this kind of soil at an elevation of about 400 feet above the sea level, amongst trees of about the same height as the *Rhodoleia*—about 30 feet—and brushwood on a very steep hillside. The trees which are in these gardens—the largest are about 12 feet high—are in the same kind of soil as the wild ones, but at a little lower altitude, the gardens being on a slope from about 200 feet up to a little over 300 feet. As will be inferred from the nature of the soil and the situations in which our trees grow, they have excellent drainage. The rains commence in May and cease in October; during the six months there is an average rainfall of about 75 inches, but during the remaining six months—that is, from November to April, inclusive—there is next to no rainfall, the average being about 5 inches, and a very dry atmosphere, during which the *Rhodoleia* does not exhibit any symptoms of suffering by lack of water, and the flower-buds continue to develop unaided by artificial watering. During the rainy season the atmosphere is generally saturated and muggy in the extreme.

The temperature during the dry season often falls to 45° Fahr., sometimes to 40°, and very rarely

* *Odontoglossum aspersum*.—Pseudobulbo oblongo acicili demum bene rugoso; folio cuneato oblongo acuto; pedunculo paucifloro; bracteis acicilibus acutis ovarii pedicellatis non æqualibus; sepalis ligulatis acutis dorso carinatis; tepalibus oblongis acutis; labelli lamina cordata acuta; callo quadrato obtusangulo antice cum appendice emarginato bidentato; columna velutina. *H. G. Rehb. f.*

indeed to freezing-point—I have known it down to 32° twice during the past eight years. In the rainy season, which is our hot one, the temperature rarely falls below 75° night or day, but for most of the time above 85° is the minimum; during the day it rises to about 90°, or a little over, very frequently; the general thing, however, being about 87° for several months.

The Rhodoleia would, I should think, be much more likely to succeed if grown as a conservatory plant than if tried out-of-doors, even if afforded the protection of a wall, but still it would be interesting to experiment with it in mild localities in dry gravelly or sandy soil out-of-doors, on south walls, and other sheltered positions.

Probably the conditions of cultivation most likely to meet with success would be:—soil, loamy, not too rich, with a dry subsoil well drained; temperature, high during the season of growth, say 80° by day without sun, rising to 90° or 95° with bright sun, and falling to 80° or 75° by night, the former after a bright sunny day, the latter after a dull one. After the growth is finished ordinary greenhouse or conservatory treatment; water in abundance while growing, gradually diminishing the supply as the growths become matured, and preserving the soil and atmosphere comparatively dry from beginning of October to end of March; position at all seasons fully exposed to sun. *Charles Ford, Superintendent, Botanic Gardens, Hong Kong, China, January 11.*

QUICKSET HEDGES.

HAVING had a considerable amount of experience in the planting and after-management of Quickset hedges, my views on the subject may be of use to "Engineer" and others interested in the matter. No doubt there is a great diversity of opinion on this matter, and what may be considered correct practice and give satisfaction in one locality, will be found altogether at variance with the customary system carried out successfully in others, therefore "Engineer" need not be surprised to find his inspectors differing in their modes of operation. I will not say how many miles of Quickset hedges I have had planted—suffice it to say that for a number of years we planted yearly from thirty to fifty thousand Thorns, and the hedges were considered in the neighbourhood, West Sussex, as near perfection as possible.

I will preface the few remarks I intend to make on the practice carried out, by stating that I prefer planting on the level if possible, as the Quicks thrive better, take up less space, look better, and are kept in order more easily. I also prefer the single row to a double one, because the single row can be cleaned more readily, makes a better looking fence, and will not become hollow as it gets old, like the one with two rows.

The preparation of the ground is an important item in hedge making. Where it is proposed to plant a hedge the ground should be deeply trenched or broken up, the latter plan being to my mind preferable to trenching, in many instances, as well as in quick planting. To do this, mark out the line of the proposed fence, say from 3 to 4 feet wide. At one end throw out the top spit and shovellings, then break up the bottom of the trench with a pickaxe, and leave it there; then put a good dressing of stable or cowshed manure upon it, and turn over the top spit and shovellings upon the manure. This is what I call breaking up in contradistinction to trenching ground. Having thus prepared the ground a trench has only to be cut out along the centre 8 inches deep and the plants put in 3 inches apart, or twelve to a yard, they should not appear above-ground more than 2 inches, this insures a growth close to the ground, producing from each plant from three to four shoots, which with care will make a fence that will not only resist rabbits but rats also.

A word must here be said about preparing the plants, which should always be cut to the required length before planting, which is most expeditiously done on a block of wood with a hand-bill or pruning-hook. All straggling roots should be cut off and the plants headed down to the length of 6 or 8 inches. Nothing in the way of pruning will be required for the first year. Late in the following winter let the hedge be cut down with a knife to within 9 inches of the ground; a knife is preferable to shears or hook for the first cutting. I mention that the cutting down should be done late in the winter. In situations where hares and rabbits are numerous it is very important to delay pruning the young hedges as long as possible, as they are sure to eat the young shoots, and if pruned early they may eat lower than the required height. The second summer the young hedge may be sided up, but the tops had better not be cut until it is considered safe, for the reason given above; then the hedge may be allowed to stand 20 inches or 2 feet in height, according to circumstances. What might be made a good fence is often spoiled by over-anxiety to get it up quickly; the side shoots only should be cut in summer until the fence has attained the height required.

It is of the utmost importance that young hedges should be kept free from weeds, which can only be done by keeping the hoe at work during the summer months. When the hedge is pruned in winter the ground may be turned in with a spade, or, what is better still, be forked over lightly, not dug and turned up in square sods, such as may often be seen on railway banks. It must not be forgotten that a dead fence of some sort must be provided for the protection of the young hedge until it can protect itself. This protection should be so placed that horses and cattle cannot nibble the young shoots. *Geo. Thomson, Crystal Palace.*

— Why should your correspondent "J. S.," in last week's *Gardeners' Chronicle*, recommend the antiquated system of letting Quick hedges grow up for a few years, then trim them up to bare poles, and then lay these down, seeing that such a process is both unsightly and unnecessary? If a young hedge is properly planted and judiciously cut once a year, tapered gradually from the bottom on each side to the top, and kept thoroughly clean at the root, they will by-and-bye make splendid hedges without a flaw (as hedges are managed in many parts of Scotland). I could show "J. S." miles of hedges managed in this way, perfect models, which would turn either a sparrow or a bull; and why should people waste time and material planting double hedges? for the second is not needful and makes it almost impossible to clean them. *F. Jeffery.*

— This is a subject which we have frequently discussed. We consider keeping the bottoms of hedges clean, and cutting in July and August, with occasionally cutting lower in winter, the best mode of securing good fences. As regards railway banks, we consider Ash the best deep-rooting, non-resinous tree, not likely to fire or impede the sight of the traveller. It can be sold as poles, and thus never be too large or dangerous. *Harrison & Sons.*

— I would beg to suggest the planting of a good lot of Willow poles to prevent landslips, and produce good drainage. The poles should be driven a good many feet into the ground, and then cut off close to the earth. Many would doubtless die in the course of a few years, and thus increase the drainage. In regard to Quick hedges, only one row should be planted rather thickly, as thereby we get a very firm hedge without any hollows, and afterwards it is easy to keep the plants quite clean. Manure quite unnecessary. *Henry Willis, The Elms, Old Windsor.*

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

Continued from p. 236.

- CALANTHE, R. Br., Bot. Reg. sub. t. 573, et t. 720. About forty species, one American, one in Australia, three or four in tropical and South Africa, and Mascarene Islands, the remainder Asiatic, spread over India, China, Japan, Malay Islands, &c.
- C. mexicana, Rchb. f., *Linnaea*, xviii., p. 406. Orch. Eur. (Ic. Fl. Ger.), t. 355, f. 5, 6, 7. *Gliesbreghtia mexicana* et *calanthoides*, Rich. et Gal. Mexico, Costa Rica, Cuba, New Grenada.
- CAMARIDIUM, Lindl., Bot. Reg. x., t. 844. A small genus (of perhaps a dozen species), inhabiting the West Indies, Guiana and Mexico to Peru.
- C. sp. Nicaragua, Wright, 6. (Hb. Lindl.)
- C. sp. Mexico. Mueller, 555. (Hb. Lindl.)
- CATASETUM, Rchb. in Kunth Synop. i. 330. From thirty-five to forty species, extending from Mexico to Peru and Brazil, two or three in the West Indies.
- C. (Monachanthus) dilectum, Rchb. f., Beitr. Orch. Centr. Am., p. 73. Costa Rica.
- C. Hookeri, Lindl., Coll. Bot., t. 40. C. triste, Rchb. f. Mexico.
- C. laminatum, Lindl., Ann. Nat. Hist. iv., p. 384. Sert. Orch., t. 38. Mexico.
- C. macroglossum, Rchb. f. in Gard. Chron. 1877, vol. viii., p. 552. Ecuador.
- C. maculatum, Kunth, Syn. i., p. 331. C. integerim, Hook., Bot. Mag., t. 3823. Batem. Orch. Mex. and Guat., t. 2. C. Wallesii, Hook., Bot. Mag., t. 3937. Gard. Chron. 1842, p. 287. C. tridentatum, Hook., Ex. Fl., t. 90, 91. C. floribundum, Hook., Ex. Fl., t. 151. Mexico, Honduras, Guatemala, Venezuela.
- C. ochraceum, Lindl., Bot. Reg. 1844, Misc., 55; Gard. Chron. 1873, p. 105. New Grenada.
- C. (Erstedii), Rchb. f., Bonpl. iii., p. 218. Nicaragua.
- C. planiceps, Lindl., Bot. Reg. 29, 9; Gard. Chron. 1843, p. 175. Spanish Main.
- C. Russellianum, Hook., Bot. Mag., t. 3777. Guatemala.
- C. scurra, Rchb. f., Gard. Chron. 1872, p. 1003; 1877, vol. vii., p. 304, fig. Panama? Demerara.
- C. viridiflavum, Hook., Bot. Mag., t. 4017. C. serratum, Lindl. Central America.
- C. Warscewiczii, Lindl., Paxt. Fl. Gard. i., p. 45, with a figure. Panama.
- CATTLEYA, Lindl., Coll. Bot., t. 33, Gen. and Sp. Orch., p. 116. From fifteen to twenty species, ranging

- from Mexico to Brazil, where they attain their greatest concentration. Reichenbach refers them to *Epidendrum*.
- C. chococensis, Lind. et And., Ill. Hort., 3 sér., t. 120. New Grenada.
- C. citrina, Lindl., Bot. Reg. xxx., under t. 5. Bot. Mag., t. 3742. *Sobralia citrina*, La Llave et Lex-arza. Mexico, 7300 to 10,000 feet.
- C. Dowiana, Batem., Gard. Chron. 1867, p. 75; Bot. Mag., t. 5618. Costa Rica.
- C. eldorado, Lindl., 'Flores des Serres', t. 1826; Gard. Chron. 1871, p. 1323. Central America.
- C. gigas, Lindl., Gard. Chron. 1874, vol. ii., p. 616, fig. New Grenada.
- C. granulosa, Lindl., Bot. Reg. 1842, t. 1, Bot. Mag., t. 5048. Guatemala.
- C. labiata, Lindl., Coll. Bot., t. 33, Bot. Reg. 1840, t. 58. C. pallida, Paxt., Fl. Gard. ii., t. 48. C. Mossiae, Hook., Bot. Mag., t. 3669. C. Lemoniana, Lindl., Bot. Reg. 1846, t. 35. C. Wageneri, Rchb. f. C. Warscewiczii, Rchb. f., &c. C. Trianae lacera, Gard. Chron. 1869, 738. The numerous varieties of this are dispersed from Mexico to Brazil.
- C. quadricolor, Lindl. in Paxt. Fl. Gard. i., p. 6; Gard. Chron. 1864, p. 269.
- C. speciosissima var. Lowii, J. Anderson in Gard. Chron. 1868, p. 404. Venezuela.
- C. Skinneri, Batem., Orch. Mex. and Guat., t. 13; Bot. Mag., t. 4270; var. parviflora, Bot. Mag., t. 4916; Gard. Chron. 1877, vol. vii., p. 810, var. Mexico, Guatemala, Costa Rica, Trinidad.
- CHLOIDIA, Lindl., Gen. and Sp. Orch., p. 484. About four or five species, ranging from Mexico to Venezuela, and through the West Indies to Brazil.
- C. flava, Rchb. f., Walp. Ann. vi., p. 644. *Neottia flava*, Sw. Mexico, Cuba, Jamaica.
- C. sp. forsan flava, Rchb. f., Beitr. Orch. Centr. Am., p. 5. Veragua, 6000 feet.
- CHYSIS, Lindl., Bot. Reg., t. 1937. About six species, inhabiting America from Mexico to Columbia.
- C. aurea, Lindl., Bot. Reg., t. 1937. Panama, Venezuela, New Grenada.
- C. bracteata, Lindl., Bot. Reg. 1840, Misc., 141, 1841, t. 23, Bot. Mag., t. 5186, Gard. Chron. 1841, p. 295. Mexico.
- C. laevis, Lindl., Bot. Reg. 1840, Misc., 130. Batem., Orch. Mex. and Guat., t. 31. Mexico.
- CIRRHEA, Lindl., Bot. Reg., t. 1538. About six species, perhaps all Brazilian.
- C. tristis, Lindl., Bot. Reg., t. 1889. Reported from Mexico, but possibly in error. Prof. Reichenbach unites it with several other forms under the name of C. dependens.
- CLEISTES, Rich. Annot., p. 9, Lindl. Gen. and Sp. Orch. p. 409.
- C. rosea, Lindl., Gen. and Sp. Orch., p. 410. Panama, New Granada, Venezuela, Guiana, Trinidad, and Peru.
- CELIA, Lindl., Gen. and Sp. Orch., p. 36. About six or eight species—one in the West Indies, one Brazilian, and the remainder from Mexico and Central America.
- C. Baueriana, Lindl., Bot. Reg. 28, 36; Gard. Chron. 1842, p. 406. West Indies and Mexico.
- C. guatemalensis, Rchb. f., Walp. Ann., vi., 219. Guatemala.
- C. macrostachya, Lindl., Benth. Pl. Hartw., p. 92, Bot. Mag., t. 4712. Guatemala.
- C. picta, Batem. MSS., Hb. Lindl. ? = C. bella, Rchb. f. Guatemala.
- "C. squamosa," Hb. Lindl. Guatemala.
- C. sp. Mexico, Linden, 218.
- CELIOPSIS, Rchb. f., Gard. Chron. 1872, p. 9. The only species.
- C. hyacinthosma, Rchb. f., Gard. Chron. 1872, p. 9. Panama.
- COHNIA, Rchb. f., Bot. Zeit. 1852, p. 928. The only species.
- C. Quekettoides, Rchb. f., Xenia, i., p. 238, t. 100, ii., 6-14. Nicaragua.
- COLAX, Lindl., Bot. Reg., 1843, Misc., 65. There are three other species, natives of Brazil.
- C. modestior, Rchb. f., Hamb. Gartenz. 1860, p. 14. Guatemala?
- COMPARETTIA, Poepp. et Endl., Nov. Gen. et Sp. i., p. 53, t. 73. Limited at present to the following species.
- C. coccinea, Lindl., Bot. Reg. xxiv., t. 68. Mexico.
- C. falcata, Poepp. et Endl. *l.c.*, Bot. Mag., t. 4980.
- C. rosea, Lindl. Guatemala, New Grenada, Venezuela, Peru, Jamaica, Cuba.
- CORALLORHIZA, Hall, Hist. ii., p. 159, Lindl. Gen. and Sp. Orch., p. 533. About twelve species, inhabiting the subarctic, temperate, and sub-tropical regions of the northern hemisphere. C. innata has a wide range in the Old World and North America.
- C. bulbosa, Rich. et Gal., Ann. Sc. Nat., série 3, iii., p. 19. Mexico, 7000 to 9000 feet. Perhaps the same as C. mexicana.
- C. Ehrenbergii, Rchb. t., *Linnaea*, xxii., p. 383. Mexico.
- C. grandiflora, Rich. et Gal., Ann. Sc. Nat., série 3, iii., p. 19. Mexico.
- C. mexicana, Lindl., Gen. and Sp. Orch., p. 534. Mexico and Guatemala.
- CORYANTHES, Hook., Bot. Mag., under t. 3102. About six species, dispersed from Guatemala, through Venezuela and Guiana to Brazil.
- C. Albertineae, Karsten, t. i.; Gard. Chron. 1848, p. 71. Caraccas.
- C. speciosa var., Batem., Orch. Mex. and Guat., t. 36. Guatemala. Typical speciosa is a native of Brazil, and Reichenbach thinks this may perhaps belong to C. maculata, a native of Guiana.

- CRANICHIUS, Swartz, Act. Holm. 1800, p. 226, Lindl. Gen. and Sp. Orch., p. 450. From twenty to twenty-five species, ranging from Mexico to Peru and the West Indies. In addition to the following there are several undescribed species in Kew herbarium.
- C. aciculata, Lindl., Benth. Pl. Hartw., p. 92. Guatemala.
- C. ciliata, Kunth, Synop. i., p. 324. Guatemala, Ecuador, Peru.
- C. glandulosa, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 30. Mexico.
- C. muscosa, Sw., Prodr., p. 120. Costa Rica and Cuba to Trinidad.
- C. reticulata, Rchb. f., Beitr. Orch. Centr. Am., p. 62. Costa Rica.
- C. Schaffneri, Rchb. f., MSS. Mexico.
- C. speciosa, La Llave et Lex., Nov. Veg. Descr. ii., p. 5. Mexico.
- C. sylvatica, Rich. et Gal., Ann. Sc. Nat., série 3, iii., p. 30. Mexico.
- C. subumbellata, Rich. et Gal., Ann. Sc. Nat., série 3, iii., p. 30. Mexico.
- C. tubulosa, Lindl., Gen. and Sp. Orch., p. 451. Mexico.
- C. tubularis, La Llave et Lex., Nov. Veg. Descr. ii., p. 6. Mexico. Lindley thought this and C. speciosa might belong to the genus Stenoptera.
- CRYBE, Lindl., Nat. Syst. Bot., ed. 2, p. 446. The only species.
- C. rosea, Lindl., Bot. Reg., 1872. Bletia purpurata, Rich. et Gal. Mexico and Guatemala.
- CRYPTARRHENIA, R. Br., Bot. Reg., t. 153. Three or four species, disposed over Mexico, the West Indies, and Guiana.
- C. pallidiflora, Rchb. f., Bot. Zeit. 1852, p. 766. Orchidofunkia pallidiflora, Rich. et Gal. Mexico, Trinidad, Guiana.
- CYCNOCHUS, Lindl., Gen. and Sp. Orch., p. 154. Besides the following, there are two or three in Guiana.
- C. aureum, Lindl., Paxt. Fl. Gard. iii., t. 75. Central America, 6000–8000 feet.
- C. Diane, Rchb. f., Bot. Zeit. 1852, p. 636. Central America.
- C. Egertonianum, Batem., Orch. Mex. and Guat., t. 40; Gard. Chron., 1843, p. 775, fig. Mexico.
- C. glanduliferum, Rich. et Gal. (sketch in Hb. Lindl.). Mexico.
- C. maculatum, Lindl., Bot. Reg. 1840, Misc., 8. Mexico, Guatemala, Venezuela.
- C. ventricosum, Batem., Orch. Mex. and Guat., t. 5; Gard. Chron. 1843, p. 775, fig. C. Warszewiczii, Rchb. f. Guatemala, Veragua.
- CYPRIPEDIUM, Linn., Gen. Pl. 1376. Between thirty and forty species, scattered all round the northern hemisphere from the arctic regions to the tropics, though apparently absent from Africa. Most numerous in tropical Asia and North America. One species occurs in Guiana and another in New Granada.
- C. Irapeanum, Llave et Lex., Nov. Veg. Descr. ii., p. 10. Mexico.
- C. molle, Lindl., Benth. Pl. Hartw., p. 72. Guatemala.
- CYRTOPERA, Lindl., Gen. and Sp. Orch., p. 189. About twelve species, whereof eight are Asiatic, two South African, and two American. Blume refers them to Eulophia.
- C. longifolia, Rchb. f., Bonpl. ii., p. 19. Dendrobium, H.B.K.; C. Woodfordii, Lindl. West Indies, Venezuela, to Guiana and Brazil.
- Var. (?) pachystelidia, Rchb. f., Bot. Zeit. 1852, p. 734. Veragua.
- CYRTOPODIUM, R. Br., Ait. Hort. Kew. v., p. 216. About six species, the genus having the same distribution as the following species.
- C. punctatum, Rchb. f., Linnæa, xxii., p. 852, Bot. Mag., t. 3507. Mexico to Columbia, Guiana, Brazil, and West Indies.
- DICHEIA, Lindl., Gen. and Sp. Orch., p. 208. About twenty species, extending to Peru, Brazil, and the West Indies, finding their greatest concentration in Cuba and Central America.
- D. brachypoda, Rchb. f., Beitr. Orch. Centr. Am., p. 78. Costa Rica.
- D. echinocarpa, Lindl., Gen. and Sp. Orch., p. 208. Mexico to Venezuela, Guiana, South Brazil, and the West Indies.
- D. glauca, Lindl., Gen. and Sp. Orch., p. 209. Guatemala, Cuba, Jamaica.
- D. Liebmannii, Rchb. f., MSS. Mexico.
- D. Erstedii, Rchb. f., Bonpl. iii., p. 219. Costa Rica.
- D. panamensis, Lindl., Gen. and Sp. Orch., p. 209. Panama, New Granada.
- D. squarrosa, Lindl., Ann. Nat. Hist. iv., 384. Mexico, Cuba.
- D. trichocarpa, Lindl., Gen. and Sp. Orch., p. 209. Mexico, Costa Rica, Cuba, Jamaica to Brazil.
- D. trulla, Rchb. f., Beitr. Orch. Centr. Am., p. 104. Mosquito Coast.
- DIGNATHE, Lindl., Journ. Hort. Soc. Lond. iv., p. 268. The only species.
- D. pygmaea, Lindl. l.c. Mexico.
- DINEMA, Lindl., Gen. and Sp. Orch., p. 111. These two species referred by Reichenbach to Epidendrum.
- D. paleaceum, Lindl., Bot. Reg., 1840, Misc., 112. Epidendrum auritum, Lindl. E. Lindenianum, Rich. et Gal. Maxillaria Boothii, Lindl. Mexico, Guatemala, Costa Rica.
- D. polybulbon, Lindl., Gen. and Sp. Orch., p. 111. Epidendrum polybulbon, Sw. Mexico, Guatemala, West Indies.

To be continued.)

MASSOWIA AND SPATHIPHYLLUM.

IN the two last numbers of the last volume of the *Gardeners' Chronicle*, Mr. N. E. Brown, the elaborator of the rich collection of Aroidæ in the Royal Gardens, Kew, seeks to refute, in part, the contents of an article of mine which was published in a previous number, in order, as he states, to clear up the confusion into which I had fallen. Let us see whether he has succeeded in his purpose, or rather whether the contrary is not the case. He raises three points. That I have said:—

I. That the genus *Massowia* has the claim of priority over *Spathiphyllum*.—But I have said no such thing, for it would be untrue: *Spathiphyllum* was established as a genus in 1832, *Massowia* in 1852. I did state, however, that:—

1. Schott, in his *Meletemata*, in 1832, united two generically diverse species in his genus *Spathiphyllum*.

2. That when he wrote the work in question, *Pothos cannaefolia*, *Bot. Mag.*, was probably unknown to him.

The former Schott himself admits in his otherwise excellent work of 1853. With regard to the second



FIG. 37.—*POTHOS CANNAEFOLIA* OF *BOT. MAG.*, MUCH REDUCED. SPATHE WHITE.

point, it is impossible that Schott would have united *Pothos cannaefolia*, *Bot. Mag.*, with *Pothos cannaefolia*, Rudge, if he had known both plants. It would seem that my highly respected colleague, as the result of his investigations in this difficult family, is under the impression, though he does not expressly say so, that Schott described *Pothos cannaefolia* as *Spathiphyllum cannaefolium* before 1853. Herein, doubtless, lies the error. Now, I did not say that the genus *Massowia* had the claim of priority over *Spathiphyllum*; but *Massowia cannaefolium* over *Spathiphyllum cannaefolium*, and in this I was right. Moreover, Mr. Brown appears not to be aware—at least he does not mention—that Schott, in the *Meletemata*, the work he so highly prizes, has described *Pothos cannaefolia*, *Bot. Mag.*, and Rudge (*horrible dictu!*) as *Monstera cannaefolia*. Was I not right, then, when on removing in 1852 from Jena to Berlin, where I found ample materials, I discovered that Schott's *Monstera cannaefolia* was not a *Monstera*, to regard it as the type of a new genus, and describe it as *Massowia cannaefolia*? How I used the opportunities for studying Aroids, and what a wealth of material I had at my disposal during the next decade may be gathered from my numerous publications on Aroids. Probably nobody was more convinced of the indifferent quality of his first work in the *Meletemata* than Schott himself. What I recognised in 1852 he acknowledged

in 1853, in his new work on Aroidæ. But instead of accepting my established genus *Massowia*, and referring a second species to it, which Linnaeus had described as *Dracontium lanceæfolium* (not *lancefolium*), and which was commonly cultivated in Vienna and Berlin, he created a new genus, *Urospatha*, and regarded my one year older genus, *Massowia*, as obsolete as a synonym of his, it is true, previously extant genus, though in another sense *Spathiphyllum*. Schott agreed with me that he had associated two generically different species in his *Spathiphyllum*, but he was displeased because I had forestalled him. After what I had done he ought, according to the rules of priority, to have taken up my genus *Massowia*, and limited his revised genus *Spathiphyllum* to *S. sagittifolium* (*Arum sagittifolium*, Rodsch., *Pothos sagittifolia*, Rudge).

II. and III.—Much as Mr. Brown tries to prove it, he has by no means clearly defined *Anthurium Dechardii*, Lindl., and *A. blandum*, W. Bull. If he will finally and decisively settle the question, he must raise seedlings of the former and of *Pothos cannaefolia* to determine the range of variation of the one or the other. I cannot conceive how Mr. Brown can assert that *A. Dechardii* is identical with his *Spathiphyllum cannaefolium* and my *Massowia cannaefolia*, established in 1852. I can easily distinguish these two plants from each other even at a distance; and I do not for a moment doubt that we cultivate the true *Pothos cannaefolia*, *Bot. Mag.*, both at Berlin and Vienna. *Anthurium Dechardii* is much more bushy and compact in its growth, whilst *Pothos cannaefolia* is much taller; the spathe of the former is milk-white in an early stage, that of the latter always greenish yellow on the outside and greyish white, not milk-white, within. The late Ad. Brongniart, of Paris, was decidedly an acute and discriminating botanist, such as unfortunately we possess few: he also was of opinion that these two plants differed, even "as day and night."

I have not the necessary material to decide whether *Anthurium blandum* differs from *Spathiphyllum Gardneri*; perhaps I may go to Vienna this year, and compare it with Schott's original specimen. This specimen alone can decide the question, not that of Gardner's which exists in the Kew herbarium. Is it possible that another plant was sent by mistake to Schott instead of the one Gardner collected? Perhaps, too, Gardner had two very similar Aroids at Kew, which have hitherto not been distinguished from each other. In spite of Mr. Brown's assertion to the contrary, I still believe that the *Anthurium blandum* I received from Van Geert at the last International Horticultural Exhibition is identical with *Spathiphyllum Gardneri*. It is not conceivable that Schott gave this name to quite a different Aroid not collected by Gardner! C. Koch.

— I have to deal with Professor Koch's present communication, and a plant which M. André sends me, which he and others declare to be "the true *S. cannaefolium*," but which, as I shall presently prove, is a totally different plant. I have already fully and clearly stated the facts of the case on pp. 749 and 783 of the last volume of this journal, I confine myself to his present statements.

It is true Professor Koch did not say that *Massowia* has the claim of priority over *Spathiphyllum* in those exact words, but the substance of what he then wrote and now writes amounts to that statement, for if he had carefully studied what I have written he would have seen that I fully understood all his statements on p. 749. I have said that he considers the genus *Spathiphyllum* should only consist of those sagittate-leaved plants which Schott in 1853 placed in his new genus *Urospatha*, and he now repeats this statement. I have there shown that this view is incorrect; and as a further reason why *Pothos sagittifolia*, Rudge, cannot be accepted as the type of the genus *Spathiphyllum*, I will add that it is more than probable that when Schott first characterised the genus *Spathiphyllum* this plant was unknown to him except from Rudge's figure, whilst *Dracontium lanceæfolium* was in cultivation, and could have been obtained; therefore, as *Massowia cannaefolium* and *Spathiphyllum lanceæfolium* are congeneric, as Professor Koch himself admits in *Bonplandia*, 1856, p. 11, and *Gardeners' Chronicle*, x., p. 622, and the latter being the older name by twenty years, *Massowia* cannot be accepted as a genus.

I was perfectly aware that Schott did not describe *Pothos cannaefolia*, *Bot. Mag.*, t. 603, as a *Spathi-*

phyllum prior to 1853; but I am not aware that Schott has described *Pothos cannaefolia*, *Bot. Mag.*, and *P. cannaefolia*, Rudge, as *Monstera cannaefolia* in his *Meletemata*, for nowhere in the *Meletemata* is *Pothos cannaefolia*, *Bot. Mag.*, mentioned, much less described. In *Meletemata*, p. 21, Schott gives a diagnosis of the genus *Monstera*, and places under it the names only of already described plants, which he then thought to belong to it, without descriptions. The quotation is: "*Monstera cannaefolia*, Schott (*Pothos cannaefolia*, Rudge);" no mention whatever of the *Bot. Mag.* plant. Schott afterwards discovered that Rudge's plant was not a *Monstera*, but a *Philodendron*, and in his *Synopsis Aroidarum*, p. 78, he describes it as *P. Rudgeanum*.

Dracontium lanceaeifolium was not described by Linnæus, but by Jacquin (*Collect. iv.*, 118, and *Icon. Rar.*, t. 612). As to *Anthurium blandum*, W. Bull,

mature state, as I have already proved, the two are identical. Now, to show finally and decisively that they are in error, I accompany this with a *fac simile* woodcut of the figure of *Pothos cannaefolia*, *Bot. Mag.*, t. 603* (fig. 37), and a figure of a portion of the specimen sent to me by M. André as "the true *S. cannaefolium*," (fig. 38). Here, then, we have the secret of the confusion. Is it possible that they can ever have compared their plant with the *Bot. Mag.* figure? I readily agree that they are as different as "day and night," but what difference is there between the true *Spathiphyllum cannaefolium* (fig. 37) and *Anthurium Dechardi*? To me and others there is none!

The plant M. André sent me as the "true *S. cannaefolium*" he states to have been received from the Botanic Garden, Brussels, and that the same plant is also cultivated in other gardens under that name; it is therefore most probably the same plant which Professor Koch refers to in his present communi-

Forestry.

PRUNING is a subject of such momentous importance that it cannot well be over-estimated, nor can too much be said about it, or can it be too deeply impressed upon the minds of every one concerned. Like any other art, science, or branch of education, when one department is thoroughly mastered it opens up and clears the way for others. Knowledge, no less than ignorance, is contagious; hence, when one truth is fully espoused, others join company as if attracted by magnetic power, till a mass of truth is accumulated. If the science and art of pruning were thoroughly understood, thinning would also be understood, and so on with every other branch of Forestry till the whole were perfectly known and recognised. In my last article the directions were confined exclusively to hard-wood pruning, and now I shall say a few things about Pine and Fir tree pruning. Not that the latter is so often or universally practised as the former, but it is none the less important on that account; and when the proportionally large area of Pine and Fir plantations, and the enormous quantity of individual trees are considered, the loss or gain occasioned by proper or improper pruning, whether natural or artificial, must be very great indeed. I have frequently endeavoured to show that in growth the average annual layer of wood should be nearly $\frac{1}{4}$ inch thick. In order to secure this amount of growth the tree must be furnished with such an abundance of branches as to produce a trunk as many inches in girth a little above the surface of the ground as it stands feet in height; that is, up to that period when thinning ought to be discontinued, say at twenty to thirty years of age. Thinning and pruning are intended to accomplish one and the same result, namely, a fair and proportioned growth in the stem or trunk of the tree, and timber of the best and most valuable description. Pruning, however, is sometimes done to accomplish one object sometimes another, and in other cases several combined. The principal use of pruning Pine and Fir trees consists in taking away double or contending leaders, such as often occur in the Silver Fir or Larch. The former is the most liable species of the Coniferae to double leaders, and unless closely attended to till the trees are about 20 feet to 30 feet high, great loss is ultimately occasioned in a forest of considerable extent. In its early stages of growth, and as long as within reach of the hand, the operation of pruning is best done by means of the pruning-knife, hand-saws, &c.; but when a double shoot occurs at a height above a man's reach the pruning-chisel must be used. The averuncator is also sometimes used with advantage for similar purposes, but is not so applicable to cutting off close contending leaders as the common pruning-chisel is. What applies to the Silver Fir is equally applicable to the Larch; but the latter is by no means so liable to double tops as the former, unless indeed in very exposed situations. Double leaders in the Norway Spruce, Scotch Fir, and any other species of Pine and Fir, should be promptly removed, and the closer they are cut to the stem so much the better, unless, indeed, in comparatively advanced trees, in which case it is often advisable to cut off a portion of the branch only, say one-third to two-thirds of its entire length, and not to attempt cutting it close to the stem at all, for reasons quite obvious to the practical pruner. I am not at present going into the subject of fancy pruning, applicable to ornamental trees or pinetums, as the treatment of such is widely different, and the end in view of another description to that of the culture of common forest trees. There are other branches of pruning, such as shortening unduly long branches, giving direction to a distorted leader, and removal of injured and decayed branches. As a safe and general rule, no vital branch should be cut off close to the stem or trunk, but as far from it as to comprehend sufficient branches or twigs to keep it permanently in a growing state. Decayed branches, on the other hand, should always be cut off close to the stem of the tree, but not so as to injure the bark of the trunk in the operation. Pruning off dead branches is usually done by means of the light hand-saw, and where it is of greatest advantage is at that stage of the plantation's growth when it is sufficiently advanced to lay open for grazing purposes. As Pine and Fir plantations are usually depastured by sheep or cattle after the trees are sufficiently advanced by the vital branches being beyond their reach—and nothing contributes more to the comfort of the animals, especially sheep,

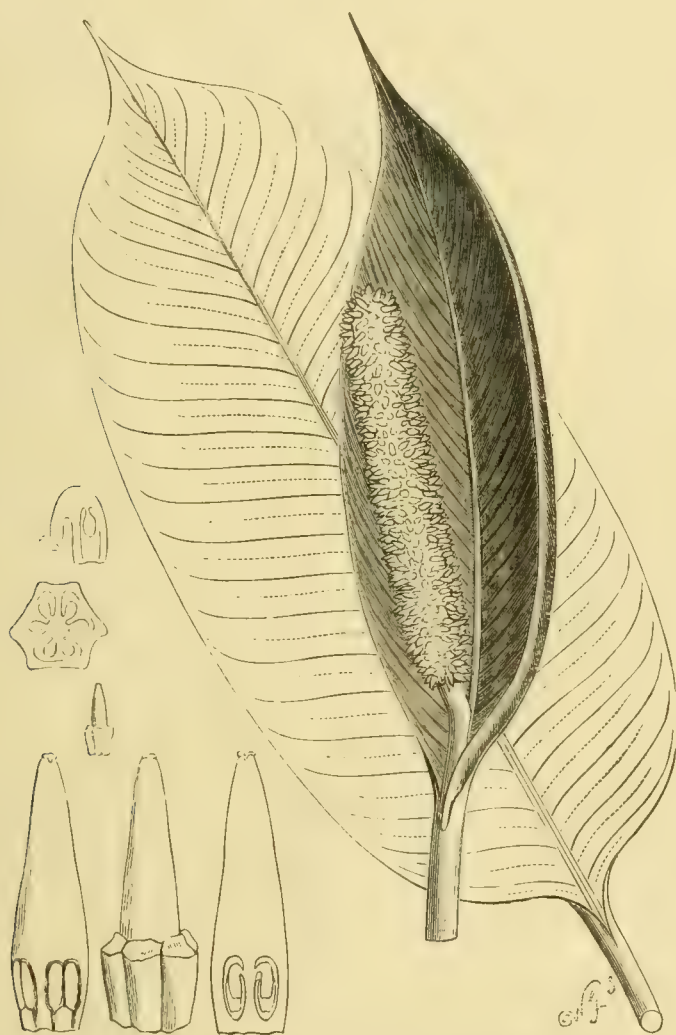


FIG. 38. —*SPATHIPHYLLUM LANCEOLATUM*. SPATHE NAT. SIZE, GREEN; LEAF ABOUT ONE-FOURTH NAT. SIZE. DETAILS MAG.

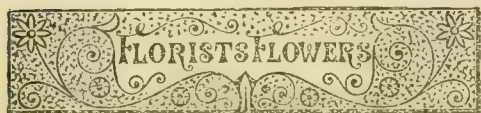
there is no such plant, so far as I am aware. The plant I wrote about, and the one I suppose Prof. Koch means, is *A. candidum*, and if so he will most probably find that Schott's type of *S. Gardneri* at Vienna will not agree with it any better than does Schott's description, for Professor Koch appears to be unaware that the early numbers of Gardner's Brazilian plants (including No. 1867) were distributed by Sir W. Hooker, and that when Schott was working at his monograph he had the Kew collection to work with; it is, therefore, incredible that Sir W. Hooker should have distributed a species different from that he himself retained under the same number (Gardner, No. 1867), and that such a keen discriminating botanist as Schott should have overlooked the error; and the Kew specimens, having been compared and named by Schott himself, are almost as good as the type. It only remains to speak once more of *S. cannaefolium* and *Anthurium Dechardi*. There is no need to raise seedlings of these plants, for in the

cation; the plant M. André has sent me is nothing less than *Spathiphyllum lanceolatum*, C. Koch, of which I have seen the type specimen in Professor Koch's own herbarium! *S. lanceolatum*, C. Koch (fig. 38), is very closely allied to *S. longirostre*, Schott, of which it is probably only a variety; it is also allied to *S. blandum*, Schott, but that is a smaller plant.

S. lanceolatum is a tall species, with petioles 2 feet and more long; oblong leaves, 18 to 21 inches long, 7 to 9 inches broad, rounded at base, cuspidate at apex. Scapes 3 feet and more long. Spathe 7 to 9 inches long, 3 inches broad, acuminate, boat-shaped as in figure, or more expanded, yellowish-green outside, paler inside. Stipes of spadix adnate to spathe for $1\frac{1}{2}$ to $2\frac{1}{2}$ inches, free part very short; flowering part of spadix 4 inches long, 1 inch in diameter. Ovaries conical, creamy white, exserted 3 lines beyond the polyphyllous perianth. It is a native of Mexico. *N. E. Brown, Herbarium, Kew.*

* Owing to a mistake of the engraver, the woodcut is not an exact *fac simile* reduced, but in all essentials it represents the plant intended by Mr. Brown. EDS.

as that of clearing off all ragged, decayed branches to at least 8 feet from the ground—not only is the value of the plantation as grazing ground enhanced by removing all decayed branches that would otherwise catch the wool of the sheep and injure the skins of the cattle, but a free current of air is thereby allowed to waft itself through the expanse, alike healthful and invigorating to both flocks and pasture. The air admitted by removal of the dead branches sometimes contributes to the welfare of the trees and sometimes to their injury, all depending upon the exposure, extent of plantation, and the nature of the soil in which they grow. If soft and clayey, the advantage to the trees is considerable; but if dry and gravelly, a corresponding injury is inflicted. The removal of dead branches from the stems of *Coniferæ* is a legitimate subject for discussion; and as I may take it up in detail on a future occasion, I shall meanwhile conclude. *C. Y. Michie, Cullen House, Cullen, Banffshire, February 24.*



SEASONABLE NOTES: AURICULAS.—The plants will now be growing freely, and should any green-fly have been left on them after the winter fumigations the pest will now spread rapidly; as it is dangerous to fumigate, because of injury that might accrue to the fresh young foliage, the fly ought to be removed with a camel-hair brush. The mealed foliage of many varieties is extremely beautiful when it first expands. Whenever there is any chance of frost at night mats must be placed over the frames. See that no plant suffers for lack of water at the roots, but take care not to spill any on the mealed foliage or in the centre of any plant. Pay considerable attention to airing the frames. This must be managed so that the plants are protected from cutting winds.

CARNATIONS AND PICOTÉES.—If these are not all potted no time should be lost in doing so. Many persons place the plants out-of-doors as soon as they are potted, but I do not approve of this. It would be very well if there was no danger from rain, sleet, or snow. A heavy fall of rain immediately after potting would be disastrous. Indeed I have seen a collection potted from the frames, which were almost immediately covered with snow. Plants in beds should be looked over and those that have been thrown out of the ground or loosened by frosts should be pressed in with the fingers.

PINKS.—The ground between the plants should be stirred up and the plants also be made firm. Protect from rabbits, and see that the leather-coated grub does not eat off any of the plants.

DAHLIAS.—See Calendar for January and February as to the treatment of the roots. Those who require only a few cuttings may not care to put the roots into heat before the first week in this month. When the cuttings are long enough propagate as previously directed.

HOLLYHOCKS.—The cuttings of these take longer to form roots than the Dahlia cuttings do, and they are liable to damp off instead of forming roots, unless the atmosphere is rather dry as well as close. When the cuttings or grafted plants are established, they should be potted into 5-inch pots, placing the plants near the glass in a house where there is a little heat. In two weeks the plants will be sufficiently established to admit of their being placed in a cold frame.

PANSIES.—Those in beds will continue to grow rather freely in fine weather: it will be necessary to see that no shoots are displaced by the wind, the beds to be kept clean and the surface stirred if necessary. Plants in pots under glass will produce a few flowers this month, and the beautiful velvety petals with their rich and varied colours, and the delightful perfume of the flowers cause them to be much prized. Should the plants be intended for exhibition or if it is necessary to have them in flower by a given time, all the blooms should be picked off up to within three weeks of the time. In warm weather two weeks would be long enough.

PHLOXES.—There is yet time to propagate these from cuttings; indeed the plants in the open borders or beds

will not have grown sufficiently until this month. If the plants have been in the ground a season or more it will be quite necessary to give a dressing of rich manure to the surface, and if extreme neatness must prevail the manure may be covered with fine soil. The cuttings put in some time in February will have formed roots by the middle of the month; they should be put into a frame where more air can be admitted to them.

PENTSTEMONS.—Plants that were put out in beds in the autumn must not be neglected. They will well repay the trouble of stirring the surface of the beds and placing sticks to the plants as they start into growth. If the plants have been wintered in frames they may be planted out, and, like the Phloxes, they enjoy rich soil to grow in.

PYRETHRUMS.—Plants that have been wintered in pots should now be planted in prepared beds or in the herbaceous borders. Remove decaying leaves from established plants out-of-doors, and surface-dress the beds; indeed, it may be taken for granted that in all cases this should be done with gross feeding plants, and the manure can always be just covered over with fine soil.

GLADIOLI.—To have a continuous bloom plant at intervals of two weeks, but the largest portion of the stock should be planted by the end of March in the South. Two weeks later will be early enough in Scotland and the North of England. Plant out those bulbs that were started in pots in February. Any plants above-ground should be protected on frosty nights with an inverted flower-pot.

TULIPS.—If the weather is mild and other circumstances favourable, these will have made a strong healthy growth, and the flower-buds will show conspicuously. Mulch the surface of the beds with rotten stable manure. This arrests evaporation and prevents the frosts from causing any material injury. In wet, cold districts, it is quite necessary to cover the plants on frosty nights, and especially after wet.

POLYANTHUSES.—These require very similar attention to that of the Auriculas. The trusses will be coming up strongly, and by the middle of the month the clear golden edge can be seen on the yet unexpanded flowers. Watering, airing the frame, and watching the gradual development of the flowers, is pleasant work. The true florist derives more pleasure, perhaps, from a few Polyanthes or Auriculas than the owner of scores of glasshouses, who seldom sees his flowers except in their cut state at dinner parties, &c.

CHRYSANTHEMUMS.—All the cuttings of these should be put in by the end of the month. They do not require much heat, but will strike root in a very slight hotbed. Cuttings that were put in early in the year will now be so far advanced as to require potting. The plants may either be placed in a cold frame, or they will grow more freely in a greenhouse, if large specimens are required. Take advantage of their being under glass to fumigate for the destruction of insect pests. *J. Douglas.*

Garden Operations.

KITCHEN GARDEN.

By the aid of the contrivance we recommended in the foregoing Calendar under this head, to be used for advancing in some degree those matters to which we alluded, we were enabled to make sowings of Carrots, Turnips, and a good successional lot of Peas; plantings of Beans and Potatoes were likewise made under similar conditions. Beyond these operations but little could be done, and much ordinary work still stands in abeyance owing to the force of opposing circumstances. After so long a period of inclement weather there will be much in this department to do. When a suitable change ensues take advantage of the first opportunity to sow Onions, Carrots, and Parsnips for the main crop, and make a sowing of the autumn section of Broccoli, such as Veitch's Autumn Giant, and Protecting and Walcheren Cauliflower to succeed those already sown under glass or in other sheltered places. Sow also the seeds of all the different kinds of Winter Greens and Brussels Sprouts. These seeds require to be got in early, as the plants cannot well be grown too large before winter sets in. With regard to sowing Broccoli more discretion is needed. If the plants are intended for an upland place sow early, if for a lowland position the end of April will be soon enough. Amongst the section of Winter Greens we may safely enumerate Cottagers' Kale and Chou

de Milan as being two of the most hardy and useful kinds. We have gathered from this year's experience as well as of former ones, that the Savoy Cabbage is one of the most hardy subjects of its kind extant, provided it be not sown too early in the year; it will therefore be necessary and advisable to divide the sowings of this crop—making one as soon as practicable, and another about the end of April. In making such sowings as these we strongly advise due precautions being taken at the time to prevent those bold depredators, the greenfinches, from getting at the seeds. We usually select an open spot for seeding purposes, and lay out a long bed 4 feet or 5 feet wide, which we cover entirely with nets, both for the sake of preventing delay and annoyance. Sowings of Lettuce, both Cos and Cabbage varieties, and Leeks, should also be made. As soon as time and circumstances will permit let the Asparagus beds be attended to; if these have not been forked over it should ere long be done, and done in a careful way by breaking down finely all lumpy stuff and removing all stones, &c., which will be likely to interfere with the free growth of the heads; before cutting time arrives, the surface should be raked over and the soil rendered fine. Should any further preparation be requisite where Cauliflowers are to be planted let it be accomplished, as the time for setting these plants out will speedily be here. The Globe Artichoke stools present a sorry plight at the present time, and it will not be at all surprising to find by-and-by that many of these are irrecoverably lost.

FORCING DEPARTMENT.—Let every attention be bestowed on the subjects which are included in this department, as an inadequate supply of edibles from out-of-door quarters will necessarily increase the demand from other sources of supply. As advancing crops of French Beans approach the blooming period let them be surface-mulched with a good rich compost. Water copiously whenever required with weak manure-water, and keep up successional sowings. After this period Canadian Wonder will be found to be a desirable kind for this sort of work. See that recently planted out crops of Potatoes be soiled up before the growth is too much advanced to be injured by this operation. Thin out the crops of Carrots and Radishes, and carefully attend to the latter which are in frames, in the way of ventilation, until such time as rough leaves are made, likewise see in the same manner to seeds of Broccoli, Cauliflower, Cabbage, Lettuce, &c., which are placed under the same conditions. Abundantly ventilate those Cauliflower plants which are shortly to be planted out, and before the plants become large remove all surplus plants which may have been pricked out between others in hand-glasses, in a careful way, so as not to check those which are intended to remain from coming in first. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

PINES.—To the cultivators of Pine-apples the summer season has become a matter of much more moment than it formerly was, under present and altered circumstances, for since the introduction of such large quantities of foreign Pine-apples into the English and other markets, many commercial growers have discontinued to cultivate them altogether. As the supplies of high quality have so far been confined to the winter season only, it is a fortunate circumstance that private growers have not followed in the wake of others, or had it been so the supply for the remaining part of the year—which embraces a very important time in this country, namely, the London season—would indubitably again have attained those almost fabulous prices which one was wont to hear about in bygone days. In this way the growers will now be able to dispose readily during the summer months of any surplus fruit at prices which will favourably compare, if not exceed, those which have been obtained during recent years. I am induced, by the above considerations, to recommend the extension of the cultivation of summer fruiting kinds, among which the Queen still stands unrivalled, and that not merely on account of its high quality but also for its adaptability for these requirements, as very excellent fruit of it can be had under the modern system of cultivation within a period of sixteen or eighteen months from the starting point. Our plan with regard to the plants which are to give the subsequent summer's supply of fruit is to range them in two sections—the first lot being a selection of the most vigorous out of the autumn-potted suckers which have been kept quietly moving throughout the winter months; these plants are put into fruiting pots at once, 10 and 11-inch ones, and plunged into a bed with about 90° of heat at the base of the pots. The others are those which are started now, which as soon as they have roots sufficient are forthwith shifted on into pots of the size before named and afterwards treated identically to the preceding lot. The present system of cultivation has dispensed with much time, attention, and expense, which formerly were entailed.

in the operations of disrooting, repotting, restarting, re-growing, and top-dressing, &c., but still the matters referred to above are equally as important, and unremitting attention to details is required if the highest standard of cultivation is to be obtained. In those places where such plants are located, provide every inducement by ordinary means to secure a good sturdy growth. Keep the night temperature of recently potted plants at from 60° to 65°, and about 70° in the daytime by fire-heat, allowing another 10° or more by the influence of sunshine. Where rootless suckers are placed keep the atmosphere moist and confined, and apply no water at the roots until these become visible at the sides of the pot. In other compartments proceed in the same manner as before advised. *G. T. Miles, Wycombe Abbey.*

VINES.—A return to severe weather, with every appearance of its continuance, will decide the fate of many sets of Vines that have been allowed to languish in cold wet borders, as no amount of coaxing or weighting under a sunless sky, will set right that which should have been corrected with steel forks and new loam last August. It will also prove the value of good inside borders well filled with active roots for supporting a strain that has not been experienced for many years. Where early Vines have gone wrong, and replanting has been decided upon, no time should be lost in securing a stock of cut-back canes for shaking out and replanting when they have started into growth, or where a good propagating pit is at command eyes put in now will be fit for planting in May, with every prospect of their filling the house with clean healthy rods true to name and free from Phylloxera. If planted in narrow internal borders composed of good old turf, bones, and charred refuse, resting on clean drainage, supernumeraries may be introduced for fruiting next year, while the permanent Vines are making new growth from a good bud at the base. Grapes now in flower should not be allowed to have a lower temperature than 60° to 65° at night, with a rise of 10° to 15° by day. Discontinue syringing. Keep the glass clean, and prevent condensation of moisture by the constant admission of air, providing it can be done without causing a draught. All shy-setting kinds will require careful fertilisation, and where time admits the accommodating Hamburgh will repay the trouble by producing heavier bunches of evenly formed berries. Muscats when in bloom should range 5° to 10° higher than the figures given for mixed kinds, and if the shows are numerous a better set may be secured by the removal of the surplus bunches before they come into flower. Keep thinning well in hand, as the time is approaching when a great number of long-delayed operations in other departments will claim attention. Rules for thinning often fall wide of the mark, and it will therefore be well to leave the person who is best acquainted with the capabilities of his Vines to be guided by his own judgment. One thing should always be borne in mind, that a properly thinned bunch of Grapes should contain a sufficient number of perfect berries to prevent its falling out of shape when cut and laid upon the dish, with just enough space for every berry to swell to its full extent without losing its natural form. Delays in other departments will have enabled every Grape grower to get his late houses into working order, and the time has now arrived for getting Lady Downe's, Alicante's, and other winter kinds into work. If bleeding is likely to set in, it may be as well to try to prevent it by dressing a second time with Thomson's styptic: but if persistent, steady forcing into foliage is perhaps the only way to get out of the difficulty. The present season has not been favourable to bleeding, at least where late Grapes have their roots in cold external borders. With us a large old Muscat, having its roots working near the hot-water mains, used to bleed severely before we took to cutting early for bottling: but we never perceived any difference in size of bunch, quantity, or quality. With good borders well filled with active roots the loss occasioned by bleeding is soon rectified. Cut-back Vines intended for fruiting in pots next season will now be fit for reducing or shifting into 12-inch pots. The compost should be rough sound turf and bones: use clean pots and crocks, and replunge in a bottom-heat of 75° to 80°. Keep close and moderately moist until they recover from the check. Train near the glass, which should be washed occasionally, as pot Vines in all stages cannot have too much light. *W. Coleman, Eastnor Castle.*

ORCHARD HOUSE.—In the forcing-house the blossoms will now have set; the season has been very unfavourable owing to the want of sun, with cold weather night and day, but with the precautions and treatment, as advised in previous Calendars, a sufficient number will have set for a crop. The treatment of the trees, whether they be bush or pyramid, is very different from that of the usual trained trees, if they are trained to a trellis, as they are even in orchard-houses. The way is to train a leading growth from the point of last year's young wood, and another growth from near the base, but as this produces two young shoots for the production of bearing wood in place of one,

it is also necessary to thin out some of the worst of the old wood, and in that way old trees are maintained in good condition. The pinching system desirable for the production of the best-formed bush or pyramid trees is more intricate. It is easy to say pinch at every fourth or fifth leaf as often as young wood is produced, but this would be misleading. It is quite safe to pinch the point out of all the strong growing shoots at this early season; such will start again, and produce two or three more growths much weaker and of a better character than the first. There are a class of growths very much weaker, which ought not to be stopped at all. They may average 1 foot in length when fully developed, and every bud that will be formed on the shoot in the autumn will probably be a blossom-bud except that at the point, consequently if that is cut off there can be no growth, and the shoot will die back to its base. Owing to stopping all the gross shoots the trees become much more thickly studded with young wood than they ought to be, which would prevent the proper ripening of the fruit in the autumn, and also of the wood itself. A judicious use of the pruning-knife is necessary to thin out all the wood during the growing season that will not be required for next year, and while doing this see that the trees are kept from becoming of a straggling habit. When the fruit is fairly set the trees should have a thorough syringing to cleanse them from decayed blossoms, and also any traces of red-spider that may have appeared during the period of setting. The temperature of the house may be raised to 60° at night, falling to 55° on cold nights. There is no need at present to hurry forward the trees in the late house. Still keep the ventilators quite open by day, and even at night they may be partially open. If there is a heating apparatus it will not be necessary to retard them, the object in doing so being merely to keep the blossoms from opening until as late a period as possible. I would urge the importance of making sure that all the trees are sufficiently supplied with water at the roots. *J. Douglas.*

ORANGE TREES IN POTS.—We have a few trees of the St. Michael's variety at present in flower, and so full are they of blossoms that at least nine-tenths of them might be cut off in the form of sprays, and plenty would yet remain to set for fruit. This shows the value of such trees beyond their use as fruit producers. I find it answers admirably to place the trees that have been in a cool house into a vinery, and by the time that the Vines are well in leaf the fruit will be set, when the trees may be removed to a warm house, and fully exposed to the sun. After the fruit is set syringe freely, and supply them with plenty of water at the roots as well. The temperature should be from 60° to 65° at night. *J. Douglas.*

STRAWBERRIES IN POTS.—The weather being again unfavourable for forcing operations, continued perseverance and vigilance will still be necessary in forwarding crops that are required for use at an early date. Where plants have set a good crop and are thinned to a limited number as circumstances may require, advantage should be taken of the first opportunity to remove them to a house where the maximum temperature will be about 70°. It is always convenient and more practicable (where there is not a Strawberry-house) to have something like a definite principle to work upon from the commencement of the season, so that assistants will know exactly how to act in case plants are required to be pushed forward or retarded. The Strawberry delights to swell in a high moist atmosphere, such as that afforded in a Cucumber or Melon house, until the fruits begin to change colour, when the supply of atmospheric moisture should be reduced; but the mean temperature should not fall suddenly or there will be a check to the swelling of the fruits, which will not attain their normal size. The finest Strawberries we have ever grown or exhibited were those which were forwarded in a temperature ranging from 80° to 100°. The skin is much clearer, and the colour more striking when they are grown in a high temperature. Feed liberally during the swelling period with any safe liquid which is free from poisonous substances, and if the roots of the plants are in good condition they will require watering more frequently. There is no gain to be got from placing "turf trays" or "saucers" under the bottoms of Strawberry pots; they are the merest phantoms, which should never be resorted to where high-class cultivation is carried out. *W. Hinds.*

PLANT HOUSES.

ORCHIDS.—Next to keeping what Orchids we possess in good health comes the important point of increasing their number, either by established or imported plants of those most desired. Both ways have their advantages: the established plants will consist mostly of those which have flowered, and whose value as regards variety is known to the vendor, so that the buyer can learn exactly what he is getting for his money. Any one aware of the vast number of imported Orchids which yearly enter the English

market might naturally suppose that established plants must get greatly reduced in price, but with the exception of very common varieties such is not the case. Good varieties of common species realise more than ever. Well grown plants of some of the first favourites sometimes fetch extraordinary prices. Such was the case a week or two since, when for a noble plant of *Vanda cœrulea* Mr. Stevens' hammer fell to a bid from Mr. B. S. Williams of 90 guineas. Another general favourite is *Odontoglossum crispum*. For several years it has been annually imported by the thousand, yet at the present moment well-grown plants of it in 32's will fetch from 5 to 10 guineas each, according to the variety. Surprising as this may seem it is easily accounted for, and that without jumping to the common conclusion that most of these imported Orchids are killed through the unskilfulness of the grower and undergo cremation down in the stokehole. In the first place it takes three or four years to work up such a plant as I have mentioned; it may then go on year after year making one good bulb and spike, very rarely making back or double breaks to allow of propagation. Next, buyers of imported Orchids increase yearly. Lastly, gentlemen now count their plants by the score, when formerly they were content with units.

Imported Orchids have two strong points to recommend them—healthy constitution and variety. The latter point does not always come up to the expectation of the buyer; still the fact remains that some of the most esteemed Orchids have been bought in the imported state mixed among ordinary varieties at very low prices. Those who wish to succeed in establishing imported Orchids must consider well what the plants have gone through since growing in their native homes. First, they have been torn from whatever supported them, their roots, and perhaps leaves shorn off. Then comes a drying process to deprive them of a certain amount of sap which otherwise might cause decay on the journey; next the packing with some dry material in a box; and finally a journey of several weeks on board some hot and dry steamship. During the whole of this time the plants have been losing, through evaporation, a large portion of their vital fluids, and in this condition may be likened to a man brought low by starvation. No one would think of bringing such a man round by gorging him with food and drink, neither will these plants come round by any other than gentle measures. First remove from them all dead parts, cleanse them from all dirt and insects; next pot, block, or basket them, then immediately place them in a house where plants of the same species are growing well. This done evaporation is at once checked by the moisture of the atmosphere, and reaction sets in. The back bulbs send forward sufficient sap to enable the leading growth to distend itself, and to make fresh leaves in the shape of a break, from which sooner or later proceed roots. Up to this time only enough water to keep the compost or block moist is needed; but with roots present, waterings must take place at long intervals with a few roots, and as they increase in number and length, more frequently until the plants at last are established. This treatment is suited for all Orchids that have in their native homes a decided growing and resting season.

The imported Orchids received this year have all, to use an over-worn expression, arrived in excellent condition. The most important among these are *Odontoglossum Pescatorei*, *O. Londeboroughianum*, and *Cattleya Mendelii*. The plants of *O. Pescatorei* should be potted in pots just large enough to allow room for one year's growth, the bulbs should be made quite firm by stakes, and a thin layer of peat and sphagnum put lightly over the drainage. *Cattleya Mendelii* should have its pot nearly full of drainage, and requires to be well elevated, they must be made perfectly firm by staking, as the peat and sphagnum they require is not enough to steady them. Imported *Cattleyas* will make a large quantity of roots on bare blocks, but I have never seen them make commensurate growth.

O. Londeboroughianum is an Orchid of great merit; it flowers in the middle of winter, lasting several weeks in perfection. Having bloomed it with thirty flowers to a spike, I can assure those who have now added it to their collections that they have a plant worthy of every attention. It is a warm *Odontoglossum*, or rather a hot one, delighting in sun-heat and light. The collector of it states he found it growing up unshaded rocks, the temperature in the dry season being 110° by day, descending to 55° by night. In cultivation, the Mexican or the lightest end of the *Cattleya*-house will suit it, and in all probability a vinery would, provided a place was selected where the foliage was scanty. It may not be out of place to state that the finest-grown plant in this country was once nearly lost through wintering it with *O. crispum*. The imported plants should be divided but little—the more back bulbs the better. Either grow it up a long mossed block, or in a long narrow basket with peat and sphagnum, like *O. coronarium*. The long-named one is a great traveller, and would quickly walk over the rim of a pot. *J. C. Spyers, Burford Lodge, Dorking.*

THE Gardeners' Chronicle.

SATURDAY, MARCH 1, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, March 3 | Sale of Lilies and Orchids, at Stevens' Rooms. |
| WEDNESDAY, March 5 | Sale of Roses, Gladioli, Shrubs, Trees, &c., at Stevens' Rooms. |
| THURSDAY, March 6 | Sale of Nursery Stock at the Exotic Nursery, Tooting, by Protheroe & Morris. |
| FRIDAY, March 7 | Meeting of the Linnean Society, at 8 P.M. |
| SATURDAY, March 8 | Sale of Japanese Lilies, at Stevens' Rooms. |
| | Final Clearance Sale at the Nursery, Leigham Court Road, Streatham, by Protheroe & Morris. |
| | Sale of Roses, Bulbs, Fruit Trees, &c., at Stevens' Rooms. |

THE formation of a *Hortus Europæus* or catalogue of cultivated plants, in spite of the long discussions that have taken place respecting it, has not advanced much beyond the talking stage. Unanimity of opinion can hardly be expected at Congresses, and so it happens that even the plan of the work is not definitely settled. This being so it is quite open to us to allude to the subject again, in the hope that by keeping the matter before the public something may eventually be done. Most of us are familiar with the works of LOUDON and PAXTON, both of them useful in their way, but full of errors and shortcomings, and in any case by no means representing the present condition of horticulture. Of still older works there is AITON'S *Hortus Kewensis*, a book which, though of course all but obsolete by reason of effluxion of time, is still a model of what a descriptive garden catalogue arranged according to the method of the day should be. One great difficulty in the construction of such a catalogue lies in the somewhat conflicting requirements of botanists and horticulturists. The attempt within the compass of one pair of boards to satisfy the requirements of both classes would most probably result in failure. The botanists would be overloaded with details of little or no service to them, the horticulturists would be weighted with lists of plants a large proportion of which would be of no interest in the garden. Were the question purely one of botany, the course to be followed would be comparatively easy, and at any rate the plan of operations could soon be settled. The *Hortus Donatensis* of PLANCHON is a good example of this form of catalogue, while the recently published *Arboretum Segrezianum* of M. LAVALLÉE is also a good illustration in its way, but more restricted alike in subject and treatment.

A new *Hortus Kewensis*, prepared at Kew with all the advantages of an experienced staff and a wealth of materials, living, dried, and documentary, would be an incalculable boon to botany and horticulture. Let us hope that such instalments as the list of Aroids, already published, and that of Bromeliaceæ, in preparation, may be merely the tentative precursors of a complete garden Flora.

For purely horticultural purposes the great difficulty lies in selecting what should and what should not be inserted. LOUDON and PAXTON teem with the names of species of not the slightest value for garden purposes. The works in question are necessarily for the most part mere lists of names, without any, or without much, attempt at securing accuracy, adjusting synonymy, or supplying references. The consequence is, blunders of omission and blunders of commission abound, so that the books in question are of slight value for botanical purposes. Art is long and life is short; no one individual could hope to draw up a scientifically arranged catalogue involving the examination and comparison of tens of thousands of specimens and the references to

an even larger number of printed descriptions and pictorial illustrations. Such a thing might be done in course of time at Kew, or some other great botanical centre, by the aid of a staff of botanists and the co-operation of outsiders willing and able to take up particular groups of plants with which they might be most familiar and all working under a competent editor and on a well digested plan—but for an individual, be he botanist or horticulturist, or both, the task is plainly impracticable.

Something has been done towards such a catalogue in our own pages and in those of our contemporary the *Garden*, sufficient perhaps to show the immensity of the task. During Mr. DYER'S editorship of the *Journal of the Horticultural Society* also some lists, as of Crocuses and Passion-flowers, were given. In Mr. SAUNDERS' *Refugium*, in addition to very valuable plates, monographs of certain genera, as *Cotyledon*, &c., are given. In our own columns the following genera have been described and catalogued either wholly or in part:—*Agave* in 1877, *Amaryllids* in 1878, *Ceanothus* in 1875, *Cordylina* in 1860, *Crocus* in 1873, *Escallonia* in 1873, *Funckia* in 1868, *Helleborus* in 1877, *Hæmanthus* in 1877, *Hollies* in 1876, *Iris* in 1876, *Lilies* in 1871, *Ligustrum* in 1877, *Narcissus* in 1869, *Nepenthes* in 1872, *Selaginella* in 1867, *Sempervivum* in 1874, *Yucca* in 1870, *Sedum* in 1878, *Scilla* in 1868-69, &c. These genera have been catalogued by Dr. LINDLEY, Sir JOSEPH HOOKER, Mr. BAKER, Col. CLARKE, Mr. DYER, Mr. MAW, and the Editors. Of the scattered notices on Orchids, Ferns, and other plants, by Dr. LINDLEY, Professor REICHENBACH, and other botanists, the number is beyond counting. In order that these may be made available for any future *Hortus Europæus*, we have constructed a MS. index to the principal plants described or alluded to in these columns since 1841. The construction of this rough index—a mere record of names—has given us a pretty good insight into the difficulties attending the formation of a complete catalogue, arranged according to the science of the day, and one possessing value as a scientific record, and not a mere list of unverified names.

Meanwhile it is instructive to see what the horticulturists have done for themselves in the way of catalogues. By turning to them we can form an idea of what their requirements are, and of how they can be met. The *Manuel des Plantes* of JACQUES, HERINCQ, and DUCHARTRE, a work in the French language, and now requiring revision and supplementing, is one of the most favourable specimens of its class. It follows the arrangement of DE CANDOLLE'S *Prodromus* pretty closely, and is, in our opinion, a more trustworthy work than LOUDON'S *Encyclopædia*, or DON'S *Gardeners' Dictionary*. VILMORIN'S *Fleurs de Pleine terre* is an excellent little book, descriptive of hardy plants, but naturally limited in its range of subject. Its arrangement is alphabetical, and it is illustrated with woodcuts, which often find their way into other publications, and not always with suitable acknowledgment. The works of SUTHERLAND and ROBINSON are of a similar character, and have the advantage of having been, in great measure, drawn up from personal observation. Still as scientific works they have not and are not intended to have much value.

Of trade lists we need hardly speak in this connection. They have a distinct purpose of their own, and if they fulfil that no more can be expected of them. Still we are disposed to regret that some of our enterprising nurserymen do not follow the example of their predecessors in the preparation of something more than mere trade catalogues. KNIGHT and PERRY'S *List of Conifers* was valuable in its day. The *Hortus Durovernenis*, published forty and more years ago by the late W. MASTERS, is still occasionally asked for. About the same time was pub-

lished the *Hortus Addlestoneensis*, in which a large number of plants were catalogued alphabetically under the respective heads of Trees and Shrubs, Greenhouse Plants, Bulbous Roots, Hardy Perennials and Biennials, Aquatic Perennials, Annuals, Fruit Trees, &c. The English and Latin names, the time of flowering, the height, the soil required, and references to figures were given. Both these works, which we have before us as we write, were moulded on the *Encyclopædias* and other publications of LOUDON, and were no doubt to a great extent direct copies from them. Of still earlier date (1794) is a "Descriptive Catalogue of upwards of eleven hundred Species and Varieties of Herbaceous or Perennial Plants," by JOHN GRÆFER, Botanic Gardener to the King of Naples. For an inspection of this list we are indebted to the Rev. H. N. ELLACOMBE. The arrangement is alphabetical, and the information given in tabular form, as in the works we have already mentioned. In the preface the Editor, whose name is not mentioned, after eulogising the author, proceeds to recommend the catalogue to "Public Favor" by reason of its "Prespiciuity (*sic*) and real Utility . . . which are apparent, especially to Amateurs and Professors of the Art, by enabling them to obtain what has been long Time ardently desired—a regular succession of Vegetable Beauties through the year . . . and in the Use of his great Variety of Herbaceous Plants a more constant and uniform gay Attire for Gardens, than has been hitherto pointed out, or adopted." The great distinguishing feature of this book is the adoption of signs to indicate the degree of value as garden ornaments of the several plants; thus, a plant with one asterisk affixed is simply desirable, one with two is more so, and so on. The adoption of such indications presents great difficulties, owing to differences in individual appreciation. The Rose elections, which have occupied so much space in the *Journal of Horticulture*, do not impress us with the desirability of proceeding far in this direction.

It is quite impossible within the limits we must assign ourselves to discuss this question fully, but before concluding this notice we must allude to manuscript catalogues made by the proprietor himself or by the gardener. These have great value from our present point of view, because they may be trusted to show exactly what is deemed most useful by the cultivator himself without reference to public requirements. Of such catalogues we have two before us from two notable gardeners, enthusiastic plant lovers of pre-bedding-out days. One is the garden catalogue of the father of Sir GEORGE MACLEAY, who happily inherits the paternal taste and knowledge. This catalogue is a mere list of names and numbers, arranged partly under the genera, such as *Crocus*, of which there are no less than ninety-four species and varieties mentioned; *Narcissus*, with sixty-five; *Pæonia*, with forty-one; hardy Orchids, with eighty entries (it would be difficult to find half that number now-a-days); *Roses* with nearly 500 entries, including a large number not now to be met with; bulbous plants, Tulips, &c. In addition to this the catalogue is in part geographical: thus there are lists of American plants, while those from China find place in the "Sinarium," and those from Scotland in the "Caledonarium." The topography of the garden itself furnishes headings for plants "on the back lawn, on the long flower border (some 1500 entries), the rosarium, the aquarium, the western border," &c. The other MS. list is that of the Rev. H. T. ELLACOMBE, of Bitton, the father of the present Vicar, and happily still among us, and as faithful to his love of plants now as ever. In this case, too, love of Nature and of all that that implies, has been most happily inherited, and let us hope will be enhanced by progressive development. Mr. ELLACOMBE'S list, dated 1832, opens with a quotation from the *Journal*



of a *Naturalist*—a quotation, we venture to repeat, because its truth is such that there is no fear of its becoming a truism, no matter how often repeated:—"The cultivation of flowers is of all the amusements of mankind the one to be selected and approved as the most innocent in itself and most perfectly devoid of injury or annoyance to others: the employment is not only conducive to health and peace of mind, but probably more good-will has arisen or friendships founded by the intercourse and communication connected with this pursuit than from any other whatsoever."

Mr. ELLACOMBE's list is a mere enumeration of names and numbers arranged under the heads of herbaceous plants, bulbs, Ferns, and trees and shrubs. Though Bitton has lost none of its old repute, we doubt if existing catalogues would show more than 2000 species and varieties of herbaceous plants and bulbs, as that of 1832 did. The trees and shrubs number between 700 and 800 entries, including 150 species and varieties of Rose.

We cannot now pursue this subject further; but we shall probably revert to it again, for daily experience tells us, more than it does most people perhaps, that a complete catalogue of garden plants, carefully and authentically elaborated, is one of the most urgent wants of modern horticulture.

— *BIGNONIA VENUSTA*.—We are glad of the opportunity afforded us by a correspondent—Mr. COSTER, gr. to B. S. BOVILL, Esq., Froyle Park, Alton—of figuring this fine climber (fig. 39), which is one of the best of its class, and has the special value of flowering in the dull season. We suspect it may have been discarded from a difficulty in flowering it, but our correspondent evidently experiences no such difficulty, as the specimens he sent were simply gorgeous. The plant is a native of Brazil, and was figured many years ago in the *Botanical Register*, t. 249, and *Botanical Magazine*, t. 2050. It is the *Pyrostegia ignea* of PRESL, a name which its brilliant orange flowers justify, but according to BENTHAM and HOOKER the plant is a true *Bignonia*. We append Mr. COSTER's letter:—

"I send herewith a cut bloom of *Bignonia venusta*, a grand old plant, which I think is one of the most vigorous growing stove creepers that I know of, making a growth extending 30 feet or more in a season, and it has been known to cover a surface of 500 feet in three years. But notwithstanding its large amount of growth it does not always flower freely. We first had our plant in a large box, when it made some splendid growths, but not a single blossom did we get. It rather put me out as well as my employer, as we fully expected after such growths to see flowers in corresponding luxuriance. However, we determined to turn it out altogether, and did so last March. It made a good growth all the summer with a plentiful supply of water, and began to show flower in November, but did not open till December. It has since flowered beautifully, and I do not think it has any equal for beauty and comeliness. I may add that our plant has hot-water pipes under it, which doubtless are beneficial to it, and since it showed its flowers we have given it manure-water twice a week. We grow it in a mixture of loam and peat with a little sand. Young cuttings will strike readily in sandy loam placed in a moist temperature. H. Coster, Gr., Froyle Park."

— *INTERNATIONAL POTATO EXHIBITION*.—The annual meeting took place on the 20th ult., for the reception of the report and balance-sheet, the latter showing a surplus of £18 11s. 8d. to be carried forward for the current year's expenses. It was further resolved to hold an exhibition in September next, on Wednesday and Thursday, 17th and 18th, at the Crystal Palace. Mr. Alderman HADLEY was re-elected President; and JAMES ABBISS, Esq., J.P., Mr. SHIRLEY HIBBERD, and Mr. PETER MCKINLAY, Vice-Presidents; JAMES CRUTE, Esq., Treasurer; and Mr. JOHN MCKENZIE, Secretary; and an influential committee was appointed. A schedule of prizes was agreed upon, and ordered to be printed and circulated among exhibitors. To meet a suggestion thrown out by Mr. Alderman HADLEY at the last exhibition, that prizes should be offered for Potatoes suitable for field culture, classes have been made for the best dish of Paterson's Victoria, and also for the best dish of any white Regent, valuable prizes being offered in each case.

— *THE INFLORESCENCE OF CRASSULACEÆ*.—This subject was discussed in a paper read before the Linnean Society on February 20 by Dr. MASTERS. In alluding to the various forms of inflorescence met with in Crassulaceæ, and which often serve as points of distinction between the species, the author alluded incidentally to the systems of inflorescence proposed by ROEPER, BRAVAIS, and others, and to the new arrangements adopted by HOFMEISTER and SACHS. An arrangement was proposed into monopodial or indefinite, choripodial or dichotomous, where the branches forming each fork are of the same age and of the same generation; and pleiopodial, where the successive branches are of different generations, the latter, including the sympodial forms, generally ranked as monopodial. The modifications produced by adhesions of one part to another, as described specially by PAYER, by suppressions and displacements of various kinds and degrees, were alluded to, most of the cases of so-called adhesion being referred to an irregular lengthening of part or the whole of the axis producing an appearance of uplifting. By this process very many modifications of structure could readily be accounted for in strict harmony with the internal anatomical structure, which was often (but not always) inconsistent with the idea of adhesion at any stage of growth.

— *GARDENERS' ROYAL BENEVOLENT INSTITUTION*.—We have much pleasure in stating that Mr. Serjeant COX has consented to take the chair at the thirty-sixth annual dinner of this Institution, and has appointed Wednesday, July 2, for that purpose, at The Albion, Aldersgate Street.

— *HEDGES IN RUSSIA*.—Our Russian correspondent, "P. F. K.," writes:—"In my communication on this subject (Nov. 16) there is a passage which is not so clear as it ought to be, thus:—'It is desirable to choose such (Acacias) as have the stems at least 1 inch in diameter and 4 feet high.' The latter clause should be—'and cut down to 4 feet high;' for if the Acacias are 1 inch thick they will be young trees about 8 or 9 feet high. I should also state, what I omitted before, that the white Acacia (*Robinia*) grows here very readily from seed. We have young bushy plants the first season 3 or 4 feet high, sometimes more, according to soil and situation. I think this species would thrive well in England, and be very suitable for hedges, particularly as it grows so quickly. It also makes a pretty tree either for the park or pleasure ground."

— *NATIONAL AURICULA SOCIETY (SOUTHERN SECTION)*.—We are requested to state that at the ensuing exhibition of Auriculas on April 22, Mr. W. J. BARNES, of Stapleton Road, Bristol, offers a set of patent handglasses of different sizes and value, to be awarded, one each, as an extra prize, to the winners of the 1st prize in eight of the classes.

— *THE WINTER IN THE MARKET GARDENS*.—The latest edition of winter—one clothed in a garment of Siberian aspect—has been productive of more actual inconvenience, and perchance alarm, than any previous visitation of cold during the past few months. The season for action has arrived, and nothing can be done. Worse than that, with such a snowfall—some 10 inches throughout the metropolitan counties—the soil will for several days after thaw be left in a cold, wet condition, and the work of sowing and planting be proportionately checked. Market growers have found in past mild winters no great opportunities for making profits. An open time, and an abundant season, give plenty in the market and low prices. The present winter has been the reverse of this; but, on the other hand, crops for market have been so withered that it has taken about three times the quantity to make the customary bulk, whilst the gathering of the same has been at least twice as costly. For several weeks the material available for market has been reduced to a minimum; and when, in other and milder seasons, there would have been a good gathering of Wallflowers and Violets, now all is barren, and there is but a poor prospect of flowers of either of these profitable market plants being available for several weeks. Market garden labour has had to suffer also; not only has what work that has been done been performed amidst great discomforts and hardships, but in all directions men and women have had to lay by idle, and, of course, in a state of extreme poverty. Growers are now anxious to sow Peas, Beans, Radishes, Wallflowers, and to plant early

Potatoes, that the market might be secured as early as possible. It is the early market that pays; the late market for summer crops generally means a glut; and this year the crops will be all sown and coming in together. Those who rail so freely against our large purchases of vegetables and fruits from the foreigner give little consideration to the difficulties attendant upon the production of garden produce in our variable climate.

— *SNOWDROPS IN EARLY SPRING*.—What a wealth of these pretty harbingers of spring is to be met with in some cottage gardens. When driving through a country district in East Kent a week ago we saw in roadside cottage gardens Snowdrops thickly growing in many places. The base of the hedgerows was thick with them, and in some cases, where the gardens were elevated above the sides of the roadway, the Snowdrops had rained themselves down the bank, and were sweetly blooming amid the grass, having the appearance of a mimic cascade of floral whiteness of spotless purity, mingling themselves with the yellow Primroses that line the roadsides with happy plenteousness. The Snowdrop, which is so valuable because flowering so early, can be used in many ways with charming effect. They are sometimes planted in grass plats, but they need to be renewed frequently, as the constant mowing of the grass during spring soon kills the plants. A combination of Snowdrops and Winter Aconites looks very pretty under the branches of trees on lawns, and a clump of Snowdrops peering out from anywhere is always pleasant to the eye. It is a plant that will thrive almost anywhere, coming up in unlikely places and blooming with marvellous freedom when thoroughly established. Some Snowdrops mingled with the pretty blue *Omphalodes verna* are remembered as affording a delicious bit of soft colouring in the spring garden.

— *EFFECTS OF THE FROST*.—Not only has the long duration of winter weather thrown many gardeners and labourers employed in market gardens, &c., out of work, but it has also had the effect of seriously contracting the labour of the flower "coster"—a class to be counted by the hundred, who purchase forced flowering and hardy plants and hawk them for sale in the suburbs of London, and many other cities and towns. There has been a marked absence of the familiar cry, "all a-growin' and a-blowin',"—indeed it could hardly be otherwise, and one cannot resist the inquiry, in what other class of occupation are these persons found? Jobbing gardeners—a very numerous class indeed round London—are having a bad time of it, seeing that, having no constant employment, they are paid only for the time they are at work. We know several who are glad to turn their hands to anything in order to keep the wolf from the door. Some who in homely structures have endeavoured to winter a few bedding plants, have lost all: damp and cold combined slaughtered their thousands of plants. When the thaw comes and glad springlike weather follows, as it is hoped it will, all outdoor gardening operations will have to be actively resumed; meanwhile, where only the weekly wage is depended on to find food, fuel, and rent, there must be hard times and much human suffering, and the end of the winter is not yet.

— *CONSERVATORIES AND SNOWFALLS*.—Since the heavy snowstorm which visited the metropolis and its suburbs on the morning of Feb. 21, many a resident in a suburban villa has had to undergo almost unspeakable horrors in witnessing the effect produced by an avalanche of frozen snow suddenly falling from the roof of his dwelling on to the glass roof of his greenhouse or conservatory beneath, with a result manifestly to the advantage of the glazier, and further, of making a visit to a timber yard a matter of imperative urgency. An examination of many villa residences against which a conservatory is erected will show that it is placed just where there is the greatest fall from the roof of the house, and where there is an entire absence of any intervening ledge or parapet to break the force of the fall. The soft snow becoming warmed by the higher temperature during the day, falls closer together, and becomes hardened by night when frost follows, and crystallises it into a dense mass. The next burst of sunshine or the internal warmth of the roof sets this frozen body in motion, and when it comes into collision with the glass roof of a conservatory the latter is

often incapable of resisting the shock. We fear there is little hope of touching the conscience of the builder, as he goes on building in the most unconcerned manner, and the hapless tenant has to bear the brunt of the disaster. It is bad enough to lose one's plants during such a winter, but it is much worse when a smashed roof follows hard on the ruins already too apparent.

— **PROPOSED TESTIMONIAL TO PROFESSOR CHURCH.**—In view of the approaching marriage of Professor A. H. CHURCH, and his consequent retirement from the office of Professor of Chemistry at the Royal Agricultural College at Cirencester, it has been decided by the resident Professors and students to present him with a testimonial in recognition of the eminent services rendered by him to the College during the past sixteen years. As many of his former colleagues and pupils wish to co-operate in the movement, it has been decided to receive contributions from past and present Professors and students. Any of the members of the committee will receive subscriptions up to March 25, on which day the list will be closed. It is proposed that as soon as the committee have ascertained the total amount subscribed, they will learn from Professor CHURCH what form he would wish the testimonial to take. Cheques and post-office orders should be made payable to Mr. MICHAEL FALCON, Cirencester; and cheques should be crossed County of Gloucester Bank, Cirencester.

— **THE WEIGHTS AND MEASURES ACT.**—A recent *Gazette* contains an Order in Council, under the Weights and Measures Act, 1878, signifying HER MAJESTY's approval of the "cental or new hundred-weight" as a new denomination of standard, and directs that the same shall be a Board of Trade standard in like manner as if it was mentioned in the second schedule to "the Weights and Measures Act, 1878."

— **ORCHIDS IN FLOWER AT WILTON HOUSE.**—The following Orchids are at present in flower in the fine collection of H. J. BUCHAN, Esq., Wilton House, Southampton, under the care of Mr. OSBORNE, who has greatly improved this collection since they have been under his supervision:—

| | |
|---------------------------|--|
| Ada aurantiaca | Oncidium bicallosum |
| Ceoloyne citrina | " serratum |
| " cristata | " maculatum |
| Colax jugosus | " superbiens |
| Cypripedium insigne | " cucullatum |
| " Maulei | " Wiltoni, fine varieties |
| " Sedeni | " pubes |
| " Roe-ili | " barbatum |
| " venustum | " virgulatum |
| " Boxalli | Odontoglossum Alexandræ |
| " villosum | " Andersoni |
| Epiphora pubescens | " Cervantesii decora, several, very fine |
| Epidendrum ciliare | " Pescatorei |
| Lycaste Skinneri, several | " ciliatum, fine |
| Maxillaria nigrescens | " ciliatum |
| " grandiflora | " Rosu majus, very fine |
| Mesospindium sanguineum | " pulchellum majus |
| " vulcanicum | " roseum |
| Masdevallia Veitchii | " Uro-Skinneri |
| " polysticta | " carinatum |
| " towarensis | " gloriosum |
| " ignea | |
| " amabilis | |

These are all fine varieties, well flowered, and in good health. In addition to those enumerated there are about one hundred other species and varieties showing flower, and soon this Orchid collection will be considerably augmented.

— **THE FLOWER MARKET IN COVENT GARDEN.**—Those of the market growers who experience the inconvenience attendant upon the continual block at unloading time at the Wellington Street entrance will be pleased to hear that the old house which stood between Messrs. FINDLATER's new premises and the office of *Design and Work*, in Tavistock Street, has been removed, and that the formation of a new entrance from that side is in progress.

— **HOW TO PREVENT RABBITS FROM BARKING TREES.**—A contributor to the *Deutsche Gärtners-Zeitung* states that the following is the best and simplest means of protection against these destructive rodents. Take the rind of smoked bacon, and therewith besmear the lower parts of the plants or trees! One dressing is sufficient for the winter, and the operator working with both hands may get through a large quantity of young nursery stuff in a day. For seed beds it is sufficient to dress the plants on the outside of the beds; and for trees one rub up and down, on one side of the trunk, will suffice to keep

the rabbits away. Another writer in the same journal states that rabbits exist in thousands at Ebreichsdorf, in Lower Austria, but that no effective means of keeping them from trees has been discovered. His remedy, therefore, is to kill the rabbits, employing ferrets to hunt them out of their burrows, when they may be shot or entrapped in nets. In another place, where wild rabbits have become a real plague, a kitchen garden, about three acres in extent, was only secured from their depredations by enclosing it with galvanised wire netting, carried about 2 feet 6 inches underground, and standing a yard above it. Yet another recommends a mixture of cow's urine, slaked lime and train oil. But this is only suitable for trees, and must be re-applied after heavy rains.

— **PINES FROM THE AZORES.**—The earlier arrivals of Smooth Cayennes from St. Michael's were not so good this season as usual, but those coming to hand now are much better, and really of excellent quality. Messrs. WEBBER's window in the Central Avenue, Covent Garden, contained about two dozen fruits the other day which would weigh from 3 lb. to 4 lb. each, large in the pip, very fresh, and altogether of admirable appearance.

— **FUSION OF TWO FLOWERS.**—Mr. A. ROBERTS sends us a flower of *Eucharis amazonica* with ten segments to the flower and ten stamens. It is clearly a case of fusion of two flowers, accompanied by a suppression of parts.

— **HEBECLINIUM IANTHINUM.**—As a winter and early spring flowering plant, this highly ornamental Mexican Composite is found to be very valuable for stove or conservatory decoration. It has much to recommend it, as it is of neat habit, bold aspect, and produces an abundance of its pale lavender Ageratum-like flower-heads in broad flat corymbs, which last in perfection for a very long period. It is, moreover, of very easy culture, and of rapid growth. Spring-struck cuttings will, if liberally treated, make handsome specimens 2 feet high, and as much across, by the following winter. It should be grown in moderate heat up to the time of flowering, when it may be gradually inured to a cooler temperature, which will prolong the flowering season considerably.

— **PRESENTATION TO MR. WILLIAM HINDS.**—On February 17 a number of the principal gardeners of Liverpool and a few friends assembled at the Public Rooms, Aigburth, for the purpose of presenting Mr. HINDS, on the occasion of his leaving Otterspool, with a handsome gold watch, as a slight recognition of his worth, and the able manner in which he represented Liverpool as a horticulturist, being always willing to render assistance to the furtherance of any cause connected with gardening.

— **THE METEOROLOGICAL SOCIETY.**—The usual monthly meeting of this Society was held on Wednesday evening the 19th ultimo, at the Institution of Civil Engineers, Mr. C. GREAVES, President, in the chair. The following papers were read:—"Diurnal variations of barometric pressure in the British Isles," by FREDERICK CHAMBERS. The object of this paper is to show the difference of types of the diurnal variations of pressure at inland or sea-coast stations are due to the superposition on a common type of diurnal variation at all the stations of a distinct diurnal variation of barometric pressure, such as is required to satisfy the convection-current theory which explains the well-known diurnal land and sea breezes. To show this, all that is necessary is to take the differences in the corresponding hourly inequality of the barometric pressure at pairs of inland and coast stations, and to exhibit these differences in the form of curves, which are then found to closely resemble the curves of diurnal variation of air temperature. "On a standard cistern siphon barometer," by FREDERICK BOGEN. "On the relation existing between the duration of sunshine, the amount of solar radiation, and the temperature indicated by the black bulb thermometer in vacuo," by G. U. WHIPPLE, B.Sc., F.R.A.S. The author has instituted a comparison between the duration of sunshine, as determined by CAMPBELL's sunshine recorder, and the amount of solar radiation as ascertained from the readings of the black bulb thermometer in vacuo, for the year 1877, at the Kew observatory. It is evident that there is a close relation between these phenomena,

but owing to the great range of the black bulb thermometer the exact nature of the connection is not immediately evident. The author says that it may be safely concluded that the measure of solar radiation as given by the black bulb thermometer is only to be considered at any place as an indication of the relative presence or absence of cloud from the sky at the locality, and so its use as a meteorological instrument may with advantage be set aside in favour of the sunshine record which has not the elements of uncertainty attached to it inseparable from the former instrument. "Results of meteorological observations made at Buenos Ayres," by WILLIAM B. TIPP, Assoc. Inst. C.E.

— **FAMILIAR GARDEN FLOWERS.**—Under this title Messrs. CASSELL are issuing in monthly parts, at a very low price, a series of small coloured plates by Mr. F. G. HULME. The plates before us are devoted to the *Tropæolum* and the common white Lily. The text is from the pen of Mr. SHIRLEY HIBBERD.

— **COMMERCIAL STATISTICS.**—The *Monetary Gazette* has recently published an elaborate chart illustrative of our trade with the world in 1862-67, 1870-73, 1877, 1878. According to this table it would seem that our total imports from various countries in 1877 amounted to nearly £510,000,000 sterling, while our exports for the same period were only about £75,500,000! In 1878 the imports were £366,000,000; the exports nearly £193,000,000.

— **FRENCH APPLES.**—Some very fine specimens of the Calville Blanche Apple may be seen at the present time in the shop windows in Covent Garden; also some very highly-coloured fruits of a French variety sold under the name of Dieu Donné, which name, however, we cannot find in the leading French or English catalogues. It is an old Apple of medium size, with a pale yellow skin heavily blotched with crimson on the sunny side. It has a dry, hard flesh, and is exceedingly pretty; and that it is worth knowing is evident from the fact that the retail price is 3s. to 4s. per dozen.

— **THE BALDWIN APPLE.**—This fine American Apple is now coming into the market in considerable quantities, packed in barrels containing about 2½ bushels each. The samples are described as being of "pretty fair quality," and realise from 18s. to 22s. per barrel wholesale.

— **THE WEATHER.**—From the report issued by the Meteorological Office for the week ending February 24, we learn that the weather was very stormy and unsettled—much cloud prevailing, interspersed with occasional fine intervals; and thunder, lightning, and hail at Jersey about midnight on the 20th. A considerable improvement took place in the West towards the close of the week. The temperature was below the mean in all districts—the deficits being as much as 10° in "Scotland, E.," from whence some very low readings are reported. The lowest points reached in the shade were 11° at Thurso and 16° at Wick on the 19th, and 18° at Aberdeen and 12° at Glenalmond on the 20th. The thermometer exposed on the grass at Glenalmond fell as low as 6° on the 20th, and 5° on the 22d. The coldest weather over England was at the close of the week, when the sheltered thermometer registered 17° at Strathfield Turgiss, 19° at Loughborough, and 22° at many other inland stations. The rainfall was about the mean in "Scotland, E.," a little less in the north-western districts and "England, E.," but rather more in other places, particularly "England, S.W.," where hail showers were very persistent during the early part of the week. Sleet was frequently reported from our northern and eastern stations, and in London a very heavy snowstorm prevailed for a few hours on the morning of the 21st. The wind was very variable at the commencement of the week, two distinct currents being noticeable, viz., a westerly to north-westerly one in the south and south-west, and a south-easterly one in the north. The latter current gave way on the 19th, but on the 21st it again appeared for a short time, and finally disappeared on the 22d; northerly to north-easterly breezes then set in. A westerly to north-westerly gale was experienced in the south-west on the nights of the 17th, 18th, and 20th, and strong winds in the west on the 24th.

— **GARDENING APPOINTMENTS.**—Mr. C. W. COOK, late gardener to THOMAS BROCKLEBANK, Esq., Springwood, Wootton, Liverpool, has been appointed gardener to Lord A. E. HILL TREVOR, at Brynkinalt, Chirk, Denbighshire.

Home Correspondence.

Galanthus nivalis var. Shaylockii (p. 237).—I am afraid that I must confess to having given wrong information as to the two flowers of this variety. It certainly does not bear such constantly, but it is a very curious variety, with such well-marked differences from the type as to deserve a place among the varieties named in your article. The whole plant is much smaller than the type; the spathe is two-leaved or divided, and this two-leaved spathe is much longer than the typical spathe, being longer than the flowers; and there is a conspicuous green blotch on the outside of the outer petals. These points make it a much more distinct variety than *G. Imperati*, and might entitle it to rank as a species, but that the two-leaved spathe is so entirely contrary to the generic character of *Galanthus* (*Spatha monophylla*) that it must be regarded as a monstrosity, which, however, is constant. I know nothing of the history of the plant, except that I received it from Berlin in 1877 under the name of *Galanthus nivalis* v. *Shaylockii* (not *Sharlockii*). *Henry G. Ellacombe, Bilton Vicarage.*

—In the remarks which accompanied the excellent illustrations of Snowdrops given last week the chief characteristic which marks *G. nivalis* var. *Shaylockii* from all the other Snowdrops was omitted, which is the large green blotch on the outside of each of the outer perianth segments. This peculiarity, combined with the long bifid foliaceous spathe, renders it a remarkably distinct variety. The tendency to produce two flowers from each spathe as asserted by Mr. Ellacombe has not come under my notice as yet. An etiolated form is also grown at Kew in which the ovary and blotches on the petals are yellow, presenting a somewhat sickly appearance. Though a permanent form it cannot be recommended except for variety. No mention was made of *G. Redoutei* of Ruprecht, though probably *G. nivalis* var. *major* of Redouté is synonymous with it. [We believe so]. As some trade lists for the present year offer *G. Redoutei* at a high figure and describe it as "a fine new species," a little information with regard to it will, I feel sure, be acceptable to most lovers of hardy spring flowers. The plants at Kew of *G. Elwesi* have the petals wholly green save the white wrinkled border, and are quite destitute of the broad white horizontal band above the middle, as shown in the woodcut and also in the *Botanical Magazine*, thus showing that it is not an absolutely reliable character. *William Goldring.*

Double and Single Snowdrops.—In a paragraph on p. 237 respecting Snowdrops, you state it is Mr. E. J. Lowe's opinion that the common Snowdrop dug up from the fields, where it is so well established as to be almost wild, becomes in large proportion double when transplanted to an orchard. This is quite the reverse of my experience. I always look over my double Snowdrops when in flower and take out the single ones and plant them separately. Thus, out of 5 acres of double ones, in four years I have taken out sufficient single-flowered forms to plant over 3 roods; but in no case do I remember seeing a double one amongst the single ones thus selected. Perhaps some among your numerous subscribers will give their experience also. *Christmas Quincey, Fulney, Spalding.*

Lily of the Valley.—If your correspondent, "E. K." (p. 246), had plunged his pots, containing the crowns, sufficiently deep in a bed of leaves or tan, of the temperature stated in his communication—75° or 80°—to admit of an inverted flower-pot of the same size as those in which the crowns are being placed over each pot, and then covered with the plunged material sufficiently thickly to exclude light and air (the soil in the pots being moderately moist before the pots had been plunged), he would have experienced no difficulty in getting the crowns to start. I should say that standing the pots immediately on the pipes, or in any other position where the atmosphere is both dry and hot, is the worst way imaginable to induce the crowns to throw up "their flower-spikes." As we have been considered somewhat successful in the cultivation of this ever-welcome Lily by our neighbours, a few remarks may not be out of place, or without interest to a few of your amateur readers: therefore, with your permission, I will briefly narrate the *modus operandi* here. As soon as we receive our crowns—imported crowns—about the end of September, we pot them in an admixture of light loam, leaf-mould, and sand in pots, according to the size of the crowns—32's and 24's. We then put them in a cold pit (under glass), standing the pots on some sifted coal ashes, and then covering them with sifted leaf-mould, which, as above indicated, excludes both light and air. In the meantime we place a batch—say four or six pots—in a Pine or plant stove, and treat as above described. We have also found them to do very well in the Mushroom-house, the pots being plunged and covered in deep boxes of leaf-soil and

placed near the pipes, and the soil kept moist, when within a month or five weeks they make a good start. When they have made a couple of inches of growth they are gradually inured to the light, and then placed near the glass to prevent their becoming drawn. We obtain a succession by introducing a fresh batch into heat every fortnight, which are treated as already mentioned. *H. W. Ward, Longford Castle.*

—Like "E. K.," I experienced a most galling failure with "single crowns." I procured some from two consignments and was equally unsuccessful with both, although finer crowns I never saw. A friend of mine also bought from the same bulk, and like myself signally failed to get a single bloom from those put into heat in November. He also put a few pots into ashes outdoors, and agreeably surprised himself by having really splendid pots in grand plight by February 18, which circumstance verifies the Editors' remarks. I must now ask "E. K." to join hands with me and accept the lesson taught by our failure, for what I have cited clearly proves that the onus rests entirely on the treatment that my friend and self gave our crowns when in heat, or we should have had results comparative with what he got later on from crowns identical with those forced. *Wm. E.*

—The editorial remarks appended to "E. K.'s" complaint about the bad behaviour of his pots of Lily of the Valley in last week's *Gardeners' Chronicle* may help to elucidate the mystery, but possibly there are other points in his mode of procedure in forcing the Lily of the Valley that may be at fault, although on the whole he seems to have made a good trial. I am inclined to think that the failure was owing to the crowns not having been kept moist, at any rate "E. K." does not tell us that he made any special effort to prevent the crowns from feeling the drying effects of a high artificial temperature at a time when all vegetation was more inclined to rest than to grow. By adopting the following plan, I feel sure that "E. K." will have better success in time to come, always supposing as a matter of course that he has good crowns to begin with. As soon as these latter are received lose no time in getting them potted and placed upon a firm bottom in or out of a frame, and without delay cover them over, pots and all, 4 or 5 inches deep, with sifted coal-ashes, and there let them remain for a few weeks, bringing them forward in batches according to his requirements, and being careful at the same time to soak each pot in tepid water before plunging them in the hotbed, which should not be too hot—65° to 75° will be hot enough, with top temperature ranging 10° lower. The pots should be plunged in regular order so that they can be covered over—crowns, pots, beds and all—an inch or two deep with cocoa refuse, clean sawdust, sphagnum moss, or coal ashes: this again is to keep the crowns moist. It will not be long before they begin to swell and heave up their covering, when it will be necessary to gently and gradually remove the covering material with the fingers, now and again rocking each pot from side to side to prepare them for final removal to cooler quarters. It is often more easy to get flowers than leaves from these early forced crowns, but leaves for mixing with the cut flowers may be obtained by taking up a turf or sod of roots from any old bed or border and treating them similarly to the crowns, the result being mostly plenty of leaves and few flowers. *F. H.*

—I conclude from the remarks of "E. K." that he cannot have kept his crowns in darkness, or I think he would not have had such a failure. Potted in the manner he describes, namely, ten or twelve crowns in a 6-in. pot, with another pot inverted over them, and the hole in the bottom of the pot stopped with a little moss to exclude the light, and placed in bottom-heat, about the temperature your correspondent describes, with a top-heat ranging from 60° to 65°, I have seldom had a crown fail to start. It is necessary that the crowns should be fully an inch high before the pots are removed, or they are liable to receive a check; also to shade them for a few days from the direct rays of the sun, when the pots are first taken off. I can quite endorse the Editors' remarks with regard to moisture, as I have found it beneficial to remove the pots and syringe the crowns once or twice a day, to insure the best results. *H. E. Gribble, The Gardens, Cannon Hill, Maidenhead.*

—There is always a little difficulty early in the season in getting the crowns of this plant to start into growth and flower regularly. If "E. K." had covered his crowns an inch deep with cocoa-fibre after plunging the pots in the bottom-heat he states, he would have found them throw up their flowers much more satisfactorily. The fibre keeps an equable state of moisture around the crowns and in the pots, which is favourable to a good start with this plant. Single crowns are generally recommended for very early forcing, but I question whether they are as good as clumps for this purpose; the crowns are rarely kept moist enough after being taken up from the ground, and thus lose much of their vitality. *J. Roberts.*

—May I remark that although some of my pots of Lily of the Valley may have been in a compara-

tively dry position, that was anything but the case with one good batch plunged in a very moist propagating pit, with a covering of fresh moss over the crowns; in fact the house is so charged with moisture that the moss has kept in quite a saturated condition. Since writing to you last I see most of the crowns are now on the move and showing flower. *E. K.*

Rhinopetalum Karelini, Fischer.—This very graceful liliaceous plant is now in flower in our nursery. We introduced it last summer, and we suppose it has not yet flowered in Europe, except perhaps at St. Petersburg, in Dr. Regel's garden, from whence it was figured in the *Gartenflora* (1874, p. 161, tab. 796). We cultivated it under glass in a cold fernery. In the open ground it is said to flower at the same time as *Scilla cernua*, we suppose, however, it may be somewhat earlier. Mr. Baker has classified it as *Fritillaria Karelini*. The flower-stem is about 8 inches high, the lower part is bare; the leaves are linear, the two lower larger, unequally opposite; the flowers are erect, four to six on a stem, their stems borne among the leaves, they are quite erect and show themselves very well when opened, more than 1 inch across, of a rosy-lilac colour with dark purple spots, which become more pale later. The figures in *Gartenflora* and in *Flore des Serres*, copied from the first (tome 21, tab. 2214), are good; perhaps the flowers are not spiked enough. It is a good addition to our spring bulbs. *E. H. Krelage & Son, Haarlem, Feb. 20.*

The Comparative Hardiness of Ferns.—I believe with your correspondent, Mr. Walker, of Chester (see p. 244), that many exotic Ferns will live and thrive under a much lower temperature than is generally supposed. It would be a help to others were your correspondent to publish, as he proposes, a list of the more tender sorts that have succeeded in his cold fernery during the winter. In my own case I have a house principally for filmy Ferns, in which the thermometer frequently falls below 40°. It has no heat except what is borrowed from an adjoining Orchid-house. It contains—

| <i>Trichomanes alatum</i> | <i>Trichomanes multifidum</i> |
|---|---------------------------------|
| " angustatum | " radicans (several vars.) |
| " crispum | " reniforme (large plants) |
| " humile | " venosum |
| " pyxidiferum | " javanicum |
| " exserium | <i>Hymenophyllum æruginosum</i> |
| " <i>Luschthianum</i> (in the coldest part of the house) | " dilatatum (several plants) |
| " <i>trichodeum</i> (this is a very fine plant, in vigorous health, on a Tree Fern stump as originally imported from Jamaica) | " asplenoides |
| | " crispatum |
| | " demissum |
| | " flabellatum |
| | " hirsutum |
| | " nitens (particularly robust) |
| | " scabrum |

Todeas, including *Wilkesiana* (many seedlings of this species); also the filmy-like *Asplenium heterocarpum*, from India; *Asplenium alatum*, *A. attenuatum*, *Polypodium suspensum* (a beautiful new species from Jamaica), and others. I believe that most of the above might be cultivated successfully in ordinary seasons in a sunk frame if protected with mats during frost. *Dicksonia antarctica*, *Lomaria procer* var. *minor*, *Polystichum lepidocaulon*, *P. anomalum* (Ceylon), *Dicksonia arborescens*, and others are quite fresh in a perfectly cold frame; and *Blechnum cartilagineum* stood quite unprotected in the open air fernery last winter, although probably the present exceptionally severe one may prove too much for it. I think it would be well if a cooler treatment were tried with many of our reputedly tender Ferns. *P. Neill Fraser, Rockville, Murrayfield, Edinburgh.*

The Rival Brussels Sprouts.—Mr. Hinds in so candidly acknowledging that, in 1874, he had plants of Brussels Sprouts from Sorley, simplifies the matter in dispute very much, and enables us to prove that the plants exhibited by him at the November show here were, as we have contended, "Sorley's sort," pure and simple, and had never been in any way selected by Mr. Hinds. It is evident the plants shown in November, 1877, could not have been grown from Mr. Hinds' selection of plants, the seed from which had only been harvested three months; it follows that they were grown from some part of the seed produced in 1875 by the original plants had from Sorley, and were therefore what we have said they were, "Sorley's sort." The plants shown at Manchester last November would be the first produce of Mr. Hinds' first selection from the original stock. We did not consider them equal to those exhibited here in 1877; but that may have been caused by the extreme drought of the summer here; but those shown by Mr. Lowndes were quite equal to Mr. Hinds' first six. We do not know how Mr. Hinds can have "every year since kept selecting and improving on the strain," seeing that his second selection, if made, will not seed until the coming autumn. Mr. Hinds also admits that he gave Wood the "original form," i.e., Sorley's; so that it must be apparent to all having any knowledge of seed-saving, from the facts now presented, that there is only one form of

this Sprout. We most cordially agree to show a dozen plants of these Sprouts, "Sorley's" or "Aigburth Improved," at the Royal Horticultural Society's Fruit and Floral Committee meeting, November 18 next. *R. P. Ker & Sons.*

I find mention at p. 210 of a fine Brussels Sprout which I have grown for many years. I first obtained seed of it from Mr. John Sorley, then gardener to E. Zwilchenbart, Esq., Aigburth. It is now fifteen years since I left him, and since that time I have each year carefully selected the best of my plants for seed, never allowing it to degenerate, but, on the contrary, have striven if possible to improve it, and I may fairly claim to have had an opportunity of doing so. Mr. Hinds asserts that he obtained the same Sprouts from Mr. Sorley in 1874, and that "every year since" he has kept "selecting and improving upon the strain;" the result of this lengthy process of selection being some wonderful advance upon the parent stock. Now, I should just like to ask, What selection worthy of the name could be effected in the period stated? The opinion of many gardeners in this neighbourhood well acquainted with the original is, that the Sprouts exhibited by Mr. Hinds did not show any advance, but had the usual good qualities of the kind. I can safely challenge Mr. Hinds or any other grower who may have obtained this Brussels Sprout, to show a better or more improved stock than my own. With regard to the practice of some firms of giving names of their own coining to anything good they may get hold of, I think all must agree with your remarks in the article of last week, that it cannot be too much reprobated; and though this variety is styled "Lowndes' Improved" in one of the Liverpool catalogues, it is not I who am responsible for the appellation, as I have carefully refrained from so designating it. Seed saved by me has been sent out since 1875 under the name of "Selected Giant" by Mr. James Tynan, of Liverpool, and as such it is now known and esteemed far and wide throughout the country. I forward per rail a stem of Selected Giant, grown from my seed, which has stood through all the severe weather we have had in the open ground without any protection whatever, and which will give you some idea of its hardiness and good qualities. If you wish I will have pleasure in sending a few remarks on its culture. *John Lowndes, Aigburth.* [The plant received clearly proves it to be a good variety, but we doubt if it is any better than the strain of Scrymgeur's Giant grown in the London market gardens, and is by no means so fine a sample as was shown at one of the Fruit Committee meetings by (we think) Mr. Gilbert, of Burghley. If "the Sprouts exhibited by Mr. Hinds did not show any advance, but had the usual good qualities of the kind," it appears strange to us that the Messrs. Ker should have made use of Mr. Hinds' name without his consent or knowledge, when it would have served their purpose equally well to have given the names of those who supplied them with the seeds. EDS.]

The Cucumber Disease.—My experience may be useful to those who are pestered with this disease. For two whole seasons I was completely beaten by it and could not produce scarcely one fruit quite free from the gummy matter. Seeds and plants from far and near were repeatedly tried, even plants were procured from friends who had not even seen the disease, and grown in heated pits, where Cucumbers had not been grown for some years previous, but all failed alike. "Salus," too, was extensively used and proved useless. Meanwhile the Editors were consulted, and their advice practically failed. Thus far the case seemed hopeless; I had tried all known or likely remedies, and all failed. The most provoking part of the business was that the roots were remarkably clean and healthy, and the plants of moderate vigour, while every fruit was exactly the reverse. Hitherto we had used a small quantity of leaves and stable-dung, prepared in the usual way, placed on the bottom-heat pipes, but this commodity not being forthcoming at the right time we were induced to put the soil on and plant without it, the result being a splendid and continuous supply of fruit of the best quality. So now, having clearly proved the dung, &c., to be the cause of the disease, I never use any, and have not been troubled with any "stamping out" processes for more than a year. *W. Crump, Blenheim, Feb. 18.*

The Araucarias at Feltham.—The two Araucarias at Feltham are hardly so good an illustration of the vagaries of "Jack Frost," as they I presume your paragraph at p. 209 pointed, at which I are of the art of "how not to do it." The one, 2½ feet high, is owned by a cabman, who keeps it pretty constantly supplied with hot short stable stuff, and yet it is not happy. The other, 5 feet high—the one that is dead—stands in the small forecourt of a shoemaker's cottage next door, where last spring it was muddled into a shallow hole with some brick rubbish and hot road-scrappings, under an idea of planting it;

it was evidently an old stager that had been struggling for existence in some out-of-the-way corner. Need I say that it began dying at once? Indeed the only wonder is that it managed to keep up a semblance of life until the frost came. *T.*

The Weather in North Notts.—The weather still continues here of the most wintry character, for this day (February 24) it has been snowing all day, and snow lies to the depth of 4 inches. On the morning of the 23d the thermometer registered 8° of frost, and it seems likely to get still severer, for the barometer is rising again rapidly. After the severe weather in January had done its worst to the Brassica tribes, we had hoped that there was a chance of February proving a milder month, but now another frosty period will be still more serious. The great bulk of the Broccolis here, where they were laid down in the autumn and slightly protected with litter, have stood very well, and young Cabbages, winter Onions, and Spinach, being close to the ground and protected by the snow, are safe as yet. Brussels Sprouts and Cabbages for sprouts are all cut up and rotting on the ground, and I believe the cold east winds did more injury to them than the frost. Unless we have a very fine dry March, the spring will be one of the most backward known for years. *William Tillery.*

Natural Inarching.—Having seen in your issue for January 21 some illustrations of unusual growth in trees, I send you a sketch (fig. 40) of a common Lime tree which appears as if five growths had started and by natural inarching formed one stem. They are united for different lengths, and Nos. 3 and 4 unite again at 8 feet from the ground level. The following

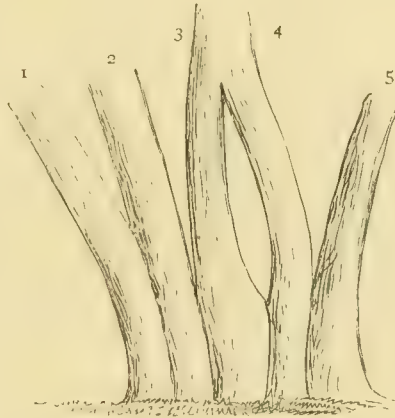


FIG. 40.—NATURAL INARCHING IN A LIME TREE.

are the measurements:—Circumference of united trunks at 18 inches from ground level, 15 feet 9 inches. Circumference of each trunk immediately above where they separate: No. 1, 3 feet 3 inches; No. 2, 4 feet 3 inches; No. 3, 4 feet; No. 4, 3 feet 1 inch; No. 5, 5 feet 10 inches. Nos. 3 and 4 unite again at 8 feet from the ground level, and form one stem. Height above ground line where they divide:—Nos. 1 and 2 are joined for 6 feet; Nos. 2 and 3 for 2 feet 6 inches; Nos. 3 and 4, 2 feet; Nos. 4 and 5, 18 inches. As said above, Nos. 3 and 4 unite again at 8 feet, leaving an open space of 6 feet by 8 inches wide at its widest part. *A. McD.*

Roman Hyacinths (see ante p. 145).—In continuation of my letter of January 20, I can now tell you something more about Roman Hyacinths, although the first history of them seems to be unknown. One of our French correspondents, who lives in the southern part of that country, where Roman Hyacinths are most cultivated, replies to our questions as follows:—Roman Hyacinths have been cultivated in the South of France, near the Italian frontier, for forty-five or fifty years, but it is only in late years that the cultivation of this plant has been carried out on so large a scale. Formerly the demand was but limited. It gradually increased, in consequence culture was developed, but it is only during the last ten or twelve years that it has received its great development. The demand increases every year, and often the supply is not in proportion, as was the case last year, although the annual sale is at present estimated at 1,200,000 or 1,300,000 bulbs every year. I have looked over the old catalogues of our firm, and I find that in 1859 it for the first time offered the Roman Hyacinth to the wholesale trade, especially in England and America, and much trouble was taken to make it popular among our customers. This succeeded, especially in later years, when the early flowering and the use of white flowers for winter bouquets increased. I suppose that our firm has

been principally concerned in making this flower popular. In France I find the Roman Hyacinths about that time, and a few years earlier, quoted, too, in Vilmorin's Bulb Catalogue. Our firm sold in 1857 this article about 25 per cent. cheaper than it can be done at present, and even at that cheaper price there was more profit than now. *Krelage.*

Hardy Varieties of Broccoli.—The present winter has tested the enduring power of most kinds of Broccoli to such a degree as to give one a pretty safe guide for the future in making selections from the hardiest varieties. Different systems of culture affect the hardiness of Broccoli more perhaps than any other vegetable of the Brassica tribe. To produce Broccoli plants of a hardy nature the seed-bed should be in an open position and on a rather poor soil, and should be made as firm as for Onions. Keep the young plants well thinned out in the seed-bed, and allow no weeds to prevent a free passage for air around the stems of the plants. Treated thus the plants will be dwarf and sturdy, and will lift with a mass of fibrous roots when large enough to be transferred to their permanent bed, which should be a piece of well-firmed land. Formerly, when practising in the North, I always found Broccoli sown in May and the beginning of June and transplanted late in the season hardier by several degrees than when sown in March and April, and I have known them when treated as stated above stand 34° of frost with little injury. The following kinds have proved the hardiest here this season:—Veitch's Self-protecting Autumn, Snow's Winter White (these two we have cut since the frost), Adams' Early White (this variety has stood fairly), Knight's Protecting, Harrison's Late White, and Wilcove Improved. The last named three kinds, from late-sown beds and transplanted the beginning of August, have proved the hardiest, and with a spell of growing weather will yet give us a fair yield. I should like to hear of other varieties that have stood the present winter without being seriously damaged. *J. Roberts, Gunnersbury Park Gardens.*

Obituary.

ON Tuesday, the 18th ult., death removed from amongst us one whose name has been intimately connected with horticulture in Ireland for the past half-century, Mr. NINIAN NIVEN, Garden Farm, Drumcondra. The groundwork of the late Ninian Niven's after fame was first laid at the Botanic Gardens, Glasnevin. It was he who first brought those gardens into form and order, and who commenced that admirable arrangement which has been so fully and ably perfected by his successor, the present learned curator, Dr. Moore. After having charge of these gardens for several years, Mr. Niven found a wider and more remunerative field for his genius, and to it we are indebted for many of the most charming landscapes which adorn the face of our island. As a landscape gardener he had very few equals, and his services were eagerly sought after by noblemen and gentlemen in every part of the kingdom. It is scarcely necessary for us to allude to the great taste and ingenuity displayed in the arrangement and management of his late beautiful residence, the Garden Farm. All who visited the place, and held converse with its cheerful and warm-hearted owner, could not fail to bring away pleasing associations of both. He was a most successful fruit grower, and few men have attained such satisfactory results in the culture of Grapes without the aid of fire-heat. Mr. Niven had attained a ripe old age, having completed his eightieth year. During his long and useful life he had an almost perfect immunity from illness, rarely having been confined to the house (with one exception) previous to the attack which ended in his death; and the very day, the 8th ult., previous to this attack he had been out marking trees in his nursery. Though slightly rallying once or twice during his illness, he gradually got worse, and peacefully passed to his rest on the evening of the day named. Though the funeral was intended to be a strictly private one, and fixed at an early hour of the morning, yet a numerous body of friends and well-wishers were present to pay this last mark of esteem to departed worth. It is only left to us to add our tribute of respect to a man who, by the judicious use of rare talent, integrity, perseverance, and industry, had attained the highest position in his profession, and who had secured for himself the admiration and respect of all who knew him. *Gardeners' Record.*

— **DEATH OF MR. LE NEVE FOSTER, M.A.**—The Society of Arts has just sustained a severe and sudden loss by the death of its well-known and greatly respected Secretary, Mr. Peter Le Neve Foster. Since Christmas last Mr. Foster has been suffering rather severely from gout, but it was hoped that the disease had left him, and he was recently enabled to resume his duties at the Society. On Thursday, February 20, however, immediately on his return home to his own house at Wandsworth, he was

seized with a sudden attack arising from heart disease, and some of his family coming into the room, where he had been sitting by himself for a few minutes reading, found that he had fallen back from his chair, dead. Mr. Foster was born on August 17, 1809, and was the son of Mr. Peter Le Neve Foster, of Lenwade, Norfolk. He was educated under Dr. Valpy, at the Norwich Grammar School, from whence he went up to Trinity Hall, Cambridge. After having taken his degree as thirty-eighth Wrangler in the Mathematical Tripos of 1830, he was elected Fellow of his college. He was called to the Bar at the Middle Temple in 1836, and practised as a conveyancer till he became Secretary to the Society of Arts in 1853. Mr. Foster was intimately associated with all the earlier great Exhibitions. He was appointed to carry into effect the provisions of the Act for the protection of inventions in the Exhibition of 1851, and was also named treasurer for payment of all executive expenses in the original Commission. During his term of office the Society of Arts has flourished as it never previously did and, owing in no small degree to his exertions, it has quadrupled its number of members and increased its resources in a still greater proportion. Much of its work was originated by the late Secretary, and all of it was carried out by him. Even the regular working of such a society involves no small amount of labour and responsibility, but besides this the Society has been instrumental in promoting a great many public objects, and in all of these it was necessarily upon the Secretary that the burden of the work always fell. From his boyhood upwards Mr. Foster took a keen and enlightened interest in many branches of science. He was one of the first to take up and practise, as a scientific amateur, the art of photography, and on this subject he has written a good deal in the pages of the photographic and other periodicals. He was one of the founders of the Photographic Society, and was on its Council for many years. He was President of the Quekett Microscopical Club for a year, and also served for some time on the Council of the British Association, the meetings of which he has attended regularly for the past twenty years. For many years he acted as Secretary of the Mechanical Section of the Association. He read several papers before the Society of Arts, and was, of course, a constant contributor to its *Journal*, the whole series of which, from the middle of the first volume, was published under his direction. Mr. Foster leaves behind him a numerous body of friends, to all of whom his genial and kindly character had endeared him. On the occasion of his completion of twenty-five years' service as Secretary a strong committee was formed to present Mr. Foster with a testimonial. The list for this was just about to be closed, the amount subscribed being over £1200. Under present circumstances it is probable that a fresh effort will be made to increase this amount, so that a fitting memorial may be presented to Mrs. Foster.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, Feb. 26, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|--------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | | | |
| Feb. 20. | 29.94 | -0.07 | 41.2 | 30.8 | 10.4 | 36.1 | 85 | WSW | 0.16 |
| 21. | 29.03 | -0.78 | 39.2 | 28.1 | 11.0 | 33.0 | 93 | N.E. | 0.79 |
| 22. | 29.19 | -0.62 | 37.8 | 25.1 | 12.7 | 31.0 | 91 | N.E. | 0.00 |
| 23. | 29.12 | -0.39 | 31.0 | 30.5 | 2.5 | 31.5 | 92 | N.W. | 0.02 |
| 24. | 29.70 | -0.11 | 40.1 | 27.7 | 12.4 | 30.7 | 83 | E.S.E. | 0.00 |
| 25. | 29.79 | -0.02 | 31.8 | 27.0 | 4.8 | 31.8 | 90 | N.E. | 0.00 |
| 26. | 29.89 | +0.08 | 36.0 | 30.4 | 5.6 | 32.9 | 84 | N.W. | 0.00 |
| Mean | 29.42 | -0.39 | 38.2 | 27.8 | 10.4 | 32.5 | 83 | N.E. | 0.97 |

Feb. 20.—Fine, bright and spring-like till 3 P.M., sudden darkness at 3.15; heavy snowstorm from 3.30 to 1.55, the flakes of snow being of unusual size. Fine after 7 P.M., cloudless at night. Snow disappeared. Snow and rain fell in early morning. Temperature of the air at 3 P.M. 41°, fell to 34.2° at 3.45 P.M., and was 33.2° at midnight.

21.—Overcast and dull throughout. Cold day. A very heavy fall of snow from 5.30 A.M. to 8 A.M., depth 8 inches, producing 0.79 inch of water as above.

Feb. 22.—Very cloudy, sunshine at intervals. A cold day. Sharp frost in morning.
23.—A dull day, cold. Sun's place visible at times. Sleet at 11.45 A.M.; snow fell between noon and 7 P.M.
24.—A very fine bright day. Very cold. Sharp frost in morning.
25.—Fine to 11.30 A.M., dull to 3 P.M. Fine to 6 P.M., overcast afterwards. Snow between 1 and 3 P.M. Cutting wind. Cold.
26.—Overcast, dull and cold throughout. Slight granular snow in morning. Cloudless at night.

Note.—The mean reading of the barometer for the twenty-one days (February 5—25 inclusive) was 29.25 inches, being 0.55 inch below the average.

LONDON: *Barometer*.—During the week ending Saturday, February 22, in the vicinity of London the reading of the barometer at the level of the sea decreased from 29.40 inches at the beginning of the week to 29.09 inches by the morning of the 16th, increased to 29.15 inches by the evening of the same day, decreased to 28.99 inches by the morning of the 17th, increased to 29.47 inches by noon on the 19th, and decreased to 29.07 inches by the afternoon of the 20th, and increased to 29.47 inches by the end of the week. The mean daily readings were considerably below their averages on every day in the week, that for the 17th being 1.01 inch in defect. The mean reading for the week at sea level was 29.21 inches, being 0.20 inch below that of the preceding week, and 0.79 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 45½° on the 19th to 37½° on the 22d; the mean value for the week was 41½°. The lowest temperatures of the air observed by night varied from 25° on the 22d to 35½° on the 16th; the mean value for the week was 30½°. The mean daily range of temperature in the week was 11½°, the greatest range in the day being 13½° on the 19th and 20th, and the least 6½° on the 17th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—February 16, 38° 6', -0° 1'; 17th, 36° 6', -2° 1'; 18th, 34° 2', -4° 6'; 19th, 38° 5', -0° 3'; 20th, 36° 4', -2° 5'; 21st, 33° 3', -6°; 22d, 31° 1', -8° 1'. The mean temperature of the air for the week was 35° 5', being 3° 4' below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 113½° on the 20th, and 107½° on the 19th; but on the 16th the reading did not rise above 61°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 22½° on the 22d, and 27° both on the 18th and 21st; the mean of the seven lowest readings was 28°.

Wind.—The direction of the wind was variable, and its strength moderate.

The weather during the week was generally dull, and very cold, with frequent rain and snow. Flakes of snow of unusual size fell shortly before 4 P.M. on the 20th, and there was a very heavy fall of snow (the depth being 8 inches) on the morning of the 21st.

Rain.—The amount of rain and melted snow measured during the week was 1.44 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, February 22, the highest temperatures of the air observed by day were 50° at Truro, 48½° at Plymouth, 46½° at Bristol, and 45½° at Blackheath; the highest temperature of the air at Sunderland was 39°, and at Bradford was 39½°; the mean value from all places was 43½°. The lowest temperatures of the air observed by night were 22° at Bristol, 25° at Blackheath and Hull, 25½° at Wolverhampton, 28° at Leicester, 28½° at Nottingham; the lowest temperature at Plymouth was 31½°, and at Truro was 31°; the mean value from all stations was 28½°. The range of temperature in the week was the greatest at Bristol, 24½°, and the least at Sunderland, 10°; the mean range from all places was 15½°.

The mean of the seven high day temperatures was the highest at Truro, 47½°, and Plymouth 46½°; and the lowest at Bradford, 36½°, and Sunderland, 36½°; the mean from all places was 40°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 29°, Hull 30°, and Blackheath 30½°; and the highest at Plymouth, 34½°, and Truro, 37°; the mean value from all stations was 32°. The mean daily range of temperature in the week was the greatest at Plymouth, 11½°, and the least at Bradford, 4½°; the mean daily range from all places was 8°.

The mean temperature of the air for the week from all stations was 35½°, being 10½° lower than the value for the corresponding week in 1878. The mean temperature was the highest at Truro, 41½°, and Plymouth, 40°; and the lowest at Hull, 33½°, and Wolverhampton, Bradford, and Sunderland, all 33½°.

Rain or snow fell on every day in the week at some places, and on five or six days at most others. The amounts were the heaviest at Blackheath, 1.44 inch, Sunderland, 1.23 inch, and Truro, 1.02 inch; and the least at Leicester, 0.22 inch, Bradford, 0.25 inch, and Sheffield, 0.29 inch; the average amount over the country was 0.68 inch.

The weather during the week was cold and dull, with frequent snow and rain.

A thunderstorm occurred at Plymouth on the 20th.

SCOTLAND: *Temperature*.—During the week ending Saturday, February 22, the highest temperatures of the air varied from 40° at Glasgow and 38½° at Edinburgh to 36° at Aberdeen; the mean value from all places was 38°. The lowest temperatures of the air varied from 17° at Dundee and 18° at Perth to 26° at Glasgow; the mean value from all stations was 22°. The mean range of temperature in the week from all places was 16°.

The mean temperature of the air for the week from all places was 31½°, being 15° lower than the value for the corresponding week in 1878, and 4½° lower than that of England. The highest was 33½° at Glasgow, and the lowest 29½° at Perth.

Rain.—The amounts of rain and melted snow measured during the week varied from 1.90 inch at Dundee to 0.33 inch at Greenock; the average amount over the country was 0.86 inch.

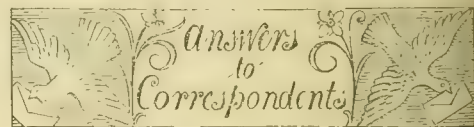
DUBLIN. — The highest temperature of the air was 47½°, the lowest 24°, the range was therefore 23½°, the mean was 36°, and the amount of rain and snow measured was 0.21 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

ODONTOGLOSSUM LONDESBOROUGHIANUM.—What is the native climate of the new *Odontoglossum Londesboroughianum*, Rchb.? What its elevation? Can you tell me when or where it was described? What should be its treatment? P.H.G. [It is a native of Mexico, and was described by Prof. Reichenbach in our number for December 16, 1876, p. 772. Some cultural details are given by Mr. Spyers in our present issue. EDS.]



BUDDING ROSES: *Constant Reader*. You should have placed the Manetti stocks in a warm propagating pit or frame, to start them into growth, and then you would have found that the bark would rise. After budding they should have been kept in a similar structure till the union was effected.

CEDAR TREES: J.R. If the dead wood is not unsightly, we should prefer to leave it on the trees. If it be so, you can do no harm by carefully removing it.

FLOWER-POTS: T.B.C. We do not recommend the use of either paint or varnish on flower-pots for parlour windows, but suggest instead the application of water and a stiff scrubbing-brush. Pots made of clay containing some amount of salt do not become green, and are easily kept clean. They may be obtained from Mr. Matthews, of Weston-super-Mare.

GOULD'S ARTIFICIAL MANURE: J.S. We are informed that this manure can be obtained at 69, Hop and Malt Exchange, London, S.E.; and also that Messrs. Dick Radclyffe & Co., 129, High Holborn, W.C., are agents for its sale.

MELILOTUS LEUCANTHA: A. Whittington. If you ask for seeds of this plant under the name of Bokhara Clover we should think you would have no difficulty in procuring them from any dealer in agricultural seeds.

MONSTERA DELICIOSA: E.G.L. Plant it in a good open soil, and let it run freely, and it will grow on into the flowering stage, after which it will blossom annually. If not too much shaded, it ought to be planted out and trained upon the back wall, 8 feet high and 16 feet long, of a three-quarter span pit, 12 feet 6 inches wide, facing south.

MUSHROOM STOOLS: H.S.P. We do not know any one who makes these seats for sale. We should think any handy carpenter would make them for you if you showed him the sketch.

NAMES OF FRUIT: A.J.Z. The Pear was too much bruised for us to recognise it for certain, but we think it is Glou Morceau.

NAMES OF PLANTS: Y.Y.Z. 1, *Echeveria retusa*; 2, insufficient; 3, *Mesembryanthemum cordifolium variegatum*; 4, *Furcigium grande*.

PATHS: A Cockney. We fear you will not find anything so pleasant to walk upon, if not to look upon, as the well-made asphalted footpaths which are adopted in many suburban districts. If their "unnatural" aspect is an insuperable objection, you must make them of gravel or road-scrappings, or a mixture of both. Dig out the soil as you propose; place a foot thick of any hard rubbly matter as a foundation, and surface with the finer material, which should be of a binding nature, if you would have a smooth, even, and durable pathway. If necessary, the bottom of the excavation should be drained.

PEARS: W.N. They were very good, but did not keep long, having been somewhat bruised in transit.

POTATOS: A Cockney. Our authority is Dr. Latham. The question has already been noticed in our former volumes.

SEEDLING ARBUTONS: J. George. No. 1 is a very fine flower, intense rose, and very bright; 2 is a much

paler shade of rose; and 4 a rose-coloured flower shaded with yellow; 5, orange-scarlet, and shaded with pink towards the base of the petals, is very pretty; 6 is a salmon pink, but not a showy flower, and, besides, is too small. Nos. 1 and 5 appear to us to be the best. If you could get the latter with reflexed petals, what a gem it would be!

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

CATALOGUES RECEIVED:—Robert Parker (Exotic Nursery, Tooting, Surrey), Catalogue of Aquatic and Marsh Plants, Hardy Plants, Violets, Fruit Trees, &c.—Messrs. Thomas Kennedy & Co. (Dumfries), Catalogue of Select Agricultural Seeds.—Max Deegen, Jun. (Kostritz, Holland), Catalogue of Dahlias and Gladioli.—Amies' Chemical Manure Company (79, Mark Lane, London, E.C.), List and Testimonials of Amies' Chemical Manures.—Messrs. John Laing & Co. (Stanstead and Rutland Park Nurseries, Forest Hill, London, S.E. (Catalogue of Tuberous Begonias.—Frederick Gee (Biggleswade, Beds.), Catalogue of Vegetable, Farm, and Flower Seeds.—Messrs. Thomas McKenzie & Sons (16, Holborn Viaduct, London, E.C.), Illustrated Catalogue of American Specialities.—Messrs. W. Clibran & Son (Oldfield Nursery, Altrincham, Cheshire), Catalogue of New and Choice Plants and Seeds.

COMMUNICATIONS RECEIVED.—E. G.—D. R. & Co.—W. H.—D. T. F.—C. F.—G. S.—M. J. B.—J. P.—Foreman.—H. P. (received with thanks, but have been unable to find room for it yet).—A. McL.—O. T.—J. C.—T. L.—W. N.—J. Roberts (many thanks).—R. S.—W. B. C.—D. C. P.—C. W. S.—H. M.—Sutton & Sons.—J. T. B.—R. T. C.—A. T.—R. I. L.—J. S.—J. P.

Markets.

COVENT GARDEN, February 27.

Business is at a complete standstill. There is very little coming to market, and what does arrive does not move. James Webber, Wholesale Apple Market.

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|----------------------|-------------|
| Apples, 1/2-basket | 1 6-5 0 | Oranges, per 100 | 4 0-3 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 0 3-3 0 | Pine-apples, per lb. | 1 0-2 6 |
| Lemons, per 100 | 3 10-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0-.. |
| Globe, doz. | 2 0-4 0 | Lettuces, Cabbage, | |
| Jerusalem, bush. | 6 0-.. | per doz. | 1 6-.. |
| Asparagus, Fr. sprue, | | Mint, green, bunch. | 1 6-.. |
| per bundle | 1 6-.. | Onions, per bushel. | 4 0-.. |
| Eng. per 100 | 10 0-15 0 | young, per bun. | 0 4-0 6 |
| Fr. giant, p. bun. | 30 0-.. | Parsley, per lb. | 2 0-3 0 |
| Peas, French, p. 100 | 3 0-4 0 | Peas, per quart | 12 0-.. |
| Beet, per doz. | 1 0-2 0 | Potatoes, new, basket | 1 0-.. |
| Brus. sprouts, bush. | 10 0-.. | Radishes, per bunch | 0 1-0 3 |
| Cabbages, per doz. | 1 0-2 0 | Spanish, doz. | 1 0-.. |
| Carrots, per bunch | 0 4-0 6 | New Jersey, doz. | 2 0-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Rhubarb, doz. | 10 0-.. |
| Celery, per bundle | 1 6-2 0 | Shallots, per lb. | 0 6-.. |
| Chilis, per 100 | 2 0-.. | Seakale, per punnet | 2 6-.. |
| Cucumbers, each | 0 9-1 6 | Spinach, per bushel | 5 0-10 0 |
| Endive, Batav. dozen | 1 6-.. | Sweet Potatoes, per lb. | 0 6-.. |
| Garlic, per lb. | 0 6-.. | Tomatoes, per dozen | 2 6-3 0 |
| Herbs, per bunch | 0 2-0 4 | Turnips, p. 12 bunch. | 3 0-6 0 |

Potatoes:—Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Ficus elastica, each | 2 6-15 0 |
| ardia aethiop., doz. | 0 9-18 0 | Foliage Plants, vari- | |
| Azaleas, per dozen | 0 24-0 60 0 | ous, each | 2 0-10 0 |
| Begonias, per doz. | 0 6-12 0 | Genista, per dozen | 12 0-24 0 |
| Bouvardias, per doz. | 0 18-0 24 0 | Hyacinths, per doz. | 6 0-18 0 |
| Camellias, per dozen | 0 6-0 60 0 | Mignonette, per doz. | 6 0-9 0 |
| Cinerarias, per doz. | 0 12-0 18 0 | Myrtles, per doz. | 6 0-12 0 |
| Cyclamens, per doz. | 0 9-0 30 0 | Palms in variety, | |
| Cyperus, per dozen | 6 0-12 0 | each | 2 6-21 0 |
| Dracena terminalis | 30 0-60 0 | Pelargoniums, scar- | |
| viridis, per doz. | 0 18-0 24 0 | lets, zonal, doz. | 6 0-12 0 |
| Euphyllium, per doz. | 0 18-0 60 0 | Primulas, per dozen | 4 0-12 0 |
| Erica hyemalis, doz. | 12 0-42 0 | Solanums, per doz. | 6 0-18 0 |
| Eunonymus, var. doz. | 6 0-18 0 | Spirea, per dozen | 12 0-30 0 |
| Ferns, in var., p. doz. | 4 0-18 0 | Tulips, per dozen | 8 0-12 0 |

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-----------------------|-------------|-------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Lily of Val., 12 sprays | 2 0-6 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Azaleas, 12 sprays | 0 6-1 6 | Narcissus, paper- | |
| Bouvardias, per bun. | 1 0-4 0 | white, 12 sprays | 1 0-2 0 |
| Camellias, per dozen | 1 0-9 0 | Pelargoniums, 12 spr. | 1 6-3 0 |
| Carnations, per dozen | 1 6-4 0 | zonal, 12 sprays | 1 0-2 0 |
| Cineraria, 12 bunches | 0 18-0 0 | Primula, double, per | |
| Cyclamen, 12 blooms | 0 3-1 0 | bunch | 0 9-1 6 |
| Deutzia, 12 bunches | 6 0-12 0 | single, 12 bunch. | 6 0-12 0 |
| Euphyllium, 12 blms. | 1 0-3 0 | Roses (indoor), doz. | 3 0-12 0 |
| Eucharis, per doz. | 0 4-12 0 | Snowdrops, 12 bun. | 1 0-6 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Tropaeolum, 12 bun. | 2 0-6 0 |
| Gardenias, 12 blms. | 12 0-24 0 | Tuberose, per dozen | 3 0-6 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tulips, 12 blooms | 1 0-3 0 |
| Hyacinths, 12 spks | 4 0-12 0 | Violets, 12 bunches | 3 0-6 0 |
| Roman, 12 spks. | 0 6-2 0 | | |

SEEDS.

LONDON: Feb. 26.—More inquiry is now shown for field seeds, and there is on every side a greater disposition to do business; in fact, all that is needed to cause a brisk consumptive demand is a spell of favourable weather, during which the present arrears of outdoor labour would be recovered, and the country would thus quickly lose the backward aspect it now wears. English red Clover seed continues to be marketed freely, and prices consequently stand at a most moderate level. In view of the ample supply of home-grown seed foreign samples meet with scarcely any attention. There is a small quantity here of new American red, which is more firmly held. Some disappointment appears to be felt in the United States and also in Canada that the English should prove this season such meagre buyers of American Clover; a state of things presenting a strong contrast to that of the previous year; consolation, however, is obtained on the other side of the Atlantic from the strong domestic demand prevailing there, and from the extensive orders received from Continental, and especially German ports. As showing the brisk trade now doing in the Western States, it is stated that the exports of seeds from Chicago, from January 1, 1879, to February 11, 1879, were 1,113,393 lb., whereas, for the corresponding period last year the figures were 326,747 lb. For fine white seed the tendency of values is upwards; Alsike is without alteration; Trefoils, on account of their extreme cheapness, meet with increased favour. For imported Italian and perennial Ryegrass there is a fair sale on former terms. Spring Tares keep steady at the late advance. White Millet for birds, being cheap and good, is in brisk request. The cold weather has improved the demand for Haricot Beans and boiling Peas. John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.

Owing to the nature of the weather reports there was a better feeling at Mark Lane on Monday. English and foreign Wheat was well held, and though the demand continued dull, the tendency of prices was against the buyer. Fine malting Barley was scarce and very firm, while other qualities, in which there was little doing, about supported the quotations of last week. Malt was without particular change. Oats met with more inquiry, and prices were rather higher. Maize was dull and flat. Corn was the turn cheaper. Beans, Peas, and flour were all very quiet, but as regards the last-named quotations were much better supported. On Wednesday English Wheat was well held, as also the the better class of foreign; but there was very little doing. Barley had a steady market, superior malting qualities continuing in demand. Oats were taken to a fair extent, at full prices; but there was a dull sale for Maize. Beans and Peas were unchanged. Flour was firm, with rather an improving tendency. Average prices of corn for the week ending Feb. 22:—Wheat, 37s. 7d.; Barley, 34s. 10d.; Oats, 20s. 3d. For the corresponding period last year:—Wheat, 51s. 3d.; Barley, 44s. 7d.; Oats, 24s. 1d.

CATTLE.

At the Metropolitan Market on Monday trade in beasts was more active, prices advanced, and a good clearance was effected. The number of sheep was much larger than on Monday se'nnight; there was, however, a demand for them; choicest descriptions were dearer, and a fair clearance was made. Choice calves were scarce and dear. Quotations:—Beasts, 4s. 4d. to 4s. 8d., and 5s. to 5s. 6d.; calves, 5s. 6d. to 6s. 6d.; sheep, 5s. to 5s. 8d., and 6s. 4d. to 6s. 10d.; pigs, 3s. 8d. to 4s. 8d. On Thursday a full average supply of beasts was on offer, which sold slowly at previous quotations. Sheep were disposed of at Monday's prices. Calves and pigs quiet and unaltered.

HAY.

The Whitechapel market report for Tuesday states that the supply of fodder was short, trade quiet, and prices unaltered. Prime Clover, 95s. to 105s.; inferior, 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 35s. per load. On Thursday a moderate supply of hay and straw was offered, but the trade ruled very dull on account of the weather, and prices were unaltered.—Cumberland Market quotations:—Superior meadow hay, 84s. to 90s.; inferior, 65s. to 74s.; superior Clover, 108s. to 115s.; inferior, 70s. to 95s.; and straw, 34s. to 40s. per load.

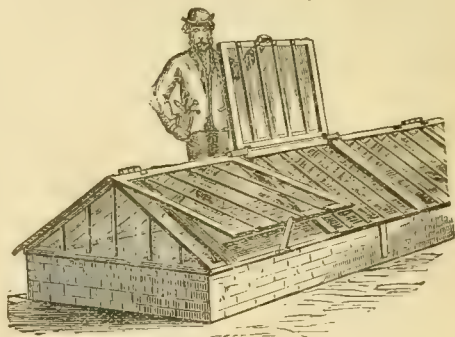
POTATOS.

The Borough and Spitalfields markets reports state that there were only moderate supplies, and good Potatoes met with a steady sale at full prices. Regents, 100s. to 130s.; Victorias, 110s. to 140s.; flukes, 120s. to 140s.; rocks, 70s. to 80s.; foreign Potatoes, 70s. to 120s.—The imports into London last week comprised 55,727 bags from Hamburg, 13,657 Antwerp, 3527 Ghent, 3002 Bremen, 1623 bags 230 tons Rouen, 1128 sacks Boulogne, 847 bags Dunkirk, and 200 Harlingen.

COALS.

At market on Monday house coals were steady, at an improvement of 6d. per ton. There was a fair demand on Wednesday, when Hartleys gave way 6d. per ton. Quotations:—Bedside West Hartley, 13s. 9d.; Walls End—Easington, 15s. 9d.; Haswell, 19s.; Hetton, 19s.; Hetton Lyons, 15s. 9d.; Hawthorns, 15s. 9d.; Lambton, 18s. 6d.; Original Hartlepool, 19s.; South Hetton, 19s.; Tunstall, 15s. 9d.; Salvins' Hutton, 16s. 3d.; Tees, 18s. 9d.

BOULTON & PAUL, Horticultural Builders, Norwich.



No. 64. PATENT PLANT PRESERVERS.

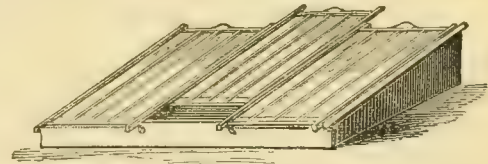
ARRANGED TO BUILD ON BRICK WALLS.

This is the Practical Gardener's and Nurseryman's favourite Frame, now largely used for storing the great quantities of bedding plants in winter, and in summer for growing Melons, &c.

Section No. 64 shows the frame built on brickwork, with a pit sunk low enough for making a dung bed for growing Cucumbers, Melons, &c. This form can be made up to any length required. (See List, free on application.)

CASH PRICES, including two glass ends to each length painted four times, glazed with 21-oz. glass. Carriage paid.

| Length. | Width. | | Length. | Width. | |
|---------|--------|---------|---------|--------|---------|
| Feet. | Feet. | £ s. d. | Feet. | Feet. | £ s. d. |
| 12 | 5 | 5 5 0 | 24 | 6 | 11 10 0 |
| 18 | 5 | 7 5 0 | 30 | 6 | 14 0 0 |
| 24 | 5 | 9 2 6 | 12 | 7 | 8 0 0 |
| 30 | 5 | 11 2 6 | 18 | 7 | 11 0 0 |
| 12 | 6 | 6 10 0 | 24 | 7 | 14 0 0 |
| 18 | 6 | 9 0 0 | 30 | 7 | 17 0 0 |

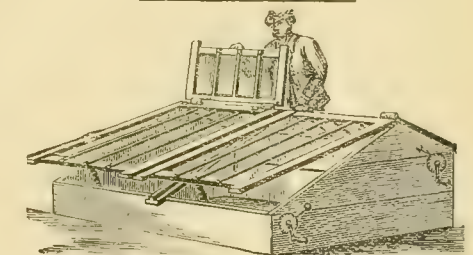


100 MELON and CUCUMBER FRAMES

Ready to dispatch on receipt of order. These Frames are made of the best red deal, thoroughly seasoned, and fitted by first-class workmen: 24 inches high at the back, 13 inches high in front; painted three coats of good oil colour, glazed with the best 21-oz. glass, every pane of which is nailed in and bedded in putty—the best method of glazing known, and adopted by the most eminent Builders and leading Nurserymen (see the Garden for January 13, 1877, p. 30). Iron handles to each light, and an iron strengthening bar across. Each light is 6 feet by 4 feet, and 2 inches thick.

CASH PRICES.

| | £ s. d. |
|-------------------------------------|---------|
| 1-Light Frame..... 4 feet by 6 feet | 2 0 0 |
| 2-Light "..... 8 " 6 " | 3 7 6 |
| 3-Light "..... 12 " 6 " | 4 17 6 |
| 4-Light "..... 16 " 6 " | 6 7 6 |
| 5-Light "..... 20 " 6 " | 7 17 6 |
| 6-Light "..... 24 " 6 " | 9 7 9 |



No. 74. NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.

Our illustration shows a New Frame for Growing Cucumbers, Melons, &c., and for storing plants. It is made to give greater height and more convenience than the Melon Frame, No. 75. The front is 11 inches high, without the light, 32 inches high at the ridge, and 22 inches high at the back. The front lights can be turned back on the lights behind, and the back lights turned on to the front lights, giving access to all the plants. They are made of the best red deal, sides and ends 1 1/4 inch thick, 2 inch lights; all are painted three times and glazed with 21-oz. sheet glass.

CASH PRICES—Carriage paid.

| Size. | Long. | From front to back. | £ s. d. | Gearing extra to 8 ft. size and upwards. | £ s. d. |
|-------|-------|---------------------|---------|--|---------|
| No. 1 | 4 | 6 | 3 0 0 | — | — |
| No. 2 | 8 | 6 | 4 15 0 | 0 15 0 | — |
| No. 3 | 12 | 6 | 6 10 0 | 1 2 0 | — |
| No. 4 | 16 | 6 | 8 5 0 | 1 10 0 | — |
| No. 5 | 20 | 6 | 10 0 0 | 1 16 0 | — |

SPECIAL NOTICE.—Carriage paid to any railway station in England, also to Dublin, Glasgow, and Edinburgh, on order of 40s. and upwards.

Breakage seldom occurs. Should any glass be broken we will send sufficient to repair it, carriage free.

Packing Cases charged cost price, and half allowed when returned free to our Works.

New Illustrated Catalogue of Greenhouses, Plant Preservers, Melon Frames, &c., post-free.

BOULTON & PAUL, NORWICH.

LAURELS, Portugal, &c.; **LILACS**, RHODODENDRONS, Irish YEWs, SPRUCE FIRS, Dwarf ROSES, LIMES, BIRCH, Mountain ASH, ACACIA, PLANES, BOX, ARBOR-VITÆ, CHESTNUTS, a few Standard LAURUM, SEQUOIA, CUPRESSUS LAWSONIANA, THUJA, CEDRUS DEODARA, PICEAS, SPRUCE FIR, AUCUBAS; some other things, great part of them removed last year. Any one can have the lot for £100. I can give them until next Christmas to remove them.

RICHARD RICHARDSON, Cottenham Park, Wimbledon.

To the Trade.
JAS. GARAWAY AND CO.
offer:—
PEARS, extra strong dwarf-trained Beurre Diel, 15s. per dozen; extra strong, assorted, 15s. per dozen, £5 per 100.
VINES, strong well-ripened canes, for planting, 42s. per dozen.
FILBERTS, transplanted layers, strong, 25s. per 100.
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

QUEEN OF LILIES, LILIUM AURATUM.
—Imported Bulbs are now arriving, and orders are solicited. This lovely Lily is quite hardy, and should be generally grown. Before ordering send for Lily List, where all particulars are given.

Reduced Prices:—Size No. 1, 6d.; No. 2, 9d.; No. 3, 1s.; No. 4, 1s. 6d. each. Special quotations to the Trade.

ORCHIDS.—Special offer of the following fine Orchids, for £5 5s. (or other varieties in EXCHANGE for those not required):—1 plant Phalenopsis Schilleriana, 2 plants Dendrobium formosum giganteum, 1 plant Phalenopsis grandiflora aurea, 4 plants Dendrobium cretaceum, 1 plant Saccolabium guttatum, 1 plant Dendrobium barbatulum, 3 plants Calanthe rubra and luteo oculata, 1 plant Dendrobium Pierrardi, 1 pot Limatodes rosea.

All orders to be accompanied by a remittance. Lily and Orchid LIST sent on application to
WILLIAM GORDON, 10, Cullum Street, London, E.C., Lily Bulb and Plant Importer.

CHOICE FLOWER SEEDS.

STOCK, East Lothian, very select strains.

„ **Crimson**, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.

„ **Purple, Scarlet, White**, and **White Wallflower-leaved**, per packet, 6d., 1s., and 2s. 6d.

ASTER, Betteridge's superb Quilled Globe (seed direct from Mr. Betteridge).

„ 24 varieties, separate, including latest novelties, 2s. 6d.

„ 12 ditto ditto, 1s. 6d.

„ mixture of 24 splendid varieties: per packet 3d., 6d., and 1s.

MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex; per packet, 6d. and 1s.

COCKSCOMB, Sime's superb strain, First Prize at Carlisle International Show, and wherever exhibited. Was shown at Edinburgh with comb over 40 inches long. Per packet, 1s. and 2s. 6d.

PANSY, Show, from a superb collection of named Exhibition varieties: per packet, 1s. and 2s. 6d.

„ **Fancy**, from a first-rate collection of named flowers: per packet, 1s. and 2s. 6d.

Above free by post.
TODD AND CO., Seedsmen and Florists, Maitland Street, Edinburgh.

RICHARD LOCKE, Red Hill, Surrey,

offers the following for cash only:—

50,000 Dwarf ROSES, finest in the Trade, 30s. per 100, £12 10s. per 1000

200,000 MANETTI STOCKS, 30s. per 1000, £12 10s. per 1000

50,000 SEAKALE, strong, 40s. per 1000; Planting Seakale, 25s. per 1000

100,000 ASPARAGUS, 1-yr., 5s. per 1000; 2-yr., 11s. per 1000; 3-yr., 20s. per 1000

100,000 1-yr. cultivated Seedling BRIERS, extra fine stuff, 25s. per 1000.

EWING AND CO., having a Surplus Stock of the following, are offering them at considerably reduced prices, which can be had on application:—

Manetti Stocks, Pyramid Nuts on Quince, Dwarf-trained Apricots, Maiden Apricots, Pear and Filbert bushes, White Mulberries, large Horse Chestnuts, Limes, Poplars, Willows, and Elms; also the following Deciduous Flowering Shrubs and Climbers:—Cytisus nigricans, Deutzias scabra, Fortunei, candidissima, &c.; Forsythias suspensa and viridissima; Lonicera tatarica and tatarica alba; Lilac, common; Symphoricarpos vulgaris and montanus, Potentilla fruticosa, yellow-berried Privet, Red Dogwood, Spiræa callosa, Douglasii, prunifolia flore-pleno, Reevesii and salicifolia; Philadelphus mexicanus and Gordonianus, Tamarix gallica and narbonensis, Althæa frutex, Rhus cotinus, Kerria japonica variegata, Virginian Creepers, Lonicera aurea reticulata, &c.
The Royal Norfolk Nurseries, Eaton, near Norwich.

SPECIAL OFFER OF NURSERY STOCK, all transplanted, and well rooted.

LAURELS, Portugal, 1 to 1½ foot, 12s. per 100; 1½ to 2 feet, extra fine, 25s. per 100; 2 to 2½ feet, very fine, 30s. per 100.

PICEA NORDMANNIANA, 2 to 3 feet, 18s. per dozen; 3 to 4 feet, 24s. per dozen.

BOX, Handsomely Broad-leaved, 1 to 2 feet, 15s. per 100; 2 to 3 feet, 24s. per 100.

CEDRUS DEODARA, 2 to 3 feet, 10s. per dozen, 70s. per 100; 3 to 4 feet, 20s. per dozen.

FIR, Spruce, 1 to 1½ foot, 25s. per 1000; 2 to 3 feet, 60s. per 1000.

HAZEL, 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 21s. per 1000.

HORNBEAM, 3 to 4 feet, 30s. per 1000; Sycamore, 3 to 4 feet, 20s. per 1000.

CHESTNUTS, Scarlet, very fine Standards, 12s. per dozen.

LIMES, fine Standards, 8 to 10 feet, 60s. per 100; 10 to 12 feet, 80s. per 100.

THORNS, Paul's Double Crimson, Standards, 9s. per dozen.

VIRGINIAN CREEPERS, staked, strong, 15s. per 100.

GOOSEBERRIES, mixed, strong, 12s. per 100.

CURRENTS, White, 10s. per 100.

PEACHES, Dwarf-trained, leading sorts, 24s. per dozen.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

SUTTON'S MAGNUM BONUM

POTATOS for SEED.—A quantity of the above for sale. Price 18s. per cwt., or 2s. 6d. per stone. Carriage paid and bags free to any station in England, on quantities of not less than 4 stone. Cash with order for above.

Cheques crossed Messrs. GURNEYS AND CO., Lynn; or, Post-office Orders to Mr. T. S. STEVENSON, Wildfield House, Clenchwarton, Lynn, Norfolk.

SURPLUS STOCK.

COLCHIC LAUREL, 3 to 4 feet, strong and bushy.
SYCAMORE, 1½ to 3 feet.
PINUS AUSTRIACA, 1 to 1½ foot.
LARCH, 15 to 24 inches.
SPRUCE FIR, 12 to 15 inches.

Samples and Prices on application.
A. W. BARNES, Nurseryman and Seed Merchant, High Street, Skipton, Yorkshire.

DANIELS'

NORFOLK GIANT

BROCCOLI.

For use in March, April and May.

The largest, hardiest, whitest and best Broccoli in the world. Has been grown during the past season to the enormous weight of 28 lb. each. A grand variety, of compact habit, stem robust and short; flower-heads exceedingly large and beautifully white, being well protected with luxuriant overlapping foliage. A most valuable market variety; sells readily at Covent Garden and Provincial Markets at a high figure.

NORFOLK GIANT BROCCOLI

Can be obtained only direct from us in our own Sealed Packets.

1s. 6d. per Packet.

DANIELS BROS.,

ROYAL NORFOLK SEED ESTABLISHMENT.
NORWICH.



E. G. HENDERSON & SON

OFFER

THE FOLLOWING NOVELTIES

WHICH ARE DESCRIBED IN THE

New Seed Catalogue for 1879.

NEW JAPANESE HARICOT BEAN, "The Wonderful." Fruit small, and of a crimson colour. Unlike the English Haricot, this forms a delicious marmalade. 1s., 2s. 6d., and 5s. per packet.

NEW JAPANESE GOURD. Keeps well throughout the winter. After being boiled the inside remains a dry farinaceous firm mass, and is used similar to Potatoes. 1s. per packet.

NEW JAPANESE RADISH. For winter use, similar prepared as Turnips. 1s. per packet.

ARCTIC EDULE. A Japanese vegetable, eaten like Seakale; a delicious dish for winter and spring. 1s. and 2s. 6d. per packet.

NEW ALPINE STRAWBERRY, "Mademoiselle Vernier." Seed packets, 1s., plants 1s.

CUCUMBER-MELON, 32 inches long, cooked and eaten similar to Vegetable Marrow. Fully ripe it has the flavour of a good Melon. 1s. per packet.

PANSY, Multicolor, Fire Dragon and Rainbow, 1s. each per packet.

LOBELIA, Naval Brigade, 1s. per packet.

RICHARDIA ALBO MACULATA, 1s. per packet.

SABBATIA CHLORODES, 1s. per packet.

SALVIA FARINACEA, 1s. 6d. per packet.

GERANIUM MOLLE AUREUM, 2s. 6d. per packet.

GOLDEN POINT-LACE PYRETHRUM, 1s. per packet.

BEGONIA ROZELLII (new species), 1s. 6d. per packet.

CAPE EVERLASTING FLOWER, 1s. and 2s. 6d. per packet.

ZEPHYRANTHES GRANDIFLORA ALBA, 2s. 6d.

SAXIFRAGA BURSERA, 1s. and 2s. 6d. per packet. The most beautiful among all the early flowering Alpine Plants.

GNAPHALUM LEONTOPODIUM, 1s. per packet.

CASTILLEJA INDIVISA, 1s. per packet.

EAST LOTHIAN CRIMSON STOCK, 1s. per packet.

IPOMŒA QUAMOCUIT, var., Ivy-leaved, 1s. per packet.

GLOXINIA CRASSIFOLIA, 2s. 6d. per packet.

SOLANUM LOBELII, 1s. per packet.

NICOTIANA ACUTIFOLIA and **SUAVEOLENS**, 1s. each per packet.

Special attention is given that the finest quality only in **FLORIST FLOWERS** is offered, such as: Primulas, Calceolarias, Cinerarias, Pansies, Balsams, Begonias, Cyclamen, Mimulus, Pelargoniums, Petunias, Zinnias, Stocks, Asters, &c.;—See CATALOGUE for description.

Bulbs or Tubers of the following may be sent safely through the post. E. G. H. & Son's Selection of the following are from their select and choice cultivated collection, of which they have many thousands now ready:—

| | Per dozen sorts—s. d. | s. d. |
|--|-----------------------|----------|
| BEGONIAS, splendid assortment (mixed, 6s.) | 9 0 | and 12 0 |
| CALADIUMS, distinct varieties .. | 12 0 | 18 0 |
| GLOXINIAS, beautiful varieties .. | 6 0 | 9 0 |
| ACHIMENES, distinct and choice sorts .. | 2 0 | 3 0 |
| GESNERAS, fine selection .. | 4 0 | 6 0 |
| DAHLIAS, best of all sections .. | 4 0 | 6 0 |
| CHRYSANTHEMUM Cuttings .. | 2 6 | |

(New and Rare Varieties of the above, see prices in Catalogue.)
SPIRÆA JAPONICA, with golden variegated leaves, 1s. 6d.

THE PINE-APPLE NURSERY,

Maida Vale, London, W.

RHODODENDRON PONTICUM.

J. J. MARRIOTT has a fine stock of the above, and can supply nice bushy plants, 4 to 6 inches, at 60s. per 1000; 6 to 9 inches, at 80s. per 1000; 9 to 12 inches, 10s. 6d. per 100; 12 to 15 inches, 15s. per 100; 15 to 20 inches, 18s. per 100. Also 2, 3, and 4-yr. Seedlings, from 4s. to 7s. 6d. per 100. The Trade supplied. Samples on application. Highfield Nurseries, Matlock, Derbyshire.

ONE GUINEA COLLECTION of VEGETABLE SEEDS, containing 6 quarts of excellent Peas for succession, and 50 packets of other leading sorts of SEEDS, all of best quality. Carriage Free to any Railway Station in England.

RICHARD SMITH & CO.
WORCESTER

LILIES FOR BEDS AND GROUPS.

LILIUM AURATUM, by the dozen, hundred or thousand, at 9d., 1s., and 1s. 6d. each.
LILIUM KRAMERI, by the dozen, hundred or thousand, at 1s. 6d. and 2s. 6d. each.
LILIUM SZOVITZIANUM, by the dozen, hundred or thousand, at 1s., 1s. 6d., and 2s. 6d. each.
LILIUM TIGRINUM FORTUNEI, by the dozen, hundred or thousand, at 9d. and 1s. each.
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Surplus Stock, to Clear Ground.

MESSRS. CRANSTON AND CO. are offering at very reduced prices the following well grown Nursery Stock:—

LAUREL, fine bushy plants, 2 to 2½ feet, 12s. 6d. per 100; 2½ to 3 feet, 16s. per 100; 3 to 4 feet, 20s. per 100.

YEW, bushy, 2 to 2½ feet, 20s. per 100; 2½ to 3 feet, 30s. per 100; 3 to 4 feet, 50s. per 100.

RHODODENDRON PONTICUM, ¾ to 1 foot, 15s. per 100; 1 to 1½ foot, 20s. per 100; bushy, 1½ to 2 feet, 25s. per 100.

BOX, Tree, 1 to 1½ foot, 10s. 6d. per 100; 1½ to 2 feet, 15s. per 100; 2 to 2½ feet, 20s. per 100.

THUJA WAREANA, 2 to 3 feet, 25s. per 100; 3 to 4 feet, 30s. per 100.

„ **LOBBI**, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen; very fine, 5 to 6 feet, 12s. per dozen.

PINUS EXCELSA, 1½ to 2 feet, 6s. per dozen; 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.

„ **AUSTRIACA**, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen.

ABIES DOUGLASII, 3 to 4 feet, 11s. per dozen; 4 to 5 feet, 18s. per dozen; splendid plants, 5 to 6 feet, 24s. per dozen.

CEDRUS ATLANTICA, 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.

CEDRUS DEODARA, 1½ to 2 feet, 12s. per dozen; 2 to 3 feet, 18s. per dozen.

CUPRESSUS LAWSONIANA, 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.

HEMLOCK SPRUCE, 2½ to 3 feet, 6s. per dozen; 3 to 4 feet, 9s. per dozen.

PICEA LASIOCARPA, 1 to 1½ foot, 24s. per dozen; fine, 1½ to 2 feet, 30s. per dozen.

„ **NORDMANNIANA**, 1½ to 2 feet, 15s. per dozen; 2 to 2½ feet, 18s. per dozen; 2½ to 3 feet, 24s. per dozen; 3 to 3½ feet, 30s. per dozen.

RETINOSPORA PISIFERA, 2 to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen.

THUJOPSIS BOREALIS, 2 to 3 feet, 18s. per dozen; 3 to 4 feet, 24s. per dozen.

WELLINGTONIA GIGANTEA, transplanted last spring, 1½ to 2 feet, 18s. per dozen; 2 to 2½ feet, 24s. per dozen; 2½ to 3 feet, 30s. per dozen.

ACER NEGUNDO VARIEGATA, standard, 9s. per dozen.

SCARLET CHESTNUT, standard, 12s. to 18s. per dozen.

PEARS and **CHERRIES**, standard and dwarf-trained, very fine, 18s. to 24s. per dozen.

PEARS, Pyramid, bearing trees, 9s. to 18s. per dozen.

PEACHES, NECTARINES, and **APRICOTS**, dwarf-trained.

PEARS, Maiden, 30 to 40 leading varieties, 40s. per 100.

MANETTI STOCKS, 50,000, from our own selected stock.

MARECHAL NIEL ROSES, standard and dwarf, extra fine ground plants.

ROSES, dwarf Tea-scented, strong established plants, in 5-inch pots.

LIST OF ROSES, including the new Roses for 1879, on application.

CRANSTON'S Nurseries, King's Acre, Hereford.

Cheap and Good.

(The usual Discount to the Trade.)

H. BLANDFORD is prepared to offer the undermentioned NURSERY STOCK at exceptionally low prices, as quoted below, in order to clear the ground:—

The quality cannot be surpassed.

ROSES, Standards, 100s. per 100.

MANETTI STOCKS, 35s. per 1000.

VINES, Black Hamburgh, Buckland Sweetwater, &c., strong planting Canes, 30s. per dozen.

CURRENTS, Red, 15s. per 100. [dozen]

ABIES NORDMANNIANA, 1½ to 2½ feet, 18s. to 25s. per 1000.

ARAUCARIA IMBRICATA, 4 feet, 7s. 6d.; 84s. per doz.

BAY, 1½ to 5 feet, bushy, 8s. to 30s. per dozen.

CEDRUS DEODARA, 2½ to 5 feet, 21s. to 36s. per dozen.

CRYPTOMERIA JAPONICA, 5 to 7 feet, 30s. to 42s. per doz.

CUPRESSUS MACROCARPA, in pots, 1½ to 2½ feet, 7s. to 12s. per dozen.

„ **LAWSONIANA**, 4 to 7 feet, 12s. to 25s. per dozen.

LAUREL, Portugal, 2 to 2½ feet, 6s. to 12s. per dozen.

Common, bushy, 2½ feet, 18s. per 100.

THUJA AUREA, 1½ to 3½ feet, perfect specimens, 18s. to 60s. per dozen.

„ **ELEGANTISSIMA**, 1½ to 2½ feet, 15s. to 30s. per doz.

„ **SEMPERAEURESCENS**, 1 to 2 ft., 12s. to 36s. per doz.

„ **GIGANTEA**, 3 to 4½ feet, 21s. to 30s. per dozen.

THUJOPSIS BOREALIS, 7 feet, 5s. each, 50s. per dozen.

YUCCAS, of sorts, 12s. to 36s. per dozen.

HORNBEAM, 6 to 9 feet, 10s. to 30s. per 100.

BEECH, Common, 5 to 6 feet, 16s. per 100.

HORSE CHESTNUT, 9 to 10 feet, 15s. per dozen.

H. BLANDFORD, The Dorset Nurseries, Blandford.

To the Trade.—Vines—Vines—Vines.

W. G. CALDWELL AND SONS have

still extra strong fruiting Black Hamburgh VINES to offer

Special List of Cheap Orchids.



B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

| Established.—s. d. | Established.—s. d. |
|---|---------------------------------------|
| Aerides roseum .. 10 6 | Dendrobium bigibbum 7 6 |
| „ crispum .. 10 6 | „ nobile .. 3 6 |
| „ virens .. 10 6 | „ chrysanthum .. 3 6 |
| „ odoratum majus .. 7 6 | Epidendrum vitellinum .. 2 6 |
| „ Lobbii .. 15 0 | „ majus (imported), from .. 2 6 |
| „ Fieldingii .. 15 0 | „ Limatodes rosea .. 3 6 |
| Cattleya Mendelii (im- ported) .. 10 6 | „ Lycaste Skinneri .. 5 0 |
| „ Aclandiae .. 10 6 | „ Masdevallia Lindeni .. 15 0 |
| „ citrina .. 3 6 | „ polysticta .. 5 0 |
| „ Trianae .. 10 6 | „ Harryana .. 7 6 |
| „ Warszewiczii deli- cata .. 15 0 | „ ignea .. 7 6 |
| „ Warnerii .. 15 0 | Odontoglossum Inseleyi .. 5 0 |
| „ lobata .. 10 6 | „ leopoldinum .. 7 6 |
| „ crispa .. 5 0 | „ Hallii .. 10 6 |
| „ vestita luteo oc- culata .. 2 6 | „ hystrix .. 10 6 |
| „ rubro oculata .. 2 6 | „ curhosum .. 3 6 |
| Coleogyne cristata .. 5 0 | „ pulchellum majus .. 3 6 |
| Cymbidium eburneum .. 15 0 | „ Phalenopsis (im- ported) .. 7 6 |
| „ Mastersii .. 15 0 | „ Rossii majus (im- ported) .. 7 6 |
| Cypripedium barbatum .. 3 6 | Oncidium aurosum .. 5 0 |
| „ insigne .. 2 6 | „ Bauerii .. 5 0 |
| „ spectabile .. 3 6 | „ sphecelatum .. 5 0 |
| „ Boxallii .. 5 0 | „ incurvum .. 7 6 |
| „ Pearcei .. 3 6 | „ verrucosum .. 5 0 |
| „ Harrisianum .. 7 6 | „ concolor .. 10 6 |
| „ niveum .. 5 0 | „ flexuosum .. 3 6 |
| Dendrobium formosum .. 3 6 | „ Papilio .. 7 6 |
| „ giganteum .. 5 0 | „ Krameri .. 5 0 |
| „ chrysotis .. 10 6 | „ Pleione lageneria .. 3 6 |
| „ cretaceum .. 3 6 | „ Wallichiana .. 3 6 |
| „ Pierardii .. 3 6 | Saccolabium ampul- laceum .. 5 0 |
| „ pulchellum purpu- reum .. 3 6 | „ Blumei majus .. 7 6 |
| „ Findleyanum .. 10 6 | „ curvifolium .. 7 6 |
| | „ Vanda tricolor insignis .. 10 6 |
| | „ tricolor .. 10 6 |
| | „ Roxburghii .. 15 0 |

Specimens of the above can be supplied, prices of which will be forwarded on application.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

To Gentlemen, Builders, and the Trade.

ROBERT AND GEORGE NEAL, Wandsworth Common and Garrett Lane Nurseries, beg respectfully to call attention to their large and varied Stock of **HARDY, ORNAMENTAL, FOREST, FRUIT TREES** and **SHRUBS**, which are grown at their Nurseries, especially those Trees, &c., which are most suitable for growing in or near large towns. An early inspection invited. All goods delivered free on rail in London, or at own residence, within five miles of the Nurseries.

CATALOGUES free by post on application.

Excellence combined with Economy.

W. P. LAIRD AND SINCLAIR, SEED MERCHANTS AND NURSEYMEN, Dundee, N.B., shall be glad to forward copies of their Priced CATALOGUES free on application.

SPECIALITIES.

1. CHOICE VEGETABLE AND FLOWER SEEDS.
2. SEEDLING AND TRANSPLANTED FOREST and ORNAMENTAL TREES, SHRUBS, and CONIFERS.

JOHNSTONE'S ST. MARTIN'S RHUBARB, 1s. each, 9s. per dozen.

Lily-white Seakale.

STUART, MEIN AND ALLAN, knowing the above to be a great improvement on the old variety, have grown it extensively, and are prepared to offer it at a cheap rate, viz., 20s. per 100.

Shirley Hibberd says—"When I saw your dozen roots in the forcing-pit, by the side of our own, I was astonished at the distinction . . . and was white as snow." See also *Gardeners' Magazine* of January 11.

Kelso, N.B.

BEGONIA SEED.—

Handsome New Kinds.

Saved from exceedingly beautiful varieties of the handsome-flowered tuberous-rooted section. The flowers have all been carefully fertilised, so that splendid new kinds may be expected from this seed. 1s. 6d. and 2s. 6d. per packet.

PRIMULA, CINERARIA, and CALCEOLARIA, from Prize strains, the best that can be purchased, each at 1s. 6d. and 2s. 6d. per packet.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Bedding Geraniums, Lobelias, &c.

GERANIUM, Wonderful (the semi-double Vesuvius), 10s. per 100; stock plants with cuttings on, 2s. 6d. per dozen, 15s. per 100; Master Christine, 10s. 6d. per 100; Leamington Lassie, 5s. per dozen: all strong autumn-struck plants.

LOBELIA, St. Martin's Blue, 7s. 6d. per 100; Brighton, 5s.; pumila Magnifica, 4s. 6d., post-free.

BEDDING VIOLAS and PANSIES, a choice collection, 10s. 6d. to 14s. per 100.

J. J. MARRIOTT, Highfield Nurseries, Matlock.

Forest Trees.

J. GEO. HILL (late John Scott) has a quantity of the following to offer, at very low rates, for well-grown, well-rooted stuff:—

- ALDER, 4 to 5 feet, strong.
- BEECH, 3 to 4 feet, and 4 to 5 feet, stout.
- BIRCH, Silver, all sizes.
- CHESTNUT (Spanish), 2 to 2½ feet, strong.
- FIR, Spruce, 2 to 2½ feet, and 3 to 4 feet, transplanted.
- „ Silver, 2 to 4 feet, well-rooted.
- HAZEL, 3 feet, very strong.
- OAKS, English, 8 to 10 feet.
- YEW, English.

Price on application to

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Special Offer to the Trade.
HAZEL, LARCH, and ASH.—
HAZEL, 2 to 3 feet.
LARCH, 1 to 2 feet, and 2 to 3 feet.
ASH, 2 to 3 feet, and 3 to 4 feet.

J. CHEAL AND SONS, Lowfield Nurseries, Crawley, Sussex.

SEEDLING BEECH.—One-year Seedling Beech, fine, at 2s. per 1000; large quantities at reduced price. Apply to **H. W. HUMPHREYS**, Nurseryman and Seedsman, Bangor.

EUONYMUS EUROPEUS.—Offers for cash:—1-yr. seedlings, 9s. per 1000, £4 per 10,000; 2-yr. seedlings, 13s. 6d. per 1000, £6 per 10,000; 3-yr. seedlings, 16s. per 1000, £7 10s. per 10,000; 3-yr. seedlings, replanted, 18s. per 1000.
A. RATHKE AND SON, The Nurseries, Praust, near Danzig, Germany.

Australian Plants and Seeds.

EUCALYPTUS GLOBULUS, PALMS, CYCADS, FERNS, and all kinds of **PLANTS** and **SEEDS** indigenous to Australia, Fiji, &c., supplied on the most reasonable terms. Priced CATALOGUES and Special Quotations on application.
SHEPHERD AND CO., Nurserymen and Seedsman, Darling Nursery, Sydney, New South Wales. (Established 1827.)
Agents: Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C.

Season 1879.

VEGETABLE and FLOWER SEEDS of Superior Quality. Carriage Free.

Priced Descriptive CATALOGUE, containing select Lists of these, also Potatoes for planting, Hybrid Gladioli, and other Garden Requisites, is now published, and will be sent post-free on application.

DICKSON AND ROBINSON, Seed Merchants and Nurserymen, 12, Old Millgate, Manchester

Special

A MILLION HERBACEOUS AND ALPINE PLANTS, which must be moved in consequence of having to clear a portion of my ground required by the **GREAT EASTERN RAILWAY COMPANY**, for the purpose of widening their line. I have decided, in order to ensure a **QUICK CLEARANCE**, to offer the same at **VERY REDUCED RATES**. Priced Lists are being prepared, and will be forwarded in due course, with **NEW ILLUSTRATED CATALOGUE**, to all my patrons, also on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.



FIFTY ACRES OF FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordons and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price List, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for a penny stamp.

TWELVE ACRES OF ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea Scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing. See Descriptive Price List, free for a penny stamp.

GRAPE VINES and ORCHARD HOUSE TREES in POTS.—Grape Vines, extra strong, and warranted free from phylloxera, oidium, and all disease; Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. each. Orchard-house Trees, fruiting in pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price List for a penny stamp.

WORCESTER PEARMAN APPLE awarded a First-class Certificate by the Royal Horticultural Society).—One of the handsomest and most useful Apples in cultivation. For full description see "Extract from the *Journal of Horticulture*," and **RICHARD SMITH & CO.'S** Fruit List, which may be had for a penny stamp. Coloured Plates, 6d. each. Maiden Trees, 1s. 6d. each; Bushes, 3s. each; Standards, Pyramid and Dwarf-trained Trees, 3s. 6d. and 5s. each.

HARDY HERBACEOUS and ALPINE PLANTS, their scientific and English names, height, colour, time of flowering, and other useful information. Descriptive Price List for a penny stamp. Collection of 100 beautiful hardy varieties for Garden Beds, Borders, or Rockeries, for 30s.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for a penny stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL kinds of GARDEN SEEDS, of first quality, **BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS**, and other **GARDEN REQUISITES**. See Lists, which may be had on application.



WELLINGTONIA GIGANTEA.—Fine trees, 8 to 10 feet high, transplanted 2 years since, 36s. per dozen.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf **ROSES, FRUIT TREES** of all sizes, Scarlet and other **RHODODENDRONS** well set with buds, **CONIFERAE** and **EVERGREENS**, and **DECIDUOUS TREES** for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

ARBUS.—Fine bushy well-rooted Plants, 2 to 3 feet, are offered at 50s. per 100, by **W. H. ROGERS**, Red Lodge Nursery, Southampton.

Selected Giant Brussels Sprouts.

LOWNDES' TRUE AIGBURTH STOCK.

JAMES TYNAN begs to offer Seed of this celebrated Brussels Sprouts, grown by Mr. John Lowndes for the last fifteen years. It grows to a height of 3 feet, and is completely covered from the top to the ground with large firm Sprouts, which during the recent severe weather have resisted the action of the frost most wonderfully. It is undoubtedly superior to any other variety grown.

The Gardens, Sand Hall, Howden, Sept. 28, 1876.

"Your 'Selected Giant' Brussels Sprouts is a great improvement on the old kinds, being much larger both in stem and Sprout. We have a quantity of fine hard Sprouts already."

"H. CRAIKE."

In packets 1s. each, post-free.

Seed Warehouse, 68, Great George Street, Liverpool.

CLARKIA, Hardy's new Double **SALMON QUEEN and PURPLE KING.**—Two First-Class Certificates were awarded to **H. I. Hardy** by the Royal Horticultural Society, July 7, 1875.

"**HARDY'S CLARKIAS.**—We have never seen finer double Clarkias than these latter."—*Gardeners' Chronicle*, July 18, 1875.

CAUTION.—The Trade, to ensure these fine Clarkias true, should be careful to give their orders to the Raiser.

Price by the pound or ounce on application.

H. I. HARDY, Stour Valley Seed Grounds, Bures, Suffolk.

TO THE TRADE.

- 100,000 LARCH FIR, transplanted.
- 75,000 ASH, transplanted.
- 50,000 CHESTNUTS, Spanish, transplanted.
- 50,000 MANETTI STOCKS.
- 20,000 LAURELS, Common.
- 5,000 AUCUBAS.
- 5,000 LAURELS, Portugal.

STANDARD ROSES.

ASPARAGUS PLANTS, 2, 3, and 4-yr. Extra fine Dwarf-trained **PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES**, also fine Pyramid APPLES and PEARS.

WM. WOOD AND SON, The Nurseries, Maresfield Uckfield, Sussex.

Special Offer.

W. BALL AND CO., Bedford Road Nursery, Northampton, having a very large stock of the under-mentioned **TREES, &c.**, in fine condition for removal, have much pleasure in offering them at the following low prices:—
ASH, 2 to 2½ feet, fine, 18s. per 100.
BERBERIS AQUIFOLIA, 1 to 1½ foot, very fine, 12s. per 100.

ELMS, Canadian, 8 to 10 feet stems, with good heads, 100s. per 100.

„ English (upright), 6 to 7 feet stems, fine, with good heads, 90s. per 100.

HORNBEAM, 2 to 3 feet, fine, 20s. per 1000.

LIMES, 8 to 9 feet, very fine, 50s. per 100; 9 to 11 feet, ditto, 70s. per 100.

PRIVET, common, 2 feet, bushy, 10s. per 1000.

„ **OVALIFOLIUM**, 3 to 4 feet, very fine, 50s. per 1000.

WALNUTS, 6 to 7 feet stems, nice heads, 60s. per 100.

CHERRIES, Morello, dwarf-trained, splendid stuff, 18s. p. doz.

APRICOTS, Moorpark, dwarf-trained, splendid stuff, 20s. per dozen.

ROSES, extra fine standards, large heads, fine varieties, 4 feet stems, no better in the trade, our selection, 70s. p. 100.

APPLES, fine standards, best market varieties, our selection, 60s. per 100.

PEARS, fine standards, best market varieties, our selection, 70s. per 100.

General CATALOGUE of Seed and Herbaceous Plants post-free on application.

Seed Potatoes.

LAWRENSON AND STRIKE, SEEDSMEN, Stockton-on-Tees, have for immediate disposal about 35 tons of American Wonder, short top and an enormous cropper, surpassing Snowflake in beauty and fertility, and not liable to disease. Price 11s. per cwt., or £10 per ton. Myatt's Prolific and Royal Ashleaf at low prices. Samples forwarded if desired.

MILLER AND JOHNSON

(ESTABLISHED 1855)

Manufacture the highest quality of

ARTIFICIAL MANURES

For Root, Corn, and Grass Crops.

36, Mark Lane, London.

PEAT, Black or Brown fibrous, of superior quality for Rhododendrons, Azaleas, Orchids, &c., at £4 4s. per 6-ton truck, put on rail at Camberley Station, South-Western Railway.—Address,
W. TARRY, Bagshot, Surrey.

PEAT for RHODODENDRONS and ordinary **POT PLANTS**, in trucks containing 14 yards or loads, put on rail at Ringwood Station, £3 15s. Carriage paid to London or any Station on the L. & S.W. Railway, £5 5s. per truck of fourteen loads. Cash or reference.
J. PRYER, Manager, Peat Stores, Vauxhall Station and Ringwood.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton. Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

Fresh **SPHAGNUM**, 10s. 6d. per bag.

WALKER AND CO., Farnborough Station, Hants.

Send for a PRICE LIST of BLAKE'S SELF-ACTING HYDRAULIC RAMS,

For Raising Water for the Supply of
Villages, Irrigation, Railway Stations, Mansions,
Fountains, Farms.

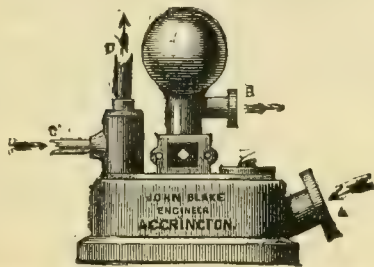
No Cost for Motive Power, which is obtained from the
Stream of Water passing through the Rams.

NO OILING OR PACKING REQUIRED.

Made in sizes to raise from 300 to 100,000 Gallons per day.

WILL FORCE TO A HEIGHT OF 1500 FEET.

This advertisement will
appear again on March 15.



This Ram will raise a part of the same
water that works it, or will raise pure water
from a well whilst it is worked by a stream
of impure water.

TESTIMONIALS.

From the Right Hon. T. SOTHERN ESTCOURT, *Estcourt Park,
Gloucestershire, September 6, 1875.*

"You will be glad to hear, as I am to tell you, that your
Self-acting Hydraulic Ram has worked exceedingly well and
continuously since it was erected, more than twelve months
ago. It is, in fact, perfectly successful."

(The delivery pipe in the above case is 4200 feet long, with
100 feet rise.)

From Captain TOWNSHEND, *Wincham, February 10, 1877.*

"In answer to your enquiry, I am glad to say the Hydraulic
Ram you sent me in November, 1875, is working exceedingly
well, and gives no trouble. It will work when quite immersed,
as it has been several times during the floods this winter,
forcing up water through a delivery pipe 900 yards long at the
rate of 80,000 gallons per day, although you only promised
50,000."

From W. SCARTH, Esq., *Agent to His Grace the Duke of
Cleveland, Raby Castle, Darlington, July 16, 1873.*

"The Hydraulic Ram you supplied to his Grace the Duke
of Cleveland in 1875 is a complete success. It worked for
more than two years without once stopping, and throws more
water than promised."

Deanwater, *Wilmslow, November 20, 1873.*

"Dear Sir,—In answer to your enquiries respecting the
Hydraulic Ram you supplied me with six months ago, I beg to
state that I am more than satisfied with it, as it is in perfect
order, sending up to the top of the house about 2000 gallons of
water in the twenty-four hours, whereas you only contracted to
deliver in that time 500 gallons. I have, therefore, every reason
to be well pleased with your work, and more especially as I had
a Ram supplied me by another maker which could not send up a
single gallon of water to the height required, and a second
maker informed me that no Ram with a fall of 3 feet could send
up water to the distance required, namely, 120 feet. But yours
is an accomplished fact, and does its work most effectually.—I
am, yours truly, L. HAMMER."

From JOHN TAYLOR, Esq., *The Rocks, Bath, Aug. 22, 1878.*

"The Self-acting Hydraulic Ram you fixed here in March of
last year continues to work well. It has only the same quantity
of water and fall to work it as the water-wheel and pump which
I used previously to force to a height of 294 feet, and yet the
Ram sends up more than double the quantity of water than the
wheel did to the same height."

From JOHN PENNINGTON, Esq., *Emmott Hall, near Colne,
December 21, 1868.*

"Sir,—The Self-acting Hydraulic Ram you supplied me with
nine months ago continues in excellent condition. It receives
water from a spring through a 2-inch pipe, of which it forces
3600 gallons per day of twenty-four hours to a height of 90 feet,
exceeding all you promised, and far surpassing the water-wheel
and force pumps which it has displaced. Its cost is small, it
occupies but little space (2 square feet), and in mechanical
detail is simplicity itself. I have much pleasure in recom-
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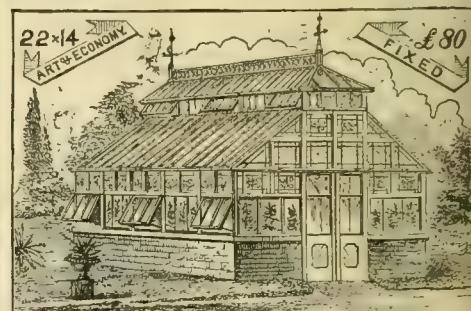
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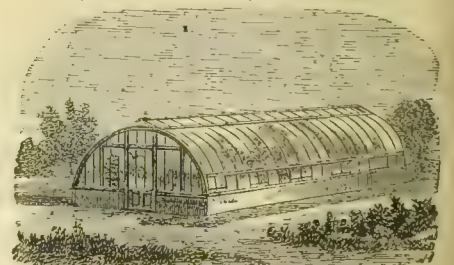
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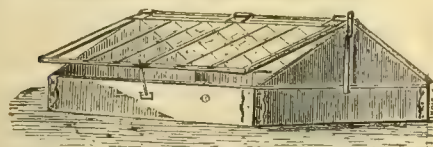
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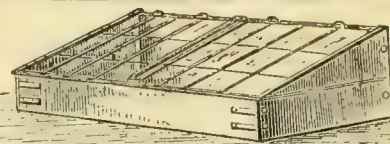
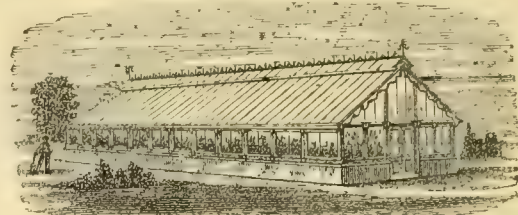
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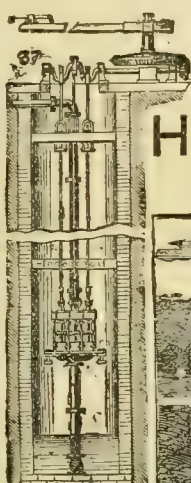
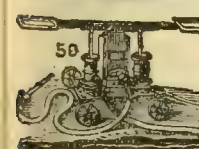
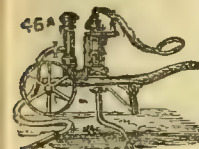
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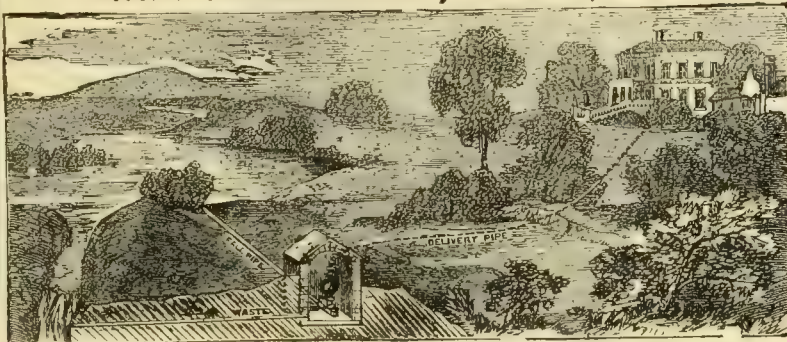
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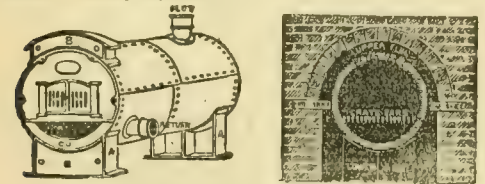
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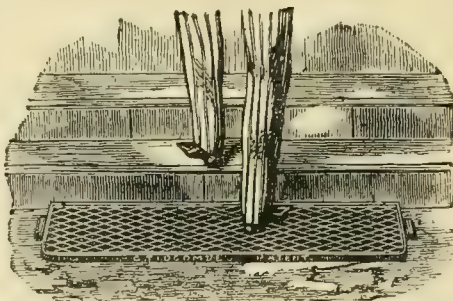
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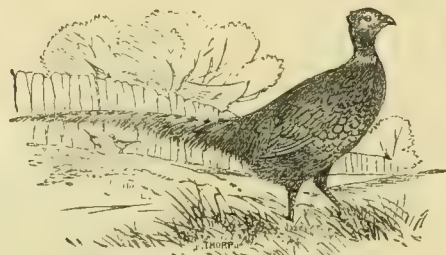
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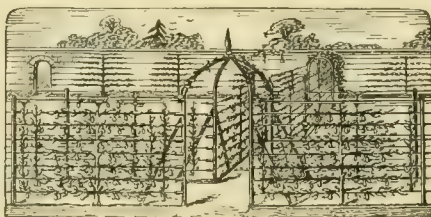
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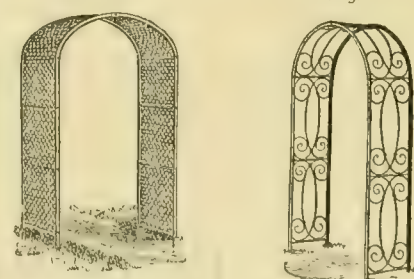
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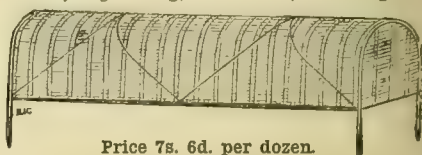
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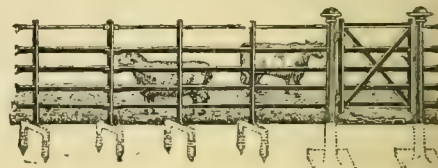
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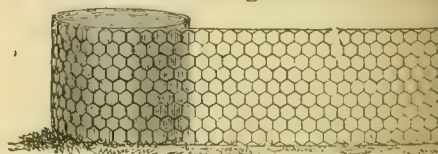
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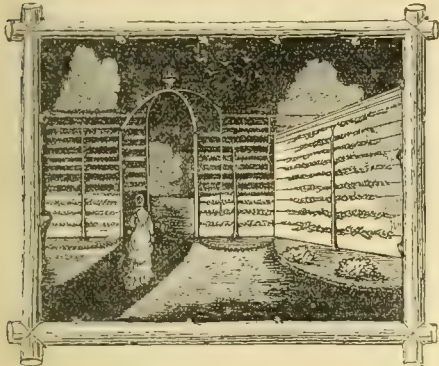
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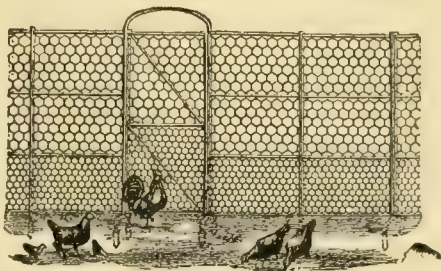


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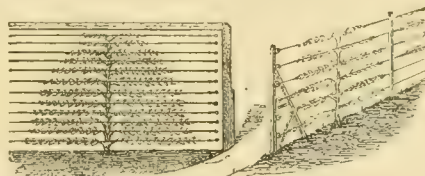
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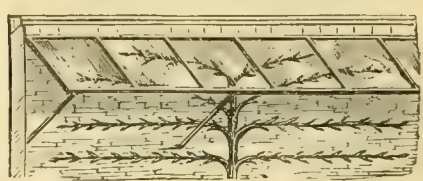
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| 1 1/2 | Rabbits, &c. | 19 | 3 1/2 | 18 | 4 | 17 | 0 4 3/4 |
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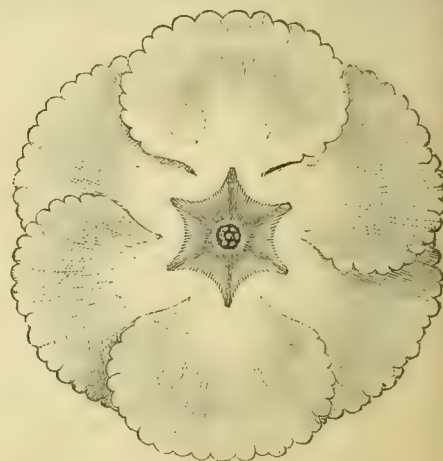
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No. 271.—VOL. XI. { NEW SERIES }

SATURDAY, MARCH 8, 1879.

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WANTED, PINE SUCKERS.—State varieties and price to
CALDWELL AND SON, Knutsford, Cheshire.

WANTED, from 10,000 to 50,000 CABBAGE PLANTS, Early Red and Winter.—State price per 1000 to
JOSEPH TREDALE, Market Gardener, Stainburn, near Workington, Cumberland.

Gentlemen's Gardeners, Amateurs, and Others
REQUIRING
GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Illustrated Catalogues gratis and post-free. Awarded Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.

CAUTION.—No other English Seed House was awarded five Medals at the Paris Exhibition, and the Legion of Honour has not been awarded for Grass Seeds or English Seeds.

CARTERS, The Queen's Seedsmen, High Holborn, London, W.C.

Pelargoniums.
CHARLES TURNER can supply Strong Plants in all classes of above, which, if reported at once, will produce a fine head of bloom this season.
CATALOGUES on application.
The Royal Nurseries, Slough.

GERANIUMS to offer—good strong autumn-struck plants. Apply as to price, &c., to
H. A. MANN, St. Vincent's, Grantham.

Seeds of Superior Quality.
W. M. CUTBUSH AND SON beg to announce that their Illustrated CATALOGUE of Select Vegetable and Flower Seeds, &c., is now ready, and will be forwarded post-free on application.
Highgate Nurseries, London, N., and Barnet, Herts.

CEDRUS DEODARA SEED, just arrived from India in splendid condition. Sample and Price on application to
HENRY CLARKE AND SONS, 39, King Street, Covent Garden, W.C.

ROSES.—Standards, £5 per 100; Half-Standards, 75s. per 100; on own roots, 75s. per 100.
A LIST of 200 of the best varieties to select from. Trade price on application.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

NEW ROSES for 1879.—A selection of the very best only; the finest plants in the trade; ready in March.
LIST gratis, and post-free.
Mr. H. BENNETT, Manor Farm, Stapleford, Salisbury.

Now Ready.
EWING AND COMPANY'S LIST of New Roses for 1879 is a most select one of the best New English and French varieties. Gratis and post-free to applicants.
EWING AND CO., Eaton, near Norwich.

Paul's Roses.
W. M. PAUL AND SON'S stock of ROSES is large, of excellent quality, and uninjured by frost. Standards, 15s. per dozen and upwards; Dwarfs, 9s. per dozen; Climbers, 6s. per dozen.
Priced Descriptive CATALOGUES free by post.
Paul's Nurseries, Waltham Cross, N.

Garden Seeds.
CHARLES TURNER'S Descriptive CATALOGUE of the above is now ready, containing several interesting and valuable novelties.
The Royal Nurseries, Slough.

FOREST TREES, Seedling and Transplanted.—The very extensive stock of the above is this season in splendid condition.
CATALOGUES on application.
The Lawson Seed and Nursery Company (Limited) Edinburgh.

Cheap Offer.
LARCH, 3 to 4 feet, 22s. 6d. per 1000.
Carriage paid for cash with order.
WILLIAM ABRAHAM, Nurseryman, Limerick.

Splendid Avenue
LIMES, OAKS and HORSE CHESTNUTS, 8 to 10 and 12 feet; YEWS, 3 and 4 feet. Price low.
GODWIN AND SON, Ashborne, Derby.

Mangel Seed.
JOHN SHARPE is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs.
Bardney Manor, Lincoln.

SCARLET RUNNER BEANS (New English).—For Sale about 10 Bushels of the above, in splendid condition. For lowest cash price apply to
W. R. HARRISON, High Street, Maidstone.

To the Trade, &c.
ASPARAGUS, GIANT.—Splendid Roots for Planting, in immense quantity.
EWING AND CO., Norwich.

CHAMPION POTATO is acknowledged to be, both in Kent and Scotland, the best Farmer's or Field Potato; most reliable in all soils and seasons, and its extended cultivation yearly is most marvellous.
Price per ton on application.
H. ORMSBY, Swanley, Kent.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to
The LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

SALES BY AUCTION.

Lea Bridge Nurseries, Leyton, E.
PEREMPTORY CLEARANCE SALE, the Land having to be surrendered for Building purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, as above, on MONDAY, March 10, at 12 o'clock punctually, several thousands of Ornamental and Flowering TREES, Evergreen and Flowering SHRUBS, Standard, Pyramid, and Dwarf-trained FRUIT TREES, with about 2000 very fine Standard ROSES, arranged in lots to suit large as well as small buyers.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Ascot, Berks.

Important Four Days' Sale of remarkably well-grown NURSERY STOCK, in splendid condition for removal, offering a grand opportunity to Gentlemen, Builders, Nurserymen, and others largely engaged in planting.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Standish & Co. to SELL by AUCTION, on the Premises, the Royal Nurseries, Ascot, Berks (one mile from the Ascot Railway Station), on TUESDAY, March 11, and three following days, at 11 for 12 o'clock precisely each day, several acres of remarkably well-grown NURSERY STOCK, including 10,000 Border Shrubs, consisting of the choicest Evergreens and Conifers in cultivation; also planted in quarters, 12,000 Common Laurels, 1 to 4 feet; 2000 improved kinds; 8000 Cupressus Lawsoniana, 2 to 5 feet, including four of the best varieties; 5000 Variegated and Hybrid Hollies; 6000 Common Hollies; 8000 Retinosporas, 1 to 3 feet, pretty stuff for potting; 3000 Aucubas, 2000 Euonymus, 5000 Thujas and Piceas of sorts; 6500 hybrid and pontica Rhododendrons, and thousands of other Shrubs; 10,000 Larch, 5000 Spanish Chestnuts, 10,000 Spruce Firs, 8000 Austrian and Lario Pines, 6000 Scotch Firs, 500 Planes, 6 to 8 feet; and other Forest and Ornamental trees; 3000 Standard and Pyramid Fruit-trees, 2000 Standard Roses, 1000 Tea Roses in pots, together with a choice assortment of Pot Plants.

The Stock may be viewed at any time prior to the Sale. Catalogues had on the Premises, and of the Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, London, E.C., and Leytonstone, E.

Refreshments provided for purchasers.

Taunton, Somerset.

FINAL CLEARANCE SALE.—Land Sold for Building.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, by order of Mr. Wm. Hockin, on the Premises, the Nurseries, Taunton, on TUESDAY and WEDNESDAY, March 11 and 12, at 12 o'clock precisely each day, the remaining NURSERY STOCK, including 3000 Fruit Trees, thousands of Laurels and other useful shrubs, Standard and Dwarf Roses, Stove and Greenhouse Plants, 2000 Bedding Geraniums, 1000 Calceolarias, Lily of the Valley, Liliums and Ferns; together with the erections of four GREENHOUSES, quantity of Garden FRAMES, Hot-water PIPING and Utensils, and numerous effects.

May be viewed. Catalogues had on the Premises; and of the Auctioneers, 98, Gracechurch Street, E.C.

St. Alban's.

CLEARANCE SALE.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Keyfield Nursery, London Road, on TUESDAY, March 18, at 12 o'clock precisely, the whole of the valuable NURSERY STOCK, consisting of thousands of Evergreen, Conifer, and other Shrubs in great variety, Ornamental and Forest Trees, Roses, &c.; also two Greenhouses, two Pits, Piping, Brick-work, and effects.

On view. Catalogues had on the Premises and of the Auctioneers.

N.B. THE NURSERY TO BE LET. Full particulars of Messrs. P. & M.

Tottenham, N.

PEREMPTORY CLEARANCE SALE on land taken by the Great Eastern Railway from Mr. T. S. Ware.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Hale Farm Nurseries, Tottenham, on the east side of the line and close to the Tottenham Railway Station, without reserve, on TUESDAY, March 18, at 12 o'clock precisely, a large assortment of CONIFERÆ and EVERGREEN SHRUBS, quantities of Standard and Dwarf ROSES, FRUIT TREES, &c.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

In Liquidation.—Re William Rollisson & Sons.

FINAL CLEARANCE SALE OF PLANTS, together with the whole of the FIXTURES and UTENSILS IN TRADE.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to SELL by AUCTION, on the Premises, The Nurseries, Tooting, S.W., on WEDNESDAY, March 19, and following days, the remaining indoor Plants, consisting of a choice assortment of STOVE PLANTS, PALMS and FERNS, GREENHOUSE and NEW HOLLAND PLANTS, including several large Camellias planted out, also a number in pots; also Azalea indica in the newest and best kinds; a quantity of half-spiced Heaths, Boronia megastigma and elatior, and other New Holland Plants; Cyclamens, Bouvardias, many thousands of Geraniums in store pots; Roses in pots, the whole of the extensive collection of hardy HERBACEOUS and ALPINE PLANTS, mostly in pots; Lilies, hardy ORCHIDS, together with the whole of the UTENSILS IN TRADE, SHOP FIXTURES, including two well-made nests of Seed Drawers, made to match, each 8 feet 6 inches by 6 feet 9 inches; Shop Counter, Lathes, Spring and Tumbler Carts, Cart Horse, Harness, 2000 Flower Pots, capital Iron Safe, 500 Bell Glasses, water Cans, Garden and Water Barrows, Lawn Mower, the Loose Frames and Sashes, and numerous other effects.

May be viewed prior to the Sale. Catalogues may be had of G. WHIFFEN, Esq., Accountant, 8, Old Jewry, E.C.; of Messrs. LEWIS, MUNNS, and LONGDEN, 8, Old Jewry, E.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

N.B.—The valuable FREEHOLD ESTATE, of about 5A. R. 25P., with DWELLING-HOUSE, COTTAGES, the whole of the extensive Ranges of GLASS, TO BE LET or SOLD, with immediate possession. Terms on application to the Auctioneers.

Imported and Home-grown Lilies, Plants, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, near the Bank, E.C., on MONDAY, March 17, at half-past 11 o'clock precisely, an Importation from Japan, consisting of very fine Bulbs of LILIAM AURATUM, KRAMERI, TIGRIDIA PLENUM and FORTUNEI, THUNBERGIANUM, SPECIOSUM ALBUM, and a rare Hardy ORCHID, viz., PLATANANTHERA RADIATA ALBO MARGINATA; a quantity of Cypripedium spectabile, just arrived from the States; a consignment from the Cape of Apogoneton distachyon, Pelargonium, Hemanthus, Brunsvigia, Sparaxis pulcherrima, Drimia, Strelitzia regina, Freesia, Oxalis, and several others; 1000 fine roots of TIGRIDIA GRANDIFLORA from America, a large quantity of first-class Hardy English-grown LILIES, BULBS, and PLANTS, including Agapanthus veltheimia, Dianella, Asparagus decumbens, Hypoxis, Hyacinthus candicans, spotted-leaved Callas, Imanophyllum, Clivias, Crinum, Pancratium, and others; also Tree Carnations, Primulas, Phloxes, PICOTEEs, and other Herbaceous Plants, Begonias, Carnaeas, choice Dahlias, &c.; together with an Assortment of 350 Standard, Half-standard, and Dwarf ROSES, from a well-known English Nursery.

View morning of Sale, and Catalogues had.

SALE THIS DAY AT HALF-PAST 12 PRECISELY.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 8, at half-past 12 o'clock precisely, 750 lots of HARDY PLANTS and BULBS, including Fruit Trees, Roses, Hollies, and Shrubs from Holland; choice Hardy Border Plants and Lilies, Standard and Dwarf Roses from English and French Nurseries; Rhododendrons, Begonias, Gladioli, Anemones, Ranunculi, &c.

On view morning of Sale, and Catalogues had.

Imported and Flowering Orchids.

MR. J. C. STEVENS has received instructions from Messrs. J. Backhouse & Son, of York, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 10, at half-past 12 o'clock precisely, a valuable Collection of Imported and Flowering ORCHIDS, comprising fine plants of the newly reintroduced Odontoglossum Londeborghianum, which bears large and showy fine yellow flowers, heavily and richly barred with concentric bars of crimson; Epidendrum nemorale, grand masses, the finest ever offered; E. vitellinum majus, also very fine masses; Lælia pedunculata and Cypripedium trapezium, both very rare and beautiful. Amongst the Flowering Orchids will be found well grown plants of Odontoglossum vexillarium, exceedingly strong and promising; Boletia coelestis, Disa grandiflora, Cattleya Trianae tyrianthina, a variety of great beauty; Dendrobium Wardianum, Masdevallia Bella, and several plants of the true Trichopilia fragrans, with pure white sweet-scented flowers; Odontoglossum Phalenopsis, &c.

On view morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 12, at half-past 12 o'clock precisely, CAMELLIAS, AZALEAS, and PALMS, from Ghent; Standard and Dwarf ROSES, from France; FRUIT TREES, SHRUBS, choice HERBACEOUS PLANTS, rare LILIES, GLADIOLI, ANEMONES, RANUNCULI, &c.

On view morning of Sale, and Catalogues had.

Valuable Imported Orchids.

MR. J. C. STEVENS has received instructions from Messrs. James Veitch & Sons to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 13, at half-past 12 o'clock precisely, a very fine lot of imported and other ORCHIDS, including an importation of the rare and very beautiful Odontoglossum nevium; O. Phalenopsis, probably the finest masses ever imported; Oncidium cucullatum and its beautiful varieties, in splendid plants; a quantity of established plants of Odontoglossum Alexandræ, together with many other fine kinds, &c.; the whole without any reserve.

On view morning of Sale, and Catalogues had.

Importations of Liliun auratum and L. Krameri, in splendid condition.

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 13, 5000 splendid bulbs of LILIAM AURATUM from Japan, including many of unusual size; and 2000 fine roots of LILIAM KRAMERI; 5000 TIGRIDIA GRANDIFLORA, from New Jersey; importations of DIONEIA MUSCIPULA and SARACENIA FLAVA, received direct from New Jersey; choice CYPRI-PIDIUMS, DISA GRANDIFLORA, and other hardy ORCHIDS, TREE FERNS, &c.

On view morning of Sale, and Catalogues had.

Aerides crassifolium

(described in *Gardeners' Chronicle*, No. 176 and No. 199, as "the King of all Aerides"), CATTLEYA DOWIANA, and other choice ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 17, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., upwards of 600 imported plants of AERIDES CRASSIFOLIUM, in splendid condition, with healthy leaves, many of large size, and making young roots. This is probably, without exception, the most lovely known species of the genus, as well as the most rare in collections. Also imported plants of Vanda cœrulescens, and upwards of 100 very fine plants of Cattleya Dowiana, 200 Odontoglossum Schleiperianum, just to hand by R.M.S.S. Don. At the same time will be offered established plants of Phalaenopsis Schilleriana, P. amabilis, P. Luddemania, Odontoglossum cirrhosum, with flower-spikes; 100 O. Alexandræ, O. gloriosum, O. Roezlii, with flower-spikes; Cypripedium Boxalli, C. villosum, flowering plants; Dendrobium Wardianum, D. chrysotoxum, D. suavisimum, Cymbidium affine, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Preliminary Notice of an Important Sale of Plants

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, EARLY IN MAY, the magnificent COLLECTION of PLANTS at Dangstein, and which for many years has been one of the most extensive and interesting in the country. Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

GREAT CLEARING SALE OF NURSERY STOCK, Perryhill Nursery, Aberdeen.—In consequence of the death of Mr. Roy, the whole Stock is to be SOLD off without reserve by PUBLIC ROUP on FRIDAY, March 28, at 11 o'clock. The Stock is extensive. Catalogues to be had on application to Messrs. COLLIE, Advocates, Aberdeen, Agents for Mr. Roy's Executors, or to the Auctioneer.

JOHN WILSON, Auctioneer, Aberdeen.

TO BE SOLD, seventy years' unexpired lease of about 5 acres of LAND, within easy distance of four of the best markets in Lancashire, and adjoining railway station. On the property is about 10,000 feet of good Glass Structures, heated with hot-water pipes, and with cold-water taps in each house, well stocked with Vines in splendid bearing order. Ground rent, a halfpenny per yard. Can be seen, and full particulars given. Highest offer accepted.—Address

AMATEUR, W. H. Smith & Sons' Bookstall, Exchange Station, Liverpool.

TO BE LET, together or separately, a MARKET GARDEN, FARM, and ORCHARD, with immediate possession, by direction of the Executor; from 50 to 90 acres of Land, with House and Homestead; near Sunbury-on-Thames. Apply to

MR. NIGHTINGALE, Land Agent, High Street, Kingston, Surrey.

FARMS.—Very superior Market Garden Land, Barking, Essex, about 80 acres, with or without 30 acres of rich Grazing Marshes. Excellent residence and every requisite Outbuilding.

HENRY THOMPSON, Land Agent, Dagenham, Essex.

Notice to Debtors and Creditors.

ALL PERSONS HAVING any CLAIM or DEMAND against the Firm of SALISBURY and SMITH, of Melbourne, Derbyshire, Farmers and Market Gardeners, are requested to forward particulars of their Claims to the undersigned, on or before APRIL 6, 1879, that they may be examined and discharged.

ALL PERSONS INDEBTED to the said FIRM are requested to PAY the AMOUNT of their account forthwith to the surviving partner.

ROBERT SMITH, Shawe Farm, Melbourne.

March 4, 1879.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Horticultural Valuations.

MR. EDWIN COOLING, LICENSED VALUER, undertakes the VALUATION of all kinds of HORTICULTURAL PROPERTY. Terms on application. Mile Ash Nurseries, Derby.

SUTTON'S MAGNUM BONUM POTATOS, 10s. per cwt. Apply to W. W. PEARCE, Measham, Atherstone.

Potatoes.

DOWNIE and LAIRD have to offer Dalmahoy and Regent POTATOS. Prices per cwt. or ton on application. DOWNIE and LAIRD, Nurserymen, Seedsmen, and Florists, 17, South Frederick Street, Edinburgh.

Pelargoniums.

PELARGONIUS.—Strong healthy plants, in single pots, fit for immediate shifting, consisting of Show, French, and Fancy varieties, 35s. per 100, packing included. Cash with order.

HOLDER and SON, Crown Nurseries, Reading.

To the Trade.

SEED POTATOS.—Our SPECIAL LIST, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application.

H. AND F. SHARPE, Seed Growers, Wisbech.

ENGLISH OAKS.—Tall straight Standards, 10 feet high, 20s. per 100, £8 8s. per 1000, for cash. J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

To the Trade.

IRISH IVIES, staked, in pots, strong, 5 to 6 feet, 50s. per 100. AUCUBA JAPONICA, 2 to 2½ feet, fine bushy plants, splendid foliage, 50s. per 100, for cash with order. Delivered free within 6 miles of nursery. W. FROMOW, Sutton Court Nursery, Turnham Green, London, W.

YEWS.—3½ to 4½ feet, 90s. per 100; 3 to 4 feet, 84s. per 100; well adapted for hedges, &c.; also some prime well-rooted Green HOLLIES, 1 to 3 feet, in good condition for hedges; all recently moved in good condition. A good time for planting now.

JOSEPH SPOONER, Woking, Surrey.

FOR SALE, 4000 of good 3-yr. Old Crown Bob GOOSEBERRY TREES, true to name. Price 6s. per 1000, delivered at Spalding Station. Cash or reference required. Apply

MR. W. COLVIN, Money Bridge Gardens, Pinchbeck, Spalding.

Notice.—To Gentlemen, Gardeners, and Others. **FOR SALE**, 3000 English YEWS, good healthy stuff, move well, 1 foot 6 inches to 3 feet high, capital stuff for Garden Fences or Screens. Also some thousand of 2-yr. old ASPARAGUS for sale. Price on application, and samples sent if required. No reasonable offer refused.

MOWER and CO., Nurserymen and Seedsmen, Sibb Hedingham.

To the Trade or Otherwise.

SCOTCH FIR, 1,500,000 (True) 2-yr. Seedlings, excellent stuff, 8,000,000 SCOTCH FIR (True), 1-yr. Seedlings.

W. WISEMAN and SON, Elgin, N.B.

SPANISH CHESTNUT, 2-yr. Seedlings, from 9 inches to 2 feet. About 30,000. Price and sample on application. RICHARD MASON, Windlesham Nursery, Bagshot, Surrey.

SCOTCH FIR, LARCH, Seedling and
Transplanted, for sale cheap. Carriage paid to London.
LEVAVASSEUR AND SON, Nurserymen, Ussy (Calvados),
France.

LARCH, 1-yr. seedling; transplanted PEAR
STOCKS; SPANISH CHESTNUTS, 6 to 9 inches;
Champion and Walker's Regent POTATOS for seed; a splendid
collection of PHLOXES, bedding VIOLAS and PANSIES.
DICKSONS AND CO., 1, Waterloo Place, Edinburgh.

VERBENAS, VERBENAS, VERBENAS.
—Fine, healthy, well-rooted Cuttings, perfectly free from
disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s.
per 1000. 100 rooted Cuttings in twelve splendid varieties,
First Prize Flowers, for 8s. Terms cash.
H. BLANDFORD, The Dorset Nurseries, Blandford.

STANDARD SCARLET RHODODEN-
DRONS, &c., finest named varieties, with straight
stems and fine heads, full of blooming buds, are offered at 5s.,
7s. 6d., and 10s. 6d. each, by
W. H. ROGERS, Red Lodge Nursery, Southampton.

ASPARAGUS, ASPARAGUS.—Strong
roots, 2-yr. old, Conover's Colossal and Giant, 12s. per
1000.
THOMAS PERKINS AND SONS, 34, Drapery,
Northampton.

To the Trade.
MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to give
special quotations for their fine selected stocks of
home-grown MANGEL WURZEL, and SWEDE and other
TURNIP SEEDS of 1878 growth, and raised from transplanted
Bulbs.
Seed Growing Establishment, Wisbech.

HARDY HEATHS.—60,000 good plants, in
great variety—fine for Edging, Bedding, Covering
Banks or raised mounds. The prices, which are very low, will
be found in the CATALOGUE, free per post.
JAMES SMITH, Darley Dale Nurseries, near Matlock.

JULES DE COCK, NURSERYMAN,
Ghent, Belgium, offers AZALEA INDICA of all sizes,
AZALEA MOLLISS, and A. PONTICA; CAMELLIAS,
DEUTZIA GRACILIS, DIELYTRA SPECTABILIS,
SPIRÆA JAPONICA, PALMS for Table use, DRACÆNAS,
PERNS, and YUCCA VARIEGATA.
CATALOGUES free on application.

Cabbage Plants.
CABBAGE PLANTS.—Can now supply the
following, good strong healthy plants:—Early Battersea,
Early Nonpareil, Early Enfield Market, Early Oxheart, Robin-
son's Drumhead, and Red Pickling Cabbage. Prices on
application.
W. VIRGO, Womersley Nurseries, near Guildford.

SCOTCH GROWN SEED POTATOS.—
The following unsurpassed main crop varieties, genuine
and sound, viz.:—Dalmahoy Early, Edinburgh or Red Bog
Early, Fortyfold, Dunbar Regent, Paterson's Victoria, Walker's
Early Regent, and Rintoul's Early White Don, 5s. per bushel.
CHAMPION REGENT, true, 4s. per bushel.
TODD AND CO., Seedsmen, Maitland Street, Edinburgh.

PODEAS.—Healthy young plants of T.
superba and T. hymenophylloides (pellucida), free and
safe by post, 2s. 6d. each for prepayment. Trade price (low)
er 100, or lesser quantities, on application.
ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

Roses, Fruit Trees, &c.
WILLIAM FLETCHER'S CATALOGUE
for the present season is now ready, and may be had
on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

HAMPTON COURT BLACK HAM-
BURGH VINE.—Strong fruiting well ripened Canes of
his well known Grape, 5s., 7s. 6d., and 10s. 6d. each; Planting
Canes, 3s. 6d. each. Also a good stock of most of the best kinds.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

CHOICE NAMED RHODODENDRONS,
fine bushy Plants, are offered at £5 per 100, or selected,
8s. per dozen, by
W. H. ROGERS, Red Lodge Nursery, Southampton.
CATALOGUES free on application.

SPANISH CHESTNUT, ASH, BIRCH,
ALDER and HAZEL—stout, well-rooted, transplanted.
A large quantity to be sold.
Mr. GEO. CHORLEY, Coaster's Nursery, Midhurst.

Manetti Stocks.
EWING AND CO. have a few thousands
more than they require, of very fine quality, which they
are offering at a low price.
Eaton, near Norwich.

GLASTONBURY or HOLY THORN.—
Strong plants of above, 3 to 4 feet high, 2s. 6d. each.
Always blossoms at Christmas.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

SUTTON'S MAGNUM BONUM
POTATOS for Sale. For Seed Bag of 4 stones, 8s. Post-
free Orders payable at Uppingham.
J. W. KINGSTON, Glaston, Uppingham.

Roses, Fruit Trees, and General Nursery Stock.
W. B. ROWE solicits the inspection by
Nurserymen of his extensive stock of the above,
which are well-grown, and fit for removal.
Barbourne Nurseries, Worcester.

EVERGREEN OAKS.—A large quantity
for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at ex-
ceptionally low prices; also Standards, 6 feet stems, good heads.
Prices on application to
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

To the Trade.
THOMAS METHVEN AND SONS have
a large and fine Stock of strong transplanted SCOTCH
FIR and PINUS LARICIO, and will be happy to send
special quotations on application.
Leith Walk Nurseries, Edinburgh.



NEW AND CHOICE SEEDS FOR 1879.

WILLIAMS' CYCLAMEN PERSICUM
GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per pkt.
WILLIAMS' CYCLAMEN PERSICUM
GIGANTEUM, 5s. and 2s. 6d. per packet.

WILLIAMS' CYCLAMEN PERSICUM,
finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

WILLIAMS' CALCEOLARIA, Herbaceous,
finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

WEATHERILL'S CINERARIA, extra
choice mixed, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.

WILLIAMS' PRIMULA SINENSIS FIM-
BRIATA COCCINEA, new, 5s. and 3s. 6d. per packet.

WILLIAMS' PRIMULA SINENSIS FIM-
BRIATA, red, white, or mixed, 5s., 3s. 6d., 2s. 6d. and
1s. 6d. per packet.

WILLIAMS' BEGONIA, New Bedding,
finest mixed, 2s. 6d. per packet.

WILLIAMS' SOLANUM HYBRIDUM,
Empress, new, 2s. 6d. per packet.

WILLIAMS' VIOLA CORNUTA, Loveli-
ness, new, 2s. 6d. per packet.



COLLECTIONS OF CHOICE VEGETABLE SEEDS

FOR ONE YEAR'S SUPPLY.

- A COLLECTION, 10s. 6d.
- B COLLECTION, 21s.
- C COLLECTION, 42s.
- D COLLECTION, 63s.
- E COLLECTION, 84s.

Illustrated Seed Catalogue, of New and Choice FLOWER and VEGETABLE SEEDS, POST-FREE.

All Seeds amounting to 20s. Carriage Free to any
Railway Station in England.

Flower Seeds Free by Post, except heavy kinds.



To the Trade.
NEW POTATO, "PRIDE OF ONTARIO."
H. AND F. SHARPE are now sending out
the above most prolific and handsome shaped new
Potato. Full description and price may be had on application.
Seed Growing Establishment, Wisbech.

WEBB'S CHOICE POLYANTHUS
AND OTHER SPRING PLANTS.
Early orders are solicited for the above choice plants. Apply to
THE MANAGER, Calcot Gardens, Reading.

WEBB'S PRIZE COB FILBERTS
AND OTHER NUTS.
Persons desirous of obtaining Trees of the above, grown by
the late R. Webb, of Calcot, should give early orders to
THE MANAGER, Calcot Gardens, Reading.
CATALOGUES post-free on application.

Roses, Roses.
DOWNIE AND LAIRD are now sending
out the above, the Finest Varieties in Cultivation, at 9s.
per dozen, selection left to D. & L.
Royal Winter Gardens, Edinburgh.

SPRUCE FIRS.—A quantity of strong stuff
for sale, 2 feet high, at 30s. per 1000.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

ENGLISH YEW.—Extra transplanted and
well furnished, 3 to 4 feet, 9s. per dozen, 60s. per 100;
4 to 5 feet, 12s. per dozen, 90s. per 100.
THOMAS PERKINS AND SONS, 34, Drapery,
Northampton.

CEDRUS DEODARA, 2½ to 3½ feet, 24s. to
30s. per dozen.
ABIES DOUGLASHI, 5 to 7 feet, 20s. to 30s. per dozen.
CUPRESSUS LAWSONIANA, 2½ to 3½ feet, 10s. per doz.
The above are very fine and well-rooted.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple.

GOLD MEDAL BEGONIAS.—Seed saved
from our unrivalled collection of named varieties, in
sealed packets, 1s. 6d. and 2s. 6d. post-free. Special offers to
the Trade.
JOHN LAING AND CO., Nurseries, Forest Hill, S.E.

Special Cheap Offer.
TO SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, Jeyes' or Payne's Conqueror. About
20 quarters. Handpicked, 15s. per bushel; 112s. per
quarter. Samples on application to
W. BALL AND CO., Bedford Road Nursery, Northampton.

Three Really Good Things.
CUCUMBER.—New Improved Telegraph,
12 seeds, 1s. per packet.
GOULD.—Petition or Mammoth, 1s. per packet.
CELERY.—Dixon's XL, red, 1s. per packet.
1 packet of each for 30 stamps, post-free.
JOHN E. DIXON, Seedsman, Gainsborough.

Florists' Flowers.
J. FORBES' CATALOGUE for 1879
(50 pages) of all the newest and best Carnations,
Picotees, Pinks, Geraniums, Fuchsias, Pansies, Phloxes, Pent-
stemons, Antirrhinums, Begonias, Verbenas, &c., is now ready,
and may be had free on application.
The Nurseries, Hawick, N.B.

Good Things.
JOHN MOGFORD, Exporter of CAPE
BULBS, can supply the Trade with all the leading kinds,
DISA GRANDIFLORA, &c.
10, Camp Street Gardens, Cape Town.

CALCEOLARIA, Golden Gem.—Strong
healthy autumn-struck, 6s. per 100, 50s. per 1000.
GERANIUM, Vesuvius.—Strong, from stores, 8s. per 100.
Package free, cash.
W. FIELD, Tarvin Road Nursery, Chester.

MANGEL and SWEDE, Choice Stocks.—
We can offer our thoroughly guaranteed Stocks, in 1878
harvest of above, at very low prices to the trade.
SANDER AND CO., Seed Growers, St. Albans.

Vines—Vines—Vines.



B.S. WILLIAMS begs to announce that
his stock of VINES is this year unusually fine, and
comprises all the leading kinds, including "Alnwick Seedling."
For descriptions and prices, see B. S. W.'s BULB CATA-
LOGUE for this year.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

Verbenas in Single Pots.
WILLIAM BADMAN offers clean, healthy,
Purple King, Crimson King, and Le Grand Boule de
Neige (finest white), in single pots, 22s. per 100. Twelve choice
Show kinds, in pots, 16s. per 100. Packing included. Terms
cash.
Cemetery Nursery, Gravesend.

Verbenas from Store Pots.
WILLIAM BADMAN offers clean, healthy,
well-rooted cuttings of Purple, White, Scarlet, Crimson,
and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice
Show Varieties, 8s. per 100. Package included. Terms cash.
Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums.
WILLIAM BADMAN offers Mrs. Pollock,
15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000;
Master Christine and Madame Vaucher, 10s. per 100; Silver
variegated May Queen and Crystal Palace Gem, 10s. per 100.
Packing included. Terms cash.
Cemetery Nursery, Gravesend.

RASPBERRY CANES.—For Sale, 150,000
Fastoff, at 17s. per 1000, free on rail. Cheque or
reference to a London house required with order.
R. BATH, Crayford.

MAHONIA AQUIFOLIA.—Transplanted,
6 to 12 inches, 12s. per 1000; 1 to 1½ foot, 20s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery,
Northampton.

LILIES FOR BEDS AND GROUPS.

LILIUM AURATUM, by the dozen, hundred or thousand, at 6d., 1s., and 1s. 6d. each.
LILIUM KRAMERI, by the dozen, hundred or thousand, at 1s. 6d. and 2s. 6d. each.
LILIUM SZOVITZIANUM, by the dozen, hundred or thousand, at 1s., 1s. 6d., and 2s. 6d. each.
LILIUM TIGRINUM FORTUNEI, by the dozen, hundred or thousand, at 9d. and 1s. each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade.

SPECIAL PRICES ON APPLICATION
GEORGE COOPER, SEED MERCHANT,
Hertford, begs to offer the following, of the choicest stocks:—

| | |
|-------------------------------|---------------------------|
| BEET, Red, Cooper's Excelsior | ONION, White Spanish |
| BROCCOLI, Hill's June | „ White Globe |
| CUCUMBER, Improved Telegraph | „ Bedfordshire Champion |
| „ [Matchless] | CELERY, Cooper's Improved |
| PARSLEY, Curled, Cooper's | „ White |
| SWEDE, Cooper's Improved | BROMPTON STOCK, |
| „ Large Purple-top | „ Giant Scarlet |
| TURNIP, Improved Aberdeen | CYCLAMEN PERSICUM, |
| „ Green-top Yellow | „ from large flowers. |

Special Offer of

STRONG FRUITING VINES to the Trade.

BLACK HAMBURGH. „ DUKE OF BUCCLEUCH.
BLACK ALCANTARA. „ FOSTER'S SEEDLING.
MUSCAT OF ALEXANDRIA, &c.

FRUIT TREES, ROSES, CONIFERS, in great variety.
CATALOGUES on application.
W. G. CALDWELL AND SONS, The Nurseries, Knutsford, Cheshire.

DR. DENNY'S ZONAL PELARGONIUMS, Sixth Set.—This series will consist of the six splendid varieties that were awarded the Premier Prize for "six varieties not in commerce, florists' class," at the Pelargonium Society's Exhibition of 1878.

Descriptive CATALOGUES forwarded on application to Mr. JOHN BALAM, Vine Nursery, Hackney Downs Road, Lower Clapton, N.E.

CATTLEYA MENDELII, CATTLEYA GIGAS, ODONTOGLOSSUM ALEXANDRAE, O. PISCATORI, O. TRIUMPHANS, O. PHALANOPSIS, &c.; ONCIDIUMS of sorts, macranthum, ampliatum majus, cucullatum, &c., and a quantity of other beautiful ORCHIDS chiefly for cool culture. Before ordering, send for the "New Plant and Bulb Company's" LIST. These plants come from our own collectors, and can be supplied either just arrived very cheaply, or semi-established from last year's importations.
Lion Walk, Colchester.

TO THE TRADE.

100,000 LARCH FIR, transplanted.
75,000 ASH, transplanted.
50,000 CHESTNUTS, Spanish, transplanted.
50,000 MANETTI STOCKS.
20,000 LAURELS, Common.
5,000 AUCUBAS.
5,000 LAURELS, Portugal.
STANDARD ROSES.
ASPARAGUS PLANTS, 2, 3, and 4-yr.

Extra fine Dwarf-trained PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES, also fine Pyramid APPLES and PEARS.
WM. WOOD AND SON, The Nurseries, Maresfield Uckfield, Sussex.

Wellingtonia gigantea Seed.

L. PAILET, NURSERYMAN, Chateaux-les-Sceaux, near Paris, has the pleasure to announce that he has just received a splendid lot of fresh Seeds of WELLINGTONIA GIGANTEA of very first quality, from California.

L. PAILET also offers Tuberous or Bulbous BEGONIAS, fine mixed varieties for bedding; splendid ROSES of every kind, at very low prices.

CATALOGUES, Prices, &c., sent on application either direct to L. P., as above; or to his Agents, Messrs. R. SILBERRAD AND SON, 15, Harp Lane, Great Tower Street, London, E.C.

CLARKIA, Hardy's new Double SALMON QUEEN and PURPLE KING.—Two First-Class Certificates were awarded to H. I. Hardy by the Royal Horticultural Society, July 7, 1875.

"HARDY'S CLARKIAS."—We have never seen finer double Clarkias than these latter."—*Gardeners' Chronicle*, July 18, 1875.

CAUTION.—The Trade, to ensure these fine Clarkias true, should be careful to give their orders to the Raiser.

Price by the pound or ounce on application.
H. I. HARDY, Stour Valley Seed Grounds, Bures, Suffolk.

To the Trade.

JAS. GARAWAY AND CO. offer:—

PEARS, extra strong dwarf-trained Beurre Diel, 15s. per dozen, extra strong, assorted, 15s. per dozen, 45s. per 100.
VINES, strong well-ripened canes, for planting, 42s. per dozen.
FILBERTS, transplanted layers, strong, 25s. per 100.

JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

Selected Giant Brussels Sprouts.

LOWNDES' TRUE AIGBURTH STOCK.

JAMES TYNAN begs to offer Seed of this celebrated Brussels Sprouts, grown by Mr. John Lowndes for the last fifteen years. It grows to a height of 3 feet, and is completely covered from the top to the ground with large firm Sprouts, which during the recent severe weather have resisted the action of the frost most wonderfully. It is undoubtedly superior to any other variety grown.

The Gardens, Sand Hall, Howden, Sept. 28, 1876.

"Your 'Selected Giant' Brussels Sprouts is a great improvement on the old kinds, being much larger both in stem and Sprout. We have a quantity of fine hard Sprouts already."

"H. CRAIKE."

In packets 1s. each, post-free.
Seed Warehouse, 68, Great George Street, Liverpool.

WELLINGTONIA GIGANTEA.—Fine trees, 8 to 10 feet high, transplanted 2 years since, 36s. per dozen.
J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

ARBUTUS.—Fine bushy well-rooted Plants, 2 to 3 feet, are offered at 50s. per 100, by W. H. ROGERS, Red Lodge Nursery, Southampton.

Special.

A MILLION HERBACEOUS AND ALPINE PLANTS, which must be moved in consequence of having to clear a portion of my ground required by the GREAT EASTERN RAILWAY COMPANY, for the purpose of widening their line. I have decided, in order to ensure a QUICK CLEARANCE, to offer the same at VERY REDUCED RATES. Priced Lists are being prepared, and will be forwarded in due course, with NEW ILLUSTRATED CATALOGUE, to all my patrons, also on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

ONE GUINEA COLLECTION OF VEGETABLE SEEDS, containing 6 quarts of excellent Peas for succession, and 50 packets of other leading sorts of SEEDS, all of best quality. Carriage Free to any Railway Station in England.

RICHARD SMITH & CO.
WORCESTER



E. G. HENDERSON & SON

OFFER

THE FOLLOWING NOVELTIES

WHICH ARE DESCRIBED IN THE

New Seed Catalogue for 1879.

NEW JAPANESE HARICOT BEAN, "The Wonderful." Fruit small, and of a crimson colour. Unlike the English Haricot, this forms a delicious marmalade. 1s., 2s. 6d., and 5s. per packet.

NEW JAPANESE GOURD. Keeps well throughout the winter. After being boiled the inside remains a dry farinaceous firm mass, and is used similar to Potatoes. 1s. per packet.

NEW JAPANESE RADISH. For winter use, similar prepared as Turnips. 1s. per packet.

ARCTIUM EDULE. A Japanese vegetable, eaten like Seakale; a delicious dish for winter and spring. 1s. and 2s. 6d. per packet.

NEW ALPINE STRAWBERRY, "Mademoiselle Vernier." Seed packets, 1s., plants 1s.

CUCUMBER-MELON, 32 inches long, cooked and eaten similar to Vegetable Marrow. Fully ripe it has the flavour of a good Melon. 1s. per packet.

PANSY, Multicolor, Fire Dragon and Rainbow, 1s. each per packet.

LOBELIA, Naval Brigade, 1s. per packet.

RICHARDIA ALBO MACULATA, 1s. per packet.

SABBATIA CHLOROIDES, 1s. per packet.

SALVIA FARINACEA, 1s. 6d. per packet.

GERANIUM MOLLE AUREUM, 2s. 6d. per packet.

GOLDEN POINT-LACE PYRETHRUM, 1s. per packet.

BEGONIA ROEHLII (new species), 1s. 6d. per packet.

CAPE EVERLASTING FLOWER, 1s. and 2s. 6d. per packet.

ZEPHYRANTHES GRANDIFLORA ALBA, 2s. 6d.

SAXIFRAGA BURSERA, 1s. and 2s. 6d. per packet. The most beautiful among all the early flowering Alpine plants.

GNAPHALIUM LEONTOPODIUM, 1s. per packet.

CASTILLEJA INDIVISA, 1s. per packet.

EAST LOTHIAN CRIMSON STOCK, 1s. per packet.

IPOMEEA QUAMOCLIT, var., Ivy-leaved, 1s. per packet.

GLOXINIA CRASSIFOLIA, 2s. 6d. per packet.

SOLANUM LOBELII, 1s. per packet.

NICOTIANA ACUTIFOLIA and SUAVEOLENS, 1s. each per packet.

Special attention is given that the finest quality only in FLORIST FLOWERS is offered, such as: Primulas, Calceolarias, Cinerarias, Pansies, Balsams, Begonias, Cyclamen, Mimulus, Pelargoniums, Petunias, Zinnias, Stocks, Asters, &c. See CATALOGUE for description.

Bulbs or Tubers of the following may be sent safely through the post. E. G. H. & Son's Selection of the following are from their select and choice cultivated collection, of which they have many thousands now ready:—

| | Per dozen sorts—s. d. | s. d. |
|--|-----------------------|----------|
| BEGONIAS, splendid assortment (mixed, 6s.) | 9 | 0 and 12 |
| CALADIUMS, distinct varieties | 12 | 0 |
| GLOXINIAS, beautiful varieties | 6 | 0 |
| ACHIMENES, distinct and choice sorts | 2 | 0 |
| GESNERAS, fine selection | 4 | 0 |
| DAHLIAS, best of all sections | 4 | 0 |
| CHRYSANTHEMUM Cuttings | 2 | 6 |

(New and Rare Varieties of the above, see prices in Catalogue.)
SPIRÆA JAPONICA, with golden variegated leaves, 1s. 6d.

THE PINE-APPLE NURSERY,

Maida Vale, London, W.

DANIELS'

NORFOLK GIANT

BROCCOLI.

For use in March, April and May.

The largest, hardiest, whitest and best Broccoli in the world. Has been grown during the past season to the enormous weight of 28 lb. each. A grand variety, of compact habit, stem robust and short; flower-heads exceedingly large and beautifully white, being well protected with luxuriant overlapping foliage. A most valuable market variety; sells readily at Covent Garden and Provincial Markets at a high figure.

NORFOLK GIANT BROCCOLI

Can be obtained only direct from us in our own Sealed Packets. 1s. 6d. per Packet.

DANIELS BROS.,
ROYAL NORFOLK SEED ESTABLISHMENT.
NORWICH.

Forest Trees.

J. GEO. HILL (late John Scott) has a quantity of the following to offer, at very low rates, for well-grown, well-rooted stuff:—

ALDER, 4 to 5 feet, strong.
BEECH, 3 to 4 feet, and 4 to 5 feet, stout.
BIRCH, Silver, all sizes.
CHESTNUT (Spanish), 2 to 2½ feet, strong.
FIR, Spruce, 2 to 2½ feet, and 3 to 4 feet, transplanted.
„ Silver, 2 to 4 feet, well-rooted.
HAZEL, 3 feet, very strong.
OAKS, English, 8 to 10 feet.
YEWs, English.

Price on application to

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

BEGONIA SEED.—

Handsome New Kinds.

Saved from exceedingly beautiful varieties of the handsome-flowered tuberous-rooted section. The flowers have all been carefully fertilised, so that splendid new kinds may be expected from this seed. 1s. 6d. and 2s. 6d. per packet.
PRIMULA, CINERARIA, and CALCEOLARIA, from Prize strains, the best that can be purchased, each at 1s. 6d. and 2s. 6d. per packet.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Lily-white Seakale.

STUART, MEIN AND ALLAN, knowing the above to be a great improvement on the old variety, have grown it extensively, and are prepared to offer it at a cheap rate, viz., 20s. per 100.

Shirley Hibberd says—"When I saw your dozen roots in the forcing-pit, by the side of our own, I was astonished at the distinction. . . and was white as snow." See also *Gardeners' Magazine* of January 11.

Kelso, N.B.

To Gentlemen, Builders, and the Trade.

ROBERT AND GEORGE NEAL, Wandsworth Common and Garrett Lane Nurseries, beg respectfully to call attention to their large and varied Stock of HARDY, ORNAMENTAL, FOREST, FRUIT TREES and SHRUBS, which are grown at their Nurseries, especially those Trees, &c., which are most suitable for growing in or near large towns. An early inspection invited. All goods delivered free on rail in London, or at own residence, within five miles of the Nurseries.

CATALOGUES free by post on application.

WM. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers from his large Stocks of Standard and Dwarf ROSES, FRUIT TREES of all sizes, Scarlet and other RHODODENDRONS well set with buds, CONIFERÆ and EVERGREENS, and DECIDUOUS TREES for Avenues, by the dozen, 100 or 1000, at very low prices for well-grown stuff.

Season 1879.

VEGETABLE and FLOWER SEEDS of Superior Quality. Carriage Free.

Priced Descriptive CATALOGUE, containing select Lists of these, also Potatoes for planting, Hybrid Gladioli, and other Garden Requisites, is now published, and will be sent post-free on application.

DICKSON AND ROBINSON, Seed Merchants and Nurserymen, 12, Old Millgate, Manchester

EUONYMUS EUROPEUS.—

Offers for cash:—1-yr. seedlings, 9s. per 1000, £4 per 10,000; 2-yr. seedlings, 13s. 6d. per 1000, £6 per 10,000; 3-yr. seedlings, 16s. per 1000, £7 10s. per 10,000; 3-yr. seedlings, replanted, 18s. per 1000.

A. RATHKE AND SON, The Nurseries, Praust, near Danzig, Germany.

Special List of Cheap Orchids.



B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

| Established.—s. d. | Established.—s. d. |
|---|---------------------------------|
| Aerides roseum .. 10 6 | Dendrobium bigibbum .. 7 6 |
| „ crispum .. 10 6 | „ nobile .. 3 6 |
| „ virens .. 10 6 | „ chrysanthum .. 3 6 |
| „ odoratum majus .. 7 6 | Epidendrum vitellinum .. 2 6 |
| „ Lobii .. 15 0 | „ majus (imported), from 2 6 |
| „ Fieldingii .. 15 0 | Limnates rosea .. 3 6 |
| Cattleya Mendelii (im- .. 5 0 | Lycaste Skinneri .. 5 0 |
| ported) .. 10 6 | Masdevallia Lindenii .. 15 0 |
| „ Aclandiae .. 10 6 | „ polysticta .. 5 0 |
| „ citrina .. 3 6 | „ Harryana .. 7 6 |
| „ Trianae .. 10 6 | „ ignea .. 7 6 |
| „ Warszewiczii deli- .. 15 0 | Odontoglossum Inseleyi .. 5 0 |
| cata .. 15 0 | „ leopardinum .. 5 0 |
| „ Warnerii .. 15 0 | „ Hallii .. 7 6 |
| „ lobata .. 10 6 | „ hystrix .. 10 6 |
| „ crispata .. 5 0 | „ cirrhosum .. 3 6 |
| Calanthe Veitchii .. 7 6 | „ pulchellum majus .. 3 6 |
| „ vestita luteo oc- .. 2 6 | „ Phalænopsis (im- .. 7 6 |
| culata .. 2 6 | ported) .. 7 6 |
| „ rubra .. 2 6 | „ Rosii majus (im- .. 7 6 |
| „ Cologyne cristata .. 5 0 | ported) .. 7 6 |
| Cymbidium eburneum .. 15 0 | Oncidium aurosum .. 5 0 |
| „ Mastersii .. 15 0 | „ Bauerii .. 5 0 |
| Cypripedium barbatum .. 3 6 | „ sphecelatum .. 5 0 |
| „ superbum .. 3 6 | „ incurvum .. 7 6 |
| „ insigne .. 2 6 | „ verrucosum .. 5 0 |
| „ spectabile .. 3 6 | „ concolor .. 10 6 |
| „ Boxallii .. 3 6 | „ flexuosum .. 3 6 |
| „ Pearcei .. 3 6 | „ Papilio .. 7 6 |
| „ Harrisianum .. 7 6 | „ Kramerii .. 5 0 |
| „ niveum .. 3 6 | „ Pleione lagenaria .. 3 6 |
| Dendrobium formosum .. 5 0 | „ Wallichiana .. 3 6 |
| „ giganteum .. 5 0 | Saccolabium ampul- .. 5 0 |
| „ chrysotis .. 10 6 | lanceum .. 5 0 |
| „ cretaceum .. 3 6 | „ Blumei majus .. 7 6 |
| „ Pierardii .. 3 6 | „ curvifolium .. 7 6 |
| „ pulchellum purpu- .. 3 6 | Vanda tricolor insignis .. 10 6 |
| „ Findleyanum .. 10 6 | „ tricolor .. 10 6 |
| „ Specimens of the above can be supplied, prices of which will be forwarded on application. | „ Roxburghii .. 15 6 |

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, CYCLAMEN, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

The Camellia Houses are now very interesting, the large specimens being in full flower, and are likely to continue in good condition for some time to come.

VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS has received instructions from Messrs. JAMES VEITCH & SONS to offer for SALE, WITHOUT RESERVE, on THURSDAY, March 13, a splendid importation of the beautiful ONCIDIUM CUCULLATUM and its many varieties; the rare and very fine ODONTOGLOSSUM NÆVIUM; ODONTOGLOSSUM PHALÆNOPSIS, probably the finest masses ever imported; a fine looking ODONTOGLOSSUM, believed to be new; a quantity of established plants of ODONTOGLOSSUM ALEXANDRÆ; also other well-known and popular Orchids.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

AERIDES CRASSIFOLIUM,

(described in the *Gardeners' Chronicle*, No. 176 and No. 199 as
"The King of all Aerides"),

CATTLEYA DOWIANA, and other CHOICE ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 17, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., upwards of 600 imported plants of AERIDES CRASSIFOLIUM in splendid condition, with healthy leaves, many of large size, and making young roots. This is probably, without exception, the most lovely known species of the genus, as well as the most rare in collections. Also imported plants of VANDA CÆRULESCENS, and upwards of 100 very fine plants of CATTLEYA DOWIANA, 200 ODONTOGLOSSUM SCHLEIPERIANUM, just to hand by R.M. ss. *Don*. At the same time will be offered established plants of PHALÆNOPSIS SCHILLERIANA, P. AMABILIS, P. LUDDEMANNIANA, ODONTOGLOSSUM CIRRHOSUM, with flower-spikes; 100 O. ALEXANDRÆ, O. GLORIOSUM, O. ROEZLII, with flower-spikes; CYPRIPEDIUM BOXALLI, C. VILLOSUM, flowering plants; DENDROBIUM WARDIANUM, D. CHRYSOTOXUM, D. SUAVISSIMUM, CYMBIDIUM AFFINE, and other choice Orchids.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

Important Sale of Odontoglossum Alexandræ, and other New Grenadian Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from Mr. B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 20, 1000 plants of the lovely ODONTOGLOSSUM ALEXANDRÆ; also a quantity of plants of O. GLORIOSUM PILUMNA NOBILIS, &c.

The plants will be sold without reserve, and are in the finest possible condition, just ready to start. In the consignment will be found some magnificent pieces, probably the largest ever imported to this country.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CABBAGE PLANTS, SEEDS, ROOTS,
&c.—Finest Selected Stock of all kinds, for the Farm or Garden. Largest and Best Stock in the Kingdom.
"Gee's superior Bedfordshire-grown plants and seeds have attained much celebrity."—"The soils of the district offer facilities enjoyed at few places for bringing away plants, seeds, roots, &c., and under the skill and perseverance of Mr. F. Gee they are turned to good account."—*Vide Opinions of the Press.*
Large Cash buyers treated with on the most liberal and advantageous terms. 1879 Select CATALOGUE, also Special Trade LIST, may be had on application to
FREDERICK GEE, Wholesale and Retail Seed and Plant Grower, Seed Merchant, and Nurseryman, Biggleswade, Beds.

JOHN WATERER AND SONS, Bagshot,

Surrey, beg to offer:—
5000 LAURELS, Portugal, 3 to 4 feet.
5000 YEWs, English, 3, 4, 5, and 6 feet.
5000 FIRs, Spruce, 3, 4, 5, and 6 feet.
5000 HOLLIES, Green, 2, 3, and 4 feet.
Price on application.

TO THE TRADE.

SWEDS, Hall's Westbury Purple-top, 200 bushels nett growth of present season.

CABBAGE, Early Rainham and Enfield Market, nett growth present season. Prices on application to
W. COCKS, Monk's Hall, Gosberton, Spalding.

Revised Special Offer of Popular and Cheap Orchids.



MESSRS. JAMES VEITCH AND SONS
are enabled to offer good healthy plants of the following sterling ORCHIDS at the subjoined prices:—

| | Each—s. d. |
|----------------------------------|---------------------------------|
| ADA aurantiaca | newly imported 5 0 |
| AERIDES Fieldingi | established 15 0 |
| BROUGHTONIA sanguinea | " 5 0 |
| CALANTHE Veitchii | " 7 6 |
| CATTLEYA citrina | " 3 6 |
| " Mossiæ | " 5 0 |
| " Skinneri | " 5 0 |
| CHYSIS bracteata | " 7 6 |
| DENDROBIUM Bensoniæ | " 5 0 |
| " bigibbum | newly imported 7 6 |
| " crassinode Barberianum | established 7 6 |
| " formosum | " 7 6 |
| " japonicum | newly imported 3 6 |
| " nobile | established 5 0 |
| EPIDENDRUM macrochilum | newly imported 3 6 |
| " vitellinum majus | newly imported, 2s. 6d. and 3 6 |
| LÆLIA anceps | " established 3 6 |
| MASDEVALLIA Davisii | " 7 6 |
| " Harryana | " 10 6 |
| " Veitchiana | " 7 6 |
| ODONTOGLOSSUM cirrhosum | " 3 6 |
| " cordatum | " 5 0 |
| " grande | " 5 0 |
| " Hallii | established, 7s. 6d. and 10 6 |
| " hastilabium | newly imported 5 0 |
| " Pescatorei | " 5 0 |
| " Phalænopsis | newly imported, 3s. 6d. and 5 0 |
| " pulchellum majus | established 3 6 |
| " Roezii | " 5 0 |
| " Rossii | " 3 6 |
| ONCIDIUM concolor | " 10 6 |
| " cucullatum | newly imported 3 6 |
| " Forbesii | " established 7 6 |
| " incurvum | " 5 0 |
| " Krameri | " 5 0 |
| " varicosum | " 5 0 |
| " Weltonii | newly imported 3 6 |
| SACCOLABIUM ampullaceum | established 5 0 |
| " Blumei majus | " 7 6 |

Larger plants of the above at proportionate prices.

ROYAL EXOTIC NURSERY,
KINGS ROAD, CHELSEA, S.W.

STAWBERRIES, prepared Plants.—Now is the time to plant for profit. From the fact of my being located in the midst of hundreds of acres, enables me to offer very fine plants of the best and most profitable Kentish kinds, true to name, 4s. per 100. Special prices for large quantities.

STRAWBERRIES.—Splendid strong plants, established in small pots for immediate private planting, to produce a crop of fruit at once, 12s. per 100.

STRAWBERRIES for Forcing.—Extra strong, in 6-inch pots, showing three or four crowns. Crop at once certain, 35s. per 100. Special prices per truckload.

CATALOGUE post-free.

From Mr. Henry Peckham, *Thorpe, Chertsey, October, 1878*:—"Dear Sir,—The Strawberry plants (24,000) have arrived in splendid condition."

"H. Cannell, Swanley, Kent."

RASPERRIES.—The best Kentish kinds, strong, picked Canes, and if planted now will yield a crop this season. Price, &c., on application.

H. ORMSBY, Swanley, Kent.

SEEDS FOR SALE.—Brussels Sprouts,

Early Cabbage, Myatt's Extra Curled Parsley, Yellow Intermediate Mangel, all from selected stock. Also a few tons of Snowflake Potatoes. For lowest cash price apply to
F. AND C. MYATT, Offenham, Evesham.

DARLEY DALE NURSERIES.

—One Hundred and Sixty Acres of Ground covered with TREES and SHRUBS. Many thousands are grown for Ornamental Planting. Amongst them we have large quantities of Picea nobilis, P. Nordmanniana, P. balsamea; Pinus Cembra, P. Strobus, P. Laricio; Cryptomeria elegans, japonica, and Loblii; Yews, Common and Irish, Golden in several varieties; Retinosporas, many kinds; Cupressus Lawsoniana and many beautiful varieties, including lutea and Smith's argentea; Libocedrus decurrens; fine Wellingtonias; Cedrus Deodara, &c. Also many fine specimens not mentioned in the CATALOGUE. Also large quantities of Flowering Shrubs, Ribes, Lilacs, Weigelas, &c.

Prices and sizes in CATALOGUE sent free on application to
JAMES SMITH, Darley Dale Nurseries, Matlock.

Verbenas—Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, and other mixed sorts, good, strong, autumn-stuck Plants, with plenty of good Cuttings, from store pots, at 1s. per store pot. Package free. Cash to accompany all orders.
Queen's Road Nursery, Markhouse Common, Walthamstow, E.
Late of Islington Nursery, Park Street, Islington, N.

RHODODENDRONS—Ponticum, hybrids No. 1 and No. 2, Catawbiense and its hybrids. The best named kinds, and thousands of dwarf kinds.

Forty Acres are covered with Rhododendrons, and the plants are suitable for any Garden, and cheap enough to plant for Cover, and are mostly grown on land 1000 feet above the sea. For 5000 or 10,000 of one kind special offers will be made.

CATALOGUE free per post.

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Special Offer.

W. BALL AND CO., Bedford Road Nursery, Northampton, having a very large stock of the under-mentioned TREES, &c., in fine condition for removal, have much pleasure in offering them at the following low prices:—

ASH, 2 to 2½ feet, fine, 18s. per 1000.

BERBERIS AQUIFOLIA, 1 to 1½ foot, very fine, 12s. per 1000.

ELMS, Canadian, 8 to 10 feet stems, with good heads, 100s. per 100.

English (upright), 6 to 7 feet stems, fine, with good heads, 90s. per 100.

HORNBEAM, 2 to 3 feet, fine, 20s. per 1000.

LIMES, 8 to 9 feet, very fine, 50s. per 100; 9 to 11 feet, ditto, 70s. per 100.

PRIVET, common, 2 feet, bushy, 10s. per 1000.

OVALIFOLIUM, 3 to 4 feet, very fine, 50s. per 1000.

WALNUTS, 6 to 7 feet stems, nice heads, 60s. per 100.

CHERRIES, Morello, dwarf-trained, splendid stuff, 18s. p. doz.

APRICOTS, Moorpark, dwarf-trained, splendid stuff, 20s. per dozen.

ROSES, extra fine standards, large heads, fine varieties, 4 feet stems, no better in the trade, our selection, 70s. p. 100.

APPLES, fine standards, best market varieties, our selection, 60s. per 100.

PEARS, fine standards, best market varieties, our selection, 70s. per 100.

General CATALOGUE of Seed and Herbaceous Plants post-free on application.

New Catalogue for 1879.

W.M. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire, will have great pleasure in sending their Descriptive LIST on application. Their stock of Florist Flowers, Bedding and Soft-wooded Plants generally, is surpassed by very few, if any, either in extent or quality, all the newest and best varieties being constantly added to the various classes, and the greatest care is taken to keep the varieties true to name. Another great advantage to purchasers is that none of the plants offered are taken from a warm propagating house and sent off immediately, but are all carefully hardened, and most of them potted off singly, and thereby fitted for transit by rail or post without the slightest injury. A great proportion of the undermentioned are autumn-struck plants, and can be had in pots if required, and all in variety of sorts and colours. All good for exhibition or home decoration.

| Our selection. Per doz.—s. d. | Our selection. Per doz.—s. d. |
|--|--|
| Abutilons, in variety .. 3 6 | Ivies, Irish .. 3 0 |
| Achimenes .. 2 6 | Kleinia repens, per 100, 20s. .. 3 0 |
| Ageratums, small plants, per 100, 5s. .. 1 0 | Lantanas .. 2 6 |
| Ageratums, in pots, per 100, 15s. .. 2 6 | Lilium auratum, strong, each, 1s. and 1s. 6d. .. 3 0 |
| Antirrhinums .. 3 6 | Lobelia, small, per 100, 4s. .. 1 0 |
| Azalea indica, 9s. .. 6 0 | Lobelia, in pots .. 2 6 |
| Begonias, tuberosa, from 4s. to .. 18 0 | Mesembryanthemum variegatum, per 100, 10s. .. 2 0 |
| See Catalogue: our collection is very fine. | Mimulus, in variety .. 3 0 |
| Begonias, other kinds .. 3 0 | Myosotis, 6s. per 100 .. 1 6 |
| Bouvardias, 4s. and .. 6 0 | Pæonies, splendid white, bluish crimson, and other shades, 6s. to .. 9 0 |
| Caladiums, 12s. and .. 18 0 | Pansies, show, 25s. per 100 .. 3 6 |
| Calceolarias, Golden Gem, not in pots, per 100, 5s. .. 1 0 | Pansies, bedding (about 20,000 to select from), 12s. per 100 .. 2 0 |
| Carnation and Picotee plants .. 7 0 | Pentstemon, 25s. per 100 Phloxes, 25s. per 100 .. 3 6 |
| pairs .. 12 0 | Pelargoniums, show, fancy, and French, 6s. to .. 9 0 |
| Chrysanthemums, per 100, 18s., in great variety .. 3 0 | Potentillas, double .. 6 0 |
| Clematis .. 8 0 | Polyanthus, seedlings, 5s. per 100 .. 1 0 |
| Carpet Bedding Plants: see Catalogue | Polyanthus, named sorts: see Catalogue |
| Coleus .. 3 0 | Primroses, double, 4s. to .. 9 0 |
| Cyclamens, 4s. and .. 6 0 | Old Double Velvet, each, 1s. 6d. .. 2 0 |
| Dactylis elegantissima, per 100, 6s. .. 1 0 | single, assorted colours .. 2 0 |
| Dahlias, per 100, 20s. .. 3 6 | Primroses, other sorts, great variety: see Catalogue |
| Delphiniums, 6s. to .. 9 0 | Pyrethrums .. 6 0 |
| Epiphyllums, 9s. to .. 12 0 | Roses, H.P., fine plants from ground, per 100, 45s. .. 6 0 |
| Echeveria secunda glauca, 1s. 6d. to .. 2 6 | Roses, Tea, &c. .. 12 0 |
| Ferns, stove and greenhouse, 6s. to .. 18 0 | Roses, climbing or mosses .. 4 0 |
| Fuchsias, per 100, 18s. .. 3 0 | Rhododendrons, fine varieties, with buds, 30s. to .. 35 0 |
| Gardenia florida, 6s., 9s., to .. 18 0 | Rock plants, 15s. per 100, 2s. to .. 4 0 |
| Geranium, tricolor .. 3 6 | Salvias .. 3 0 |
| bicolor .. 3 6 | Saxifrages .. 3 0 |
| silver-edged .. 3 6 | Sedums .. 3 0 |
| double, 20s. per 100 .. 3 0 | acre aurea, elegans, and glaucum, 8s. per 100 .. 1 6 |
| Geranium, zonals, for bedding, 15s. per 100 .. 3 0 | Stove plants, 9s. to .. 18 0 |
| Geraniums for pot culture, 2s. to .. 6 0 | Succulents, 4s. to .. 6 0 |
| Gladiolus Brechleyensis, 6s. per 100 .. 1 0 | Tropæolums .. 3 0 |
| Gladiolus, seedlings, a fine mixture .. 3 0 | Violas, immense stock of best sorts, 8s. to 12s. per 100 .. 1 6 |
| Gloxinias, 6s., 9s. .. 12 0 | Verbenas, stock plants in pots .. 3 0 |
| Greenhouse Plants, 9s. to .. 18 0 | Verbenas, young, not in pots .. 1 6 |
| Hardy climbing plants in great variety, 6s. to .. 9 0 | Violets, sweet .. 3 0 |
| Hollyhock, seedlings .. 4 0 | Vines, all the leading kinds for planting and fruiting, 30s. to .. 60 0 |
| Helianthemums .. 2 6 | Apples, Pears, Plums, and Cherries, pyramidal, 6s. to .. 18 0 |
| Herbaceous plants, 20s. per 100 .. 3 0 | dwarf-trained, 18s. to .. 30 0 |
| Heliotropes, in variety .. 2 6 | |
| Hepaticas .. 4 0 | |
| Hydrangeas .. 4 0 | |
| Iresine Lindeni, 10s. per 100 .. 2 0 | |
| Strawberry runners: our collection contains 65 varieties, 2s. 6d. per 100. | |
| Pinks, 25s. per 100 .. 3 6 | |
| Iris, German .. 3 0 | |
| Ivies, in variety .. 6 0 | |

To the Trade.

CEANOTHUS DENTATUS.

JAS. GARAWAY AND CO. offer Strong

Plants of the above, in pots, 6s. per dozen, 40s. per 100.

JAS. GARAWAY AND CO., Durdham Down, Clifton, Bristol.

DANIELS'

DEFIANCE

CABBAGE.

Giant Early Marrow.

DANIELS' DEFIANCE CABBAGE.

THE EARLIEST IN CULTIVATION.

"It is a splendid Cabbage. Mrs. Williams cut some last season only eight weeks planted out, weighing 7 lb. each."—Mrs. Williams, Kilmaganny, Ireland.

DANIELS' DEFIANCE CABBAGE.

THE BEST FLAVOURED CABBAGE.

"I am greatly pleased with your DEFIANCE CABBAGE, which is in all respects the best flavoured, mildest, and finest I have ever seen."—Rev. H. N. Ormsby, Carrig Vicarage, Jan. 13, 1879.

DANIELS' DEFIANCE CABBAGE.

THE BEST EXHIBITION VARIETY.

"I have taken two First Prizes this year with your DEFIANCE CABBAGE. I have not seen a Cabbage in this neighbourhood to equal them."—Mr. Tappenden, Lee, August 8, 1878.

DANIELS' DEFIANCE CABBAGE.

THE MOST PROFITABLE KIND TO GROW.

"I had a packet of DANIELS' DEFIANCE CABBAGE seed of you last season, and have had some noble Cabbages. Some of them I sold in the market at 5d. and 6d. each, such as have not been seen in our market."—T. S. Wood, Shrewsbury.

DANIELS' DEFIANCE CABBAGE.

Is the finest and best Cabbage in the world for all purposes, beating every other variety for earliness, quality, flavour and size.

Price in our own Sealed Packets, 1s. 6d. each, 5s. per oz.

DANIELS BROS., SEED GROWERS, NORWICH.



FIFTY ACRES OF FRUIT TREES.—Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, and other Fruit Trees, as Standards, Dwarfs, Pyramids, Bushes, Cordon and Trained Trees in great variety, all full of vigour and warranted true to name. Descriptive Price List, containing a sketch of the various forms of Trees, with Directions for Cultivation, Soil, Drainage, Manure, Pruning, Lifting, Cropping, Treatment under Glass; also their Synonyms, Quality, Size, Form, Skin, Colour, Flesh, Flavour, Use, Growth, Duration, Season, Price, &c., for a penny stamp.

TWELVE ACRES OF ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea Scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing. See Descriptive Price List, free for a penny stamp.

GRAPE VINES AND ORCHARD HOUSE TREES IN POTS.—Grape Vines, extra strong, and warranted free from phylloxera, oidium, and all disease; Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. each. Orchard-house Trees, fruiting in pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price List for a penny stamp.

WORCESTER PEARMAN APPLE (awarded a First-class Certificate by the Royal Horticultural Society).—One of the handsomest and most useful Apples in cultivation. For full description see "Extract from the Journal of Horticulture," and RICHARD SMITH & CO.'S Fruit List, which may be had for a penny stamp. Coloured Plates, 6d. each. Maiden Trees, 1s. 6d. each; Bushes, 3s. each; Standards, Pyramid and Dwarf-trained Trees, 3s. 6d. and 5s. each.

HARDY HERBACEOUS and ALPINE PLANTS, their scientific and English names, height, colour, time of flowering, and other useful information. Descriptive Price List for a penny stamp. Collection of 100 beautiful hardy varieties for Garden Beds, Borders, or Rockeries, for 30s.

LIST of all the EVERGREEN FIR TRIBE, suitable for Britain, giving size, price, popular and botanical names, derivations, description, form, colour, foliage, growth, timber, use in arts, native country, and size there, situation, soil, and other information, with copious index of their synonyms. Free by post for six stamps.

LIST of STOVE and GREENHOUSE PLANTS, comprising the best selections of Camellias, Azaleas, Ericas, Epacris, Ferns, &c., free for a penny stamp.

LIST of EVERGREEN and DECIDUOUS SHRUBS, RHODODENDRONS, STANDARD ORNAMENTAL TREES, CLIMBING and TWINING PLANTS, with their generic, specific, and English names, native country, height, time of flowering, colour, &c., and general remarks, free for a penny stamp.

ALL kinds of GARDEN SEEDS, of first quality, BULBS, MUSHROOM SPAWN, TOBACCO PAPER, ARCHANGEL MATS, and other GARDEN REQUISITES. See Lists, which may be had on application.



EWING AND CO., having a Surplus Stock of the following, are offering them at considerably reduced prices, which can be had on application:—

Manetti Stocks, Pyramid Pears on Quince, Dwarf-trained Apricots, Maiden Apricots, Nut and Filbert bushes, White Mulberries, large Horse Chestnuts, Limes, Poplars, Willows, and Elms; also the following Deciduous Flowering Shrubs and Climbers:—Cytisus nigricans, Deutzia scabra, Fortunel, candidissima, &c.; Forsythia suspensa and viridissima; Lonicera tatarica and tatarica alba; Lilac, common; Symphoricarpos vulgaris and montanus, Potentilla fruticosa, yellow-berried Privet, Red Dogwood, Spiræa callosa, Douglasii, prunifolia flore-pleno, Reevesii and salicifolia; Philadelphus mexicanus and Gordonianus, Tamarix gallica and narbonensis, Althæa frutex, Rhus cotinus, Kerria japonica variegata, Virginian Creepers, Lonicera aurea reticulata, &c. The Royal Norfolk Nurseries, Eaton, near Norwich.

CHOICE FLOWER SEEDS.

STOCK, East Lothian, very select strains.

"Crimson, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.

"Purple, Scarlet, White, and White Wallflower-leaved, per packet, 6d., 1s., and 2s. 6d.

ASTER, Betteridge's superb Quilled Globe (seed direct from Mr. Betteridge).

"24 varieties, separate, including latest novelties, 2s. 6d.

"12 ditto ditto, 1s. 6d.

"mixture of 24 splendid varieties: per packet 3d., 6d., and 1s.

MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex.; per packet, 6d. and 1s.

COCKSCOMB, Sime's superb strain, First Prize at Carlisle International Show, and wherever exhibited. Was shown at Edinburgh with comb over 40 inches long. Per packet, 1s. and 2s. 6d.

PANSY, Show, from a superb collection of named Exhibition varieties: per packet, 1s. and 2s. 6d.

"Fancy, from a first-rate collection of named flowers: per packet, 1s. and 2s. 6d.

Above free by post.

TODD AND CO., Seedsmen and Florists, Maitland Street, Edinburgh.

QUEEN of LILIES, LILIU AURATUM.

—Imported Bulbs are now arriving, and orders are solicited. This lovely Lily is quite hardy, and should be generally grown. Before ordering send for Lily List, where all particulars are given.

Reduced Prices:—Size No. 1, 6d.; No. 2, 9d.; No. 3, 1s.; No. 4, 1s. 6d. each. Special quotations to the Trade.

ORCHIDS.—Special offer of the following fine Orchids, for 45s. (for other varieties in EXCHANGE for those not required):—1 plant Phalenopsis Schilleriana, 2 plants Dendrobium formosum giganteum, 1 plant Phalenopsis grandiflora aurea, 4 plants Dendrobium crataegum, 1 plant Saccolabium guttatum, 1 plant Dendrobium barbatulum, 3 plants Calanthe rubra and luteo oculata, 1 plant Dendrobium Pierrardi, 1 pot Limnæodes rosea.

All orders to be accompanied by a remittance. Lily and Orchid List sent on application to WILLIAM GORDON, 10, Cullum Street, London, E.C., Lily Bulb and Plant Importer.

Surplus Stock, to Clear Ground.

MESSRS. CRANSTON AND CO. are offering at very reduced prices the following well grown Nursery Stock:—

LAUREL, fine bushy plants, 2 to 2½ feet, 12s. 6d. per 100; 2½ to 3 feet, 16s. per 100; 3 to 4 feet, 20s. per 100.

YEW, bushy, 2 to 2½ feet, 20s. per 100; 2½ to 3 feet, 30s. per 100; 3 to 4 feet, 50s. per 100.

RHODODENDRON PONTICUM, ¼ to 1 foot, 15s. per 100; 1 to 1½ foot, 20s. per 100; bushy, 1½ to 2 feet, 25s. per 100.

BOX, Tree, 1 to 1½ foot, 10s. 6d. per 100; 1½ to 2 feet, 15s. per 100; 2 to 2½ feet, 20s. per 100.

THUJA WAREANA, 2 to 3 feet, 25s. per 100; 3 to 4 feet, 30s. per 100.

"LOBBI, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen; very fine, 5 to 6 feet, 12s. per dozen.

PINUS EXCELSA, 1½ to 2 feet, 6s. per dozen; 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.

"AUSTRIACA, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen.

ABIES DOUGLASII, 3 to 4 feet, 12s. per dozen; 4 to 5 feet, 18s. per dozen; splendid plants, 5 to 6 feet, 24s. per dozen.

CEDRUS ATLANTICA, 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen.

CEDRUS DEODARA, 1½ to 2 feet, 12s. per dozen; 2 to 3 feet, 18s. per dozen.

CUPRESSUS LAWSONIANA, 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100.

HEMLOCK SPRUCE, 2½ to 3 feet, 6s. per dozen; 3 to 4 feet, 9s. per dozen.

PICEA LASIOCARPA, 1 to 1½ foot, 24s. per dozen; fine, 1½ to 2 feet, 30s. per dozen.

"NORDMANNIANA, 1½ to 2 feet, 15s. per dozen; 2 to 2½ feet, 18s. per dozen; 2½ to 3 feet, 24s. per dozen.

RETINOSPORA FISIFERA, 2 to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen.

THUJOPSIS BOREALIS, 2 to 3 feet, 18s. per dozen; 3 to 4 feet, 24s. per dozen.

WELLINGTONIA GIGANTEA, transplanted last spring, 1½ to 2 feet, 18s. per dozen; 2 to 2½ feet, 24s. per dozen; 2½ to 3 feet, 30s. per dozen.

ACER NEGUNDO VARIEGATA, standard, 9s. per dozen.

SCARLET CHESTNUT, standard, 12s. to 18s. per dozen.

PEARS and CHERRIES, standard and dwarf-trained, very fine, 18s. to 24s. per dozen.

PEARS, Pyramid, bearing trees, 9s. to 18s. per dozen.

PEACHES, NECTARINES, and APRICOTS, dwarf-trained.

PEARS, Maiden, 30 to 40 leading varieties, 40s. per 100.

MANETTI STOCKS, 50,000, from our own selected stock.

MARÉCHAL NIEL ROSES, standard and dwarf, extra fine ground plants.

ROSES, dwarf Tea-scented, strong established plants, in 5-inch pots.

LIST of ROSES, including the new Roses for 1879, on application.

CRANSTON'S Nurseries, King's Acre, Hereford.

SURPLUS STOCK.

COLCHIC LAUREL, 3 to 4 feet, strong and bushy.

SYCAMORE, 1½ to 3 feet.

PINUS AUSTRIACA, 1 to 1½ foot.

LARCH, 15 to 24 inches.

SPRUCE FIR, 12 to 15 inches.

Samples and Prices on application.

A. W. BARNES, Nurseryman and Seed Merchant, High Street, Skipton, Yorkshire.

CANNELL'S MARROW BRUSSELS
SPROUTS have again this season overtopped all others, and are the pride of the market. Their size, tender and marrow-like flavour, with their saleable appearance, carries favour wherever grown, and must eventually cause this variety to be generally grown; and by possessing the above more pounds' worth can be realised per acre than any other kind. 1s. 6d. per ½ lb., 2s. 6d. per pound.
H. ORMSBY, Swanley, Kent.

SAMUEL AND JAMES SMITH, Tansley
Nurseries, Matlock, Derby, beg to offer, viz. :-
Per 1000.

ASH, Mountain, 2 to 3 feet, 16s.; 3 to 4 feet, 21s.; 4 to 5 feet, 27s.; 6 to 8 feet, 70s.; 8 to 10 feet, 100s.
BEECH, 2 to 3 feet, 25s.; 3 to 4 feet, 28s.; 4 to 5 feet, 35s.
CHESTNUT, Spanish, 1 to 1½ foot, 16s.; 1½ to 2 feet, 25s.
Horse, 4 to 5 feet, 35s.; 6 to 8 feet, 100s.
FIR, Spruce, 9 to 12 inches, 10s.; 1 to 1½ foot, 14s.; 2-yr., 15.
BALM OF GILEAD, 1 to 1½ foot, 20s.; 1½ to 2 feet, 25s.; 2 to 3 feet, 40s.
PINUS MARITIMA, 9 to 12 inches, 10s.; 2-yr., 2s. 6d.
LIMES, 3 to 4 feet, 60s.; 4 to 5 feet, 80s.
POPLAR, Italian, 3 to 4 feet, 25s.; 2-yr., 8s.
Ontario, 2 to 3 feet, 20s.; 4 to 6 feet, 50s.; 2-yr. 8s.
Silver, 3 to 4 feet, 40s.
SNOWBERRY, 1½ to 2 feet, 18s.; 2-yr., 7s.; 3-yr., 10s.
PRIVET, 2-yr., 7s.; 1 to 1½ foot, 15s.; 1½ to 2 feet, 18s.
SYCAMORE, 1½ to 2 feet, 15s.; 8 to 10 feet, 20s.
WILLOW, Bitter, 2 to 3 feet, 20s.; 2-yr., 8s.
Huntingdon, 3 to 4 feet, 25s.; 2-yr., 8s.
BROOM AND GORSE, 1-yr., 2s.; 2-yr., 3s.; 3-yr., 5s.
DOGWOOD, Red, 2 to 3 feet, 60s.; 3 to 4 feet, 70s.
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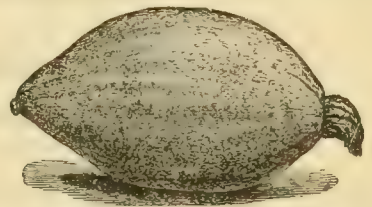


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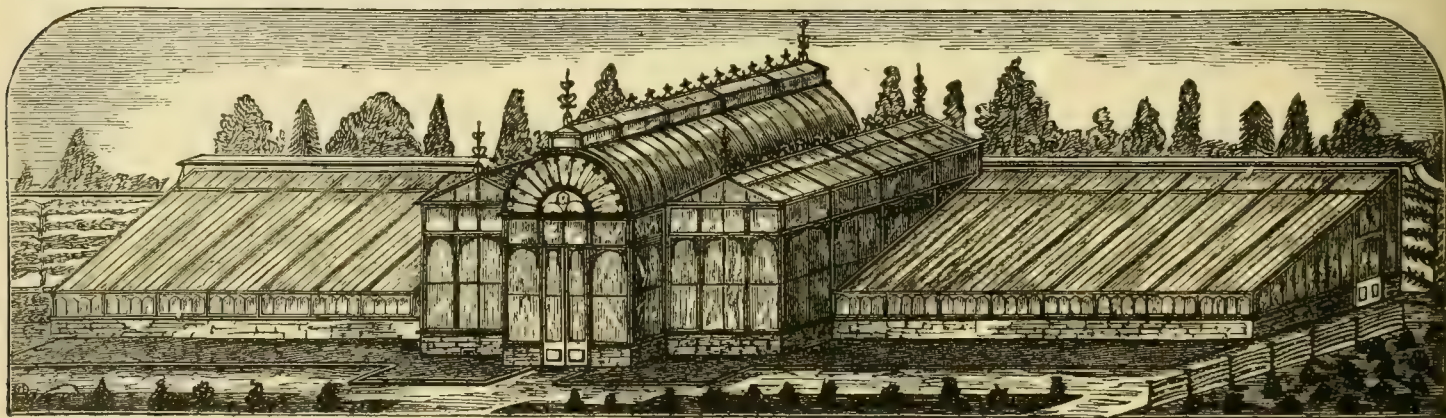
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First Prize Medal for Potatos,



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Originally introduced by SUTTON & SONS in 1876,
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WONDERFULLY PRODUCTIVE,
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210 SACKS PER ACRE!
"CLARENDON VILLA."
"The Magnum Bonum Potatos you supplied me with this year produced a most extraordinary crop, amounting to an average rate of 210 sacks per acre, of 240 lb. per sack, and there was not a single diseased one amongst them."
"Yours faithfully,
"ROBT. PHILLOTT."

From the "Gardeners' Chronicle," September 14, 1878.
"EXTRAORDINARY CROP OF POTATOS.—Mr. Thomas Draycott, gardener to T. T. Paget, Esq., of Humberstone Hall, has this year grown some of Sutton's Magnum Bonum Potatos. From 100 roots the produce weighed 6 cwt. 2 qr. 2 lb.; one root weighed 13½ lb., and had forty-eight Potatos to it, and these, when put in a straight line, measured 15 feet. The whole of the crop was sound and of excellent quality."
From Mr. GEO. FRV, Lewisham.
"I have no hesitation in pronouncing your 'Magnum Bonum' to be one of the very finest Potatos ever introduced. It is indeed large and good. Last season one peck produced the enormous crop of 7 cwt., or 14 bushels of splendid Potatos."

Price 14s. per 56 lb. Much cheaper per 168 lb. and ton.
Carriage free.

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We offer the following valuable Prizes :—

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| For 18 varieties of Potatos distinct, 9 tubers of each, open to Noblemen's and Gentlemen's Gardeners only. | 1st Prize .. | £7 7 0 |
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Sutton Sons

THE QUEEN'S SEEDSMEN,
AND
By Special Warrant to H.R.H. The Prince of Wales,
READING, BERKS.



SATURDAY, MARCH 8, 1879.

OLD FRIENDS UNDER
NEW NAMES.

A CHANGE of name, with few exceptions, is looked upon with suspicion, and experience fully justifies the feeling. The worthless members of the human family, when they find the world getting too hot for them, often resort to the expedient of a new name. A bad reputation is usually of a very sticky nature, and difficult to shake off. If the individuals who thus disguise themselves had even the most remote intention of mending their ways, there would be no objection to their concealing their identity whilst engaged in carrying out the process; yet they seldom intend anything of the kind, and the new name usually means a new start in a new field wherein to exercise their ingenuity. But anent the many members of the vegetable kingdom, which at the present day are subjected to renaming, the case is very different, for instead of their being in any way bad or indifferent, they are almost invariably good, honest representatives of their respective families, and can be charged with nothing further amiss than being a little older than some others that have managed to elbow their way into the first places, their possession of which is a good deal more owing to the persistent efforts of their friends to instal them in these positions than to any merits of their own.

Yet this remarkable difference is not difficult to account for if we only spend a little time in considering the motives by which the sponsors who undertake the rechristening of plants are actuated. At first sight it might appear that all who tried their hands at renaming had intentions alike, but such is not the fact. I am more particularly alluding to old kinds of culinary vegetables, which admit more readily of being palmed off as new, than plants used for decorative purposes.

One very common way in which a previously known old friend has a new name tacked to it, is that some one engaged in gardening pursuits gets hold of it without a name, and finding it to be a really good kind thinks it a nice opportunity for gratifying his vanity by persuading his brethren in the craft that he, after no end of painstaking, has been the fortunate raiser of a new and unequalled variety—totally regardless of the fact that he is descending to the unworthy proceeding of appropriating to himself that which is the result of another person's brains and labour. To carry out the deception of its being better in some, or every way, than others of its sort, it must needs have all the care possible bestowed upon its cultivation, the result of which extra attention is that its appearance is made to bear out the character given it of being new. As might be supposed, those who will thus descend to poaching upon other peoples' preserves are not usually indisposed to turn the game they catch to the best account for themselves. The outcome is, that on the first opportunity that offers the stock of the brand-new variety is sold to a vendor of such wares who does not trouble his head about its identity, so that the public can be induced to buy it at 500 per cent. above what it would fetch if the purchasers knew what they were buying.

In proof of this being no overdrawn picture,

it is only necessary to point to that which is continuously going on with well-proved and well-known sterling kinds of culinary vegetables. The Chiswick trials have shown that there was not one amongst the commonest vegetables, such as Potatoes, Peas, Beans (broad and kidney), Carrots, Turnips, Cabbages, Onions, and the like, in which the best old and generally unsurpassed sorts were not found existing under from half a dozen to a dozen different names each. Reliable and of undoubted value to the gardening community as are these trials, it would require a Chiswick with ten times the resources it at present commands to keep them up continuously with all the various things that demand it, and to publish far and wide to a like extent the result of that which was there proved.

With fruits the case is not quite the same, although with them, so far as the commoner hardy kinds go, they are more liable to get dispersed without names at all or under wrong names; but whatever disposition there might be to profit by rechristening them, this does not admit of being so easily carried out without certain discovery as in the case of vegetables. Neither would the proceeding be likely to turn out so remunerative. Those kinds that are longest in coming to bearing as a matter of course correspondingly delay detection, but there would not be a demand for them to pay like seeds. If the attempt were made with such fruits as Grapes it would quickly be found out, and the retribution would be prompt and heavy.

As to flowering or fine-leaved plants, they obviously do not offer equal facilities to the manufacturers of names as do the vegetables. In many cases they are recognisable in even a very small state, and those that can only be verified when in bloom are not liable to have their appearance altered by soil or cultivation to the extent that occurs with vegetables; and when an old or partially forgotten flower is reintroduced under a new name, there is always some one who quickly remembers the old acquaintance. For, although the number of plants more or less cultivated is so immense that no single individual could recollect all, even if he had ever had an opportunity of knowing them, still somebody will do so; and when there is a desire to get the correct name of a plant not known to the possessor, there is no very great difficulty in doing so. Those, therefore, who tack names of their own to plants, knowing, as they cannot fail to do, that they have not a tittle of claim to them, deserve on detection to be well pilloried. B.

New Garden Plants.

DENDROBIUM SPLENDIDISSIMUM, n. hybr.*

This is a great beauty. I have not seen the plant itself, but I will give all the particulars that I have obtained, and describe the splendid flowers at hand. The plant now in flower was raised in 1870, and has now a dozen fine blooms, of which two were sent me. Well, these flowers are of a rather firm, waxy texture, and are as large as those of a good *Dendrobium albosanguineum*, and shining as if covered with varnish. The chin is short, conical, blunt. The sepals are ligulate, blunt, acute, cream coloured, with some light purple around the margin of the tip. Petals quite alike as to colour, but much broader. Lip cuneate oblong, base rolled around the top of the column, anterior part undulate, apex reflexed, covered with velvety pubescence, and bearing a thick, broad, rough hairy line before the column at the base of the lip. This organ has a tint more of yellow than the sepals and petals, while the disk is dark Indian-purple (viz., blackish purple) at the base, and has many radiating lines running out from the great blotch of the disk. Column greenish. The mother is *Dendrobium aureum* (heterocarpum) there is no doubt; but Mr. Seden, the originator of the beauty, is not sure whether it

was impregnated with *Dendrobium nobile* or with *D. macrophyllum* (Hutton's), he having prepared both mules at once. Mr. Harry Veitch, who kindly sends the beautiful flowers from the Royal Exotic Nursery, thinks it must have been *Dendrobium macrophyllum*, because of the size of the bloom, so much larger than either *Dendrobium heterocarpum* or *nobile*. Besides the growths are much more like those of *D. macrophyllum* in form and habit, and they are 18 inches long and hang just like those of *D. macrophyllum*. Botanically I cannot come to a good conclusion. We have the stems and the outline of the lip of *D. macrophyllum*, yet the strong texture of the flower, the want of rhubarb smell, and an absence of an indication of the peculiar callus of *D. macrophyllum* are surprising. It may, as Mr. Harry Veitch well indicates, be compared with *D. nobile* and *heterocarpum* Ainsworthii. I have ten well-dried flowers at hand. They prove to be smaller, have a distinct shape of lip, far more hastate, very acute petals and sepals, and a letter of Mr. Mitchell most distinctly states the stems to be stiff erect. Whatever it may be in its origin, it is distinct from *D. Ainsworthii*, though just as profuse in its flowering. H. G. Rehb. f.

ODONTOGLOSSUM CONFERTUM, n. sp.*

One of the most recent introductions from Ecuador, sent by Mr. Edouard Klaboch. It has elongate pyriform bulbs, 0.09 m. long by 0.02 m. wide, cuneate ligulate acute leaves in pairs on bulb, 0.3 m. long by 0.03 m. wide in the middle, very narrow finally at the base. The inflorescence is a very dense panicle with zigzag branches laden with hundreds of flowers, which are very near those of *O. longifolium*. Spatulate sepals and nearly sessile petals are dark in the dried state, the lip is of a light colour. Column very short and very thick.

As a species it belongs to *Myanthis*, and to that group with two keels at the base of the lip as they are found in *Odontoglossum gracile*, *longifolium*, *myanthum*, *retusum*—all Dr. Lindley's; *latro*, *anthoxanthum*, *prasinum*, *longipes*, *melanthum*—all my children. The lip is only to be compared in shape to that of *Odontoglossum retusum*, yet the keels are contiguous and linear in this, when they are much dilated and broad in Dr. Lindley's species. For those who imagine naming Orchids is child's play, I may state that I have the richest collection of these species, types of all at hand, and copies of all Dr. Lindley's analytical sketches, and all my own of course. With all these materials to go on in a conscientious manner I have softened flowers of all the species to be sure that the sketches and drawings at hand were right, examined all under the lens, and after five hours' work I feel now persuaded the plant has not been described before.

Mr. Edouard Klaboch is decidedly making progress. He has dried a splendid specimen quite as it was done once by Messrs. Hartweg, Linden, Funck, Schlim, and as it is done now so wonderfully by Mr. Lehmann. It is a complete plant, and the flowers are neither affected by mould nor pressed too strongly as was excellent Professor Jameson's fashion. They are shrivelled, so that they may very easily be understood when softened. This is to be thankfully acknowledged. Now, Mr. Edouard Klaboch has only to go one step farther, in giving us full statements about colours. That would not only be useful to science, but also to Mr. Edouard Klaboch's portemonnaie. I think the word "violet" on the label of *Odontoglossum Edwardii* paid very well, for the Orchidists liked this very much. Here we have no statement. Perhaps Mr. Sander obtained such indications, which may prove useful in Mr. Stevens' rooms. H. G. Rehb. f.

ONCIDIUM FIMBRIATUM, Lindl.†

Dr. Lindley described this in his *magnum opus*, the *Genera and Species Orchidearum*, p. 199, December, 1832, stating, "Hab. in Brasilia, Hort. Reg. Kew (v. ic. Bauer). It ranks under the group of *Euoncidium*, § 1, folia plana; sepalis lateralibus connatis." In the monography of *Oncidium*, published October, 1855, it is No. 54: "wild in Brazil, Hort. Reg. Kew (v. ic. Bauer). Known only from a drawing of a single flower, formerly sent by me in the portfolio of Francis Bauer. That drawing now forms no part of the Kew collection. The plant seems very

Odontoglossum confertum, n. sp.—(*Myanthium*).—Pseudobulbo pyriformi; foliis maturis in bulbo a basi angusta oblongo-ligulatis acutis; panicula ditissima; ramis flexuosis confertis; bracteis triangularibus parvis ovaria pedicellata longe nonequantibus; sepalis unguiculatis ovatis acutis, lateralibus extus per medium lineam carinatis; tepalibus ovatis acutis, labello oblongo retuso medio utrinque obsolete sinuato (hinc obscure trilobo); carinis parallelis crassis geminis contiguis a basi ed mediam; columna crassa brevi, urinque antica acutangula.—Ecuador, 8000 ped. Ed. Klaboch. H. G. Rehb. f.

† *Oncidium fimbriatum*, Lindl.—(*Trisepala macrotepala*). Pedunculo elongato brachyclado; sepalis impari oblongo obtuso lato galeato; sepalis lateralibus ligulatis obtuse acutis; tepalibus cuneato oblongis obtusis sepalis impari aequalibus, labelli pandurati auriculis posticis arrectis dilatatis, isthmo longiusculo; lacinia antica reniformi; lobis medio imbricantibus; callo basae pandurati curvibus posticis majoribus; androclinio limbo minutissimo ciliolato (nunc grosse serrato), alis triangularibus acutiusculis. "Pseudobulbi et folia Oncidii pubis, Lindl." H. G. Rehb. f.

near *O. cornigerum*." When studying Dr. Lindley's Orchids, in 1856, I took a tracing of Dr. Lindley's copy of the Bauerian flower. I added, "omnino videtur *O. cornigerum*," for the lateral sepals were just so much spread as in this. That was the extent of my knowledge till in June, 1878, I had a visit from Mr. Franz Kramer, of Klein, Flottbeck, near Hamburg, secretary of our Gartenbau Verein, who brought me a very long inflorescence with short twigs loaded with flowers near those of *Oncidium cornigerum*, but well distinguished by the callus of the lip, as well as by the quite distinct inflorescence. I immediately thought of *Oncidium fimbriatum*, Lindl., the forlorn species. Yet the plant of MM. Kramer père et fils being most distinctly trisepalous, as Dr. Lindley's herbarium sketch, when Dr. Lindley had described the plant as dissepalous ("tetrapetalous") I did not like to contradict the statements of the excellent monographer unless I had seen the original drawing. I remembered having once seen at the British Museum a grand portfolio of drawings prepared by Francis Bauer. When, in September last, at that establishment, I was most kindly assisted by the authorities of the place, and they enabled me to find the original drawing, giving full evidence that Dr. Lindley had been mistaken when calling *O. fimbriatum* dissepalous ("tetrapetalous"). A back-view and a side view show clearly that the plant was indeed trisepalous. There was no record of Kew on the drawing but a memorandum, "from Mr. Barrit." I feel very glad to be able to bring finally the poor plant, after a wrong location of forty-six years, to its genuine place. It ought to be a very rare thing since it has not reappeared since, and I feel very pleased to state that the plant was rediscovered, thanks to the sagacity of Messrs. Kramer, of Frau Senator Jenisch's garden, who are not only most skilful growers but very acute observers. H. G. Rehb. f.

NOTES ON ORCHIDS.

YOUR inquiring correspondent "P. H. G." may possibly be glad to know that *Odontoglossum Londeboroughianum* first bloomed under cultivation in the Londeborough collection, and received a First-class Certificate from the Floral Committee of the Royal Horticultural Society in December, 1876. Being at the time much impressed with its distinct and showy character, I made a coloured drawing of it, which subsequently appeared in the *Floral Magazine* (plate 246), and which was the first published figure of the plant.

The information Mr. Spyers gives of this species (see *Gardeners' Chronicle*, March 1, 1879, p. 271) is very interesting, "growing up unshaded rocks, the temperature in the dry season being 110° by day, descending to 55° by night," in fact a Red Sea heat, and a cool night temperature every twenty-four hours. It would be interesting to know if it is deciduous during the dry season, and also whether *O. citrosimum* really is found growing in the same locality. *O. citrosimum* was first introduced from Guatemala in 1840. Messrs. Rolleston, however, in their catalogue of Orchids give Mexico as a habitat of this species. Perhaps Messrs. Backhouse will kindly tell us more of this. It is a well-known fact that the Mexican and Guatemalan *O. grande*, *O. Insleayi*, *O. citrosimum*, and *O. Krameri*, and the present species, among others, require more light and heat and less moisture than the cool growing kinds of which *O. (crispum) Alexandræ* is the type, and many growers fail with these who succeed perfectly with *O. Alexandræ* and *O. Pescatorei*, *O. Hallii*, and others from the mountains of New Grenada or Colombia. Mr. Spyers may congratulate himself on his success in blooming the Londeborough *Odontoglossum* with thirty flowers on a spike, and any practical notes he may have made on its culture would just now be especially welcome, as the plant is finding its way into our collections generally for the first time.

I can well understand its Westonian propensities of locomotion, and would beg leave to suggest a method of treatment which an Orchid growing friend has adopted and found successful in the case of similar species of rhizomatous habit. He grows his plants in pots, and when they overrun the margin he places another pot filled with compost in the ordinary way, so that the roots from the young bulbs may be fed with fresh material. The plants thus have the appearance of being layered, and after the growth is well-established in the newly-added pot the rhizome between the two pots is severed, and the back bulbs usually break or throw out young growths from the base. Shallow pans may be used instead of dots, and in some cases with advantage. Growing,

* *Dendrobium splendidissimum*, n. hybr.—Caulis *Dendrobii macrophylli*, Hort. (superbi, Rehb. f., non *superbiculus*, Rehb. f.), pendulo; 18 pollices longum, multiflorum; floribus majusculis tele armissimae; mento breviconico dorso curvo; sepalis ligulatis obtuse acutis; tepalibus multo latioribus obtuse acutis; labello cuneato oblongo acuto; toto disco velutino; linea lata crassa velutina in labelli basi; limbo lobulato ciliolato. H. G. Rehb. f.

as this plant is said to do, on rocks, its rambling habit doubtless enables it to find fresh rooting surfaces—a change of soil or feeding ground in fact—highly essential to its health and welfare. Although the plant is exposed to the sun, I have no doubt its roots shelter themselves among earth or *debris*, or in crannies where they are comparatively cool and moist. I once found an *Acerides* growing on dead trees (the remnants of a former extensive forest fire) and fully exposed to the sun, and the bark was so hot at mid-day that the natives I had with me could not bear the heat and the myriads of fierce ants they disturbed as they tried to climb the trees, and we had to wait until morning before we could secure the plants I desired. These plants clustered on the leafless branches, but nearly all the long thong-like roots had crept in between the bark and the wood of the trees, so that the sun had no direct action on them, and so firmly were they fixed that it was with the utmost difficulty they were dislodged from the branches. Hundreds of tiny seedlings clustered around the boles and branches, some of them having one or two leaves, scarcely an inch in length, and yet in the majority of cases their roots had pushed their way into or underneath the decayed bark; indeed, I am inclined to think that in this instance survival of the seedlings through the dry season depended entirely on their roots having power enough to thus force themselves into a place of shelter. Now perhaps Mr. Denning will kindly oblige by telling us if his plant of the Londesborough *Odontoglot* before alluded to has bloomed since it was first exhibited; and if so, how many flowers it bore, for I am sceptical enough to imagine that the plant will prove a very shy flowerer. I hope it may be otherwise, for it is so attractive when in bloom, and so distinct from any other species of the genus—in fact, as Mr. Spyers truly says, “a plant worthy of every attention.” If Messrs. Backhouse have themselves bloomed the plant I hope they will record the fact, and I am sure there are others besides myself who will now be glad to have similar records from other cultivators who may be fortunate enough to possess plants in their collections.

There is another distinct, and to me very beautiful *Odontoglot*, *O. zebrinum*, which appears to bloom but rarely—a fact perchance owing to the sparse distribution of living examples, rather than owing to shy-flowering proclivities. Three or four years ago Sir William Marriott sent me an entire spike from a plant in his collection grown by Mr. Hill, and I remember it was 12 feet long, and had many branches and very many flowers. The sepals and petals were beautifully crisped and boldly barred—zebra-like, hence the name—with rich purple, which was further brightened by a dash of rich yellow on the curiously corrugated crest of the lip. I was so pleased with the plant that I sent half the inflorescence down to Kew, and its portrait subsequently appeared in the *Botanical Magazine*. This plant has the habit of *Oncidium macranthum* and *O. serratum* (*O. diadema*), and succeeds well under similar treatment. As a general rule there are many failures among Mexican Orchids, and I am inclined to think that this is in a measure owing to our being in the main ignorant of the climatic and other surroundings of the plants in their native habitats, and partly owing to the deficiency of light naturally afforded by our own climate in comparison with what they enjoy at home. We can never effectively imitate in our hot glasshouses the full exposure to the sun and air, or the alternate dripping wet and dust-dry seasons to which many Orchids and other plants are exposed in the tropics; nevertheless, in adopting a course of culture practically successful in maintaining health and obtaining flowers, the more we know of the natural conditions under which plants succeed best in their native habitats the better, and to this end I venture to ask Messrs. Backhouse & Son if they will be kind enough to supplement our knowledge as to the elevation and climate enjoyed in Mexico by *Odontoglossum Londeboroughianum*. F. W. B.

FORCED STRAWBERRIES.—The first sample of this season's forced Strawberries appeared in the Central Avenue, Covent Garden, in Mr. Lewis Solomon's window, on Wednesday. Mr. Baker, gardener to E. C. Baring, Esq., Coombe Cottage, Kingston-on-Thames, gathered his first dish on Sunday last, and that is the earliest gathering we have heard of yet. Mr. Baker has a fine lot of plants—all Keens—and if the sun would only shine a little, would soon have plenty of fruit.

GARDEN LORE.

EVERY child who has gardening tools,
Should learn by heart these gardening rules.

He who owns a gardening spade,
Should be able to dig the depth of its blade.

He who owns a gardening rake,
Should know what to leave and what to take.

He who owns a gardening hoe,
Must be sure how he means his strokes to go:

But he who owns a gardening fork,
May make it do all the other tools' work;

Though to shift, or to pot, or annex what you can,
A trowel's the tool for child, woman, or man.

'Twas the bird that sits in the Medlar tree,
Who sang these gardening saws to me.

Aunt Judy's Magazine.

HYPHILOPHORA DESTRUCTOR.

SOME years since we received an account of a disease with which Pear trees were afflicted in the United States, and by means of which the young shoots were destroyed much in the same manner as happens so frequently in this country from canker. The matter has lately been recalled to our notice, and it is certainly worthy of record, especially as the fungus to which it is due is curious. It was published in *Grevillea* as a species of *Dacrymyces*, but it does not agree with that genus, but is closely allied to, or at least analogous to *Michenera*. A species congeneric with it occurs in the same country on Lilac. It differs from *Dacrymyces* in the nature of the spore-bearing threads, and certainly must be placed in a distinct genus, for which we would pro-

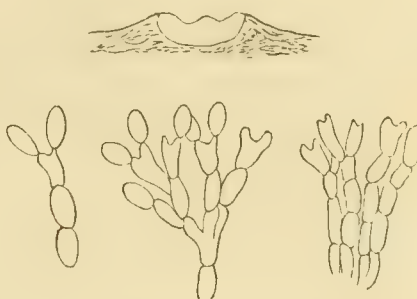


FIG. 41.—HYPSILOPHORA DESTRUCTOR.

pose the name of *Hypsiophora*, from the forked ultimate joints which bear the spores. It may be characterised as follows:—“Receptacle shield-shaped innate, bursting through the cuticle, formed below of large cells, the ultimate cells forked and bearing the elliptic spores. Our figure (fig. 41) represents a single shield magnified, and the threads of the receptacle bearing the spores. The two species will then bear the names of *Hypsiophora destructor* on the young shoots of Pear trees, and *Hypsiophora syringicola* on Lilac. *Dacrymyces cinnabarina* of Schweinitz has a similar habit, and may belong to the same genus. M. J. B.

HADDO HOUSE,

THE seat of the Right Hon. the Earl of Aberdeen, is situated in Aberdeenshire, in the parish of Methlick, and district of Formartine, about 20 miles north from the city of Aberdeen. Haddo House is a splendid modern mansion, in the Palladian style of architecture, built in 1732, it is most elaborately furnished, and contains many fine pictures by the best masters. Its predecessor was built at an early date, and stood a siege of three days in 1644 by the Covenanting army, under the Marquis of Argyle. The policies and deer park here extend to upwards of 1900 acres, and are a triumph of landscape gardening. The ground is undulating, and adorned with vast plantations. The Highland Society awarded their Gold Medal to the fourth Earl of Aberdeen as the then most extensive planter of trees, he having during the earlier days of his occupancy of the Haddo estates planted over 4000 acres. These woods are intersected with walks and drives, over 40 miles in extent. Another feature which adds much to the beauty of this place is the large lakes that are situated within the grounds. There are many fine trees interspersed here and there in the park, those near the mansion especially being

of an extra large size and great age. In this neighbourhood are two *Wellingtonias*, planted by Her Majesty and the late Prince Consort during their visit to Haddo. A little way from the mansion stands a very large granite obelisk, in memory of the late Sir Alex. Gordon, who fell at Waterloo. Round about and through the park there is a drive, partly grass and partly gravel, 12 feet broad and over 7 miles in length, and so arranged that it passes over several elevated portions of the park. At those points fine glimpses are had of surrounding scenery. One of the charms of this place is found in its pleasant surroundings of hill and dale, fine trees, shrubs, lakes, &c. In the neighbourhood is the Tongue of Travers, which is called variously Little Drumquindie, Invererie, and Six Ploughs, the second of these being indicative of its situation at the confluence of the River Ebie with the Ythan, and the last in allusion to it as measured in olden times by the work of six ploughs.

Haddo House grounds are entered by three approaches. That from the south is nearly $1\frac{1}{2}$ mile in length, entered by a very neat substantial lodge and gate, and runs on through a fine healthy young plantation, with a strong belting of Bays in front, and 10 feet of short grass on either side. That from the west is entered by a very handsome gate of beautiful design, and a pretty lodge of modern erection. A few hundred yards within this gate is an artificial lake of some 7 acres in extent, execute from plans furnished by the present Earl. Everyth is so natural-like that, without being informed, one could have but little idea that there was anything artificial about it. Advantage has been taken of the surroundings to plant out a very fine selection of the best varieties of hardy Coniferae, Rhododendrons, &c., which are making wonderful growth for their age, and must have a telling effect by-and-by. The overflow from the lake above-mentioned forms a very pretty waterfall, and passes off to the east in a considerable stream, parallel to which the approach runs for nearly a mile till it joins the main approach from the south. This is one of the finest drives about Haddo, the surroundings are so very beautiful, and everything in such good order. From the junction of the above road with the one from the south, it holds on in nearly a straight line due north past the mansion through a finely wooded park. From this portion of the ground rather extensive views are had in a north and easterly direction in the way of Turriff, Peterhead, &c., and openings have been made very judiciously here and there in the plantations, where fine glimpses are obtained of the lakes at intervals while driving along.

The flower gardens (see p. 305) lie to the east of the mansion, on two square flats. The upper one is the flower garden proper, and is reached from the house by a very handsome balustraded stair. In the centre is a magnificent fountain, with evidently a fine supply of water, and as the design of this garden is a very pretty one, and every bed is so distinctly seen from the windows, when all is in full flower (as I saw it, in the month of August), the effect is very charming indeed: the bloom of the Pelargoniums and Verbenas especially was something beyond what is ordinarily seen. The lower flower garden is reached by two flights of eighteen steps, right and left from the upper one. Those lower portions may be termed the Rose gardens, as large quantities are planted out, both in beds and singly, with large clumps of Rhododendrons and fine specimen trees, of such as *Wellingtonias*, *Cedrus Deodara*, &c. In the background there are grand old trees of Ash, Lime, and Beech. Everything in this quarter is finely kept. Looking due east from the house there is an avenue of fine old Limes, with a grass walk 12 feet wide in the centre. This walk stretches for over a mile in a straight line from the mansion-house, up to a considerable elevation at the top of the deer park, in the centre of which there is placed a very ancient urn of large size, with a deer in bronze, more than life-size, on each side. At a distance the effect is very good, the surroundings being all so natural. Close to this there has been about 40 acres of land enclosed within high walls. To this the rabbits on the estate are wholly confined—a very good idea indeed, as these pests are very troublesome and destructive when allowed to roam at large. Another interesting object is an old cannon, which belonged to one of the ships of the Spanish Armada, called the *Santa Katherina*, which was wrecked at Colliston, on the coast, 16 miles distant. On the Hill of Ythan, about

2 miles off, is a monument erected by the tenantry to the memory of the fourth Earl of Aberdeen, styled by Byron "The travelled Thane, Athenian Aberdeen." In this valley stands the Castle of Gight, the seat of Lord Byron's maternal ancestors, now a beautiful ruin. The old Castle stands on the edge of a steep bank, at the foot of which the River Ythan winds through a charming and deeply wooded valley, known over the country as the "Braes of Gight," the favourite resort of picnic parties.

The present Earl has made several very substantial improvements since he succeeded to the title and estates. The following I notice with pleasure. His lordship has given orders that all the workpeople's houses on the estates should be put into proper repair; where this could not be done, new ones have been erected in their stead. At a recent meeting, in proposing the toast of his tenantry, his lordship took as his motto, "Live and let live; lands convey duties as well as rights."

The kitchen garden is approached from the mansion to the south entrance by a walk, 10 feet wide, which curves gently round to the right till the garden is reached. Outside of the southern division stands the gardener's house, a very neat, substantial, and commodious erection, covered with the most approved sorts of climbing plants, *Tropaeolum speciosum* being very conspicuous. In front is a large space of kept grass, with flower-beds, *Rhododendrons*, &c. The kitchen garden has 4 acres enclosed within walls and 1½ acre outside, and has a gentle slope to the south. It is entered by a very handsome iron gate, and has a walk up the centre 9 feet wide, with a ribbon-border on each side consisting of the following:—*Violas* Golden Perpetual and cornuta Perfection, *Pelargoniums* Stella and Manglesi, Dell's Beet, *Scrophularia variegata*, and *Calceolaria* Golden Gem, *Roses* and *Dahlias* forming the back row. This has a very pretty effect on entering the gateway. In the centre of this is a very handsome fountain and basin, surrounded by a neat iron railing of a pretty pattern. Round the fountain the borders are panelled, and above again the ribbon system is continued till the terrace wall is reached, whereon are placed at regular intervals ten beautiful vases of large dimensions. Those are annually filled with mixed plants, principally *Pelargoniums*. On the flat above stand the houses, with a rise of six steps to the level above. The wall is all planted with Ivy, with the exception of two spaces on each side of the steps: on these are planted two *Desfontainea spinosa*, covering large spaces of the wall. These plants have been out for the last six years without protection, and flower most abundantly for four months in summer. In front of this terrace a 6 feet walk runs right and left the entire breadth of the garden, with an 8 feet border on each side. The one next the wall is panelled with the most approved bedding plants. The view from above is very striking and effective. The border to the south of the walk is a mixed border, filled with half-hardy plants of a good size, with *Roses* intermixed. From this border flowers are freely cut for the house when required. As a rule all sorts of hardy fruits do well here; and vegetables and bush fruits are produced in abundance.

The walk on the north side of the garden leads from the upper terrace, and curves gently round to the right through a fine thriving plantation, until the outskirts are reached. Here the walk divides; one branch turns sharply to the left and enters the top of an avenue of grand old trees, through which it runs in a straight line till the approach is reached that passes east and west. From this drive the road to the mansion breaks off right and left, and passes the front door, forming nearly a half circle.

The houses, which are situated outside the garden, consist of the following:—No. 1 is a half-span Pine pit, 40 feet by 8 feet; No. 2, span-roofed pit, 40 feet by 10 feet, used for bedding plants in winter and for growing *Pelargoniums*, &c., for conservatory in summer; No. 3, span-roofed Melon and Cucumber pit, 40 feet by 12 feet: fine crop here; No. 4, lean-to house, 40 feet by 10 feet, with Figs on back wall and Tomatos trained up the rafters, also young Vines in turf, doing remarkably well, and several very handsome Camellias of large size.

The range of houses on the terrace consists of the following:—Conservatory, in the centre of the range, composed of two curvilinear span-roofed houses with circular ends, each 30 by 20 feet, connected by a corridor 20 feet by 15 feet, filled with a fine assortment of well-grown plants, among

which the following were conspicuous:—*Dicksonia antarctica* and *squarrosa*, *Alsophila excelsa*, *Seaforthia elegans*, *Phormium tenax* Veitchii, very fine plant; *Yucca aloifolia variegata* and *quadricolor*, *Camellia Albertiana*, 12 feet high and 6 feet in diameter, grand; and *Pleroma elegans*, 4 feet by 3 feet, handsome specimen. Here there is a very fine collection of *Ericas*. It is quite refreshing to see these good old plants in such fine condition. The following were very superior:—*ampullacea* Barnesii, 2 feet; *aristata* major, *Austiniana*, *Devoniana*, *Hartnellii* virens, *inflata* alba, 2 feet; *Jacksoni* pallida, *Juliana* rubra, *Lambertiana* rosea, *Macnabiana* rosea, 2 feet; *tricolor* Wilsoni, 2 feet; *tricolor coronata*, 2 feet; *ventricosa* Bothwelliana, *Victoria*, *Paxtoni*, and *Sprengelli*. On the east side of the conservatory is the stove, half-span lean-to, 45 feet by 15 feet, with octagonal ends, filled with a choice assortment of small *Crotons*, *Dracenas*, *Palms*, *Ferns*, &c., for table and house work; also *Musa Cavendishii* in fruit, and very nice plants of *Aralia Veitchii* and elegantissima, *Maranta Makoyana*, *Massangeana*, and *Veitchii*. Next this is a vinery, 40 feet by 12 feet, filled with Black Hamburgh, *Muscat of Alexandria*, and *Duke of Buccleuch*; grand crop in this house, the last-named being particularly fine. Next is another vinery, 36 feet by 11 feet, all Black Hamburghs, old Vines, to be renewed. On the west side of the conservatory is a Peach-house, of the same size and shape as the stove, planted with Peaches and Nectarines—young trees, very promising. Adjoining this is a vinery, 40 feet by 12 feet, mixed house, grand crop; and another vinery, 30 feet by 11 feet, completes the range. This last is also a mixed house, with very fine crop, Golden Queen being extra fine.

I cannot conclude these remarks without complimenting Mr. Forrest, his lordship's head gardener here, on the judicious management and skill displayed in every department under his charge. *John Downie, West Coates, Edinburgh.*

PRESERVING WOOD UNDERGROUND.

IN the winter of 1874-75 I had occasion to renew a few hundreds of Raspberry and other stakes. As Larch thinnings could not be conveniently had at the time I used stakes cut out of home-grown Scotch Fir at the sawmills into 6 feet lengths by 2 inches diameter each way, and pointed. It occurred to me to try a few experiments in the way of preserving the wood, particularly the part underground, which always fails first, usually leaving the part above-ground quite sound.

After four years' trial the annexed table shows the result:—

| No. | Number decayed per cent. and Renewals Required in 1879. | How Treated in March, 1875. | Condition in March, 1879. |
|-----|---|---|--|
| 1 | 33 | Put in as received from sawmills. | In bad condition, wet and black through: ¼ inch of rotten wood all over outside of underground part of stake. |
| 2 | 31 | Steeped fourteen days in tank of lime and water. | ½ inch rotten wood outside, very much decayed underground, and wet and discoloured through. |
| 3 | 35 | Points charred to 6 inches above ground-line. | No decay observable outside, discoloured and wet through below charring, and very bad with wet rot. |
| 4 | 2 | Points charred same as No. 3, then coated over with boiling tar and a little pitch added to 6 inches above ground line. | Mostly in good condition, wood natural colour, and very little damp or wet observable under the charring. In some few cases dry-rot had commenced. |

From experiment No. 2 it appears that soaking in lime and water is worse than useless for preserving timber underground. This system was tried some years ago on a large scale with the sleepers on one of the northern sections of the Highland Railway, with the same result that those soaked in tanks containing lime and water lasted no longer than those laid down without any preservative application whatever. Charring is often practised as a means of keeping out

damp and wet from timber underground, and although there can be no doubt that charcoal is an excellent preservative, yet it appears that the damp and wet gets into the heart of the wood through the cracks caused in the charring, so that the results in this experiment No. 3 turned out the worst of the whole. In No. 4 the coating of boiling tar and pitch seems to have supplied what was wanting, by filling up the cracks in the charred surface, and the result shows, in the percentage of renewals necessary, that this method will pay well for the labour expended.

Whatever plan is tried for the preservation of wood permanently fixed in the ground, it is of the first importance that the wood should have sufficient time allowed after being cut to get dry and seasoned. If preservative, or damp repelling substances, are applied to the outside while the inside of the wood is full of sap, decay will set in quite as fast as if no preservative had been applied.

Creosote oil is said to be an excellent preservative of wood underground, I intend to try some experiments with it, and hope at some future time to be able to give you the result. *D. M., Dunrobin Castle Gardens.*

ALOYSIA CITRIODORA.

WE have been favoured by Mr. Gray, Lord Brownlow's flower gardener at Ashridge Park, Herts, with a photograph, taken two or three years ago, of one of half-a-dozen standard trees of *Aloysia citriodora*, which attract the attention of visitors to Ashridge during the summer months. The plants were raised from cuttings struck in March, 1859, and the trees have now an average circumference of stem of 8 inches. The clean stems measure 5 feet in height, and the heads, which are of the same dimensions as to height, are 5 feet 6 inches in circumference.

BOTTOM-HEAT.

MR. FISH pays me the compliment that I express myself carefully, but I fear I have not been sufficiently so in several matters connected with this subject, or there would have been little divergence of opinion between us. As the question, so far as I have touched upon it, is confined to such plants as hail from warm regions, we may leave our own country out of the discussion altogether, which will simplify it. Mr. Fish is no doubt aware that the accepted theory about the mean temperature of the earth being higher than that of the air in some of the hottest countries, is based on very imperfect and inconclusive data so far as establishing the fact for more than a very small portion of the earth's surface from whence come the plants we cultivate in heat. At least, this is the conclusion I am compelled to come to. After no end of fruitless search I find that the only records of comparative earth and air temperature in hot countries, for which reliable evidence exists, refer to the ground in exceptionally bare sun-exposed situations, where of necessity the earth heat is much higher than where covered with evergreen vegetation, such as is existent absolutely where the plants we grow are found, the soil encompassing the roots of which in all probability has never been exposed to the direct action of the sun since it was first covered with vegetation. There are several things so well known and universally accepted by all who have given the subject any attention, as to the way in which solar heat is communicated to the earth and air, that I really could not see the necessity for expressing myself further than in the cursory way I did, and even if I had it would not have altered the facts.

I know that the extreme surface crust of the earth for a slight depth where the sun's rays can fall unobstructedly upon it, is and necessarily must be in advance of the air temperature during the time the sun's power is returning, otherwise it could not act as the heat reflector to the air in the way it does; and if I had more clearly stated this in my first communication, I should have been better understood. If we are to rest our conclusions—and I do not see how we can do otherwise for hotter countries than ours—upon the evidence of what we can learn from tests applied in our own, we cannot fail to see that it must vary much under local circumstances, governed by the difference in the nature of the soil, as also by what may happen to be on the surface in the shape of vegetable matter to intercept the sun's rays. I can assure Mr. Fish that on this I have come to no hasty

conclusion, and that what I have advanced is the result of long, careful, and impartial study of everything I have been able to come at, bearing on the matter of the comparative air and earth heat existent in the very many and widely different warm or hot countries, whence come the great number of plants we now

And if, as long and attentive observation with a very large number of stove subjects has satisfied me, it is not in their nature for the roots to move simultaneously with their shoots, yet their roots and tops in a hothouse cannot be otherwise than as nearly as possible of the same temperature. But is this a suffi-

country that, during the three months of February, March, and April, are plunged in new fermenting materials—in many cases aided by pipe-heat—the temperature of which, day and night for the whole time, will be 80° , with a night temperature in the air of the house of 60° , running up in the day to 80° —mean 70° , which latter is rather over than understated, for although during a few hours in the middle of comparatively few days the temperature will rise above the highest point I have named, still for a much longer period of each twenty-four hours the heat will be nearer 60° than 80° . Here at the starting point in growth the roots are no less than 10° warmer than the tops. If Mr. Fish will take the trouble to again read my article, he will see that I by no means admit the doctrine of attempting to imitate Nature in the cultivation of plants. I simply was prepared to meet those on their own chosen position who take their stand upon this, and to remind them that in the matter of bottom-heat they cut the ground from under themselves by pushing Nature beyond her speed. Mr. Fish will I know not take it amiss when I say that the conclusions he comes to about the treatment that will produce plants in the best condition as to quantity of bloom and endurance of the flower, either for exhibition, or the various purposes of home decoration for which they are employed, are not happy ones.

If, as I have satisfied myself, these, combined with a long-continued healthy existence of the plants, can be secured by the non-application of bottom-heat better than with it, I think few will question its being an appreciable gain for whatever purpose the plants are grown. Mr. Fish is right in saying the subject is far from being settled, and I have no doubt it will long remain so. Unlearning is a slow and difficult process. Our first impressions often prejudice us against anything opposed to them, and they stick to us with a close grip difficult to shake off. I can assure Mr. Fish that, notwithstanding the immense force of precept, reiterated from a thousand sources, about the infallibility of bottom-heat as applied to plants in the way, and to the extent it has hitherto been, and which has become almost a tenet in the belief of gardeners, still, there is a large and increasing number who have the courage to try without it, and I am convinced if they try fairly, as I know many have done, they will find that, except in the case of plants which are such in their habit as I have alluded to, they will see the advantage. And not only is this the case with pot-grown plants, but much more so with forced Vines that have their roots in outside borders.

What Mr. Fish says of bulbs that generally push their roots deep down, and consequently are less under the influence of the more sun-warmed surface soil, is simply supporting evidence of my views about Nature not having anything like a uniform law in the time and conditions of root development.

The whole subject is one the importance of which it is difficult to overstate, and wants to be approached calmly, without prejudice, and with respect and kindly consideration for the cherished opinions of others. T. Baines.

THE VEGETATION OF PERAK.—From some notes on explorations made in Perak at the end of last summer, and published in *The Colonies*, we gather the following description of the scenery and vegetation:—Continuing to ascend, and with a gradually falling thermometer, some good bearings were obtained from the top of Gunong Riam (apparently never before visited), which was reached through a dense forest followed by a zone of Mosses, Ferns, and Rhododendrons. The view is described as surpassing that of Adam's Peak, Ceylon, and the temperature was 59° . To the south-east was a hill called Gunong Chatlie, and beyond the southern base of it the basin of the Sungei Punon, the gentle slopes of which greatly pleased the visitors, who promised a brilliant Coffee future for it. They were, in fact, much pleased with what they had seen of the district, and were of opinion, from actual observation of the temperature, that Coffee would thrive there at much lower elevations than in Ceylon. A still higher hill to the east was afterwards scaled, and named Gunong Robinson, in honour of the Governor. On the top was a small Fir, not unlike Scotch Fir, with another plant resembling white Heather in blossom. Pitcher-plants abounded, some with pitchers more than 1 foot long, and a small tough Bamboo was plentiful. The rock of both these hills appeared to be rotten granite, and on the tops was a sort of black loam, like peat, which, with the soil a short way down, was considered admirably adapted for Cinchona cultivation, below which comes the Coffee zone, followed by the Tea zone. Plants of wild Cinnamon were found, and others that were almost certainly Tea. Very fine Bamboo also occurred.



FIG. 42.—ALOYSIA CITRIODORA, AS GROWN BY MR. GRAY AT ASHRIDGE.

grow in heat. That the soil in which are placed the roots of plants occupying a position in a house kept constantly warm, but not plunged in bottom-heat, must perforce be of the same, or within a fraction of the same, temperature as that of the mean of the house, was also so manifest it seemed to me only a waste of words to mention it.

cient reason for our making the roots considerably hotter by planting them in bottom-heat, which if not greater than that of the body of the house, is obviously meaningless so far as submitting the roots to its influence?

How stands the matter? At the present moment there are hundreds of thousands of plants in the

Notices of Books.

Potatoes: How to Grow and Show Them.

By James Pink. (Crosby Lockwood & Co.)

Everything that relates to the Potato has been of late years so thoroughly threshed out in the gardening papers that it would be extremely difficult for any one to furnish anything new, or possessing an element of novelty. It is evident that in the construction of his book on Potatoes Mr. Pink has found this difficulty besetting him. He has given us nothing that is fresh, but he has shown considerable industry in collecting the best known facts, and such general information as botanical, scientific, and horticultural books afford; and out of these materials, assisted by his own considerable practical knowledge, he has succeeded in evolving an essay that, presented in a concise form to those interested in the cultivation of the Potato, will doubtless obtain a wide circulation, and serve as a fitting memorial of one who, having here shown himself to rank amongst our most successful cultivators, is going to other lands—let us hope for his own good, carrying with him the best wishes of numerous readers.

It cannot, however, be conceded that Mr. Pink's industry has presented us with a book that is entirely worthy of the subject. The history and economical influence of the Potato furnishes so much matter for the essayist that it is questionable whether any one man can do it justice. Its botanical history and associations are worthy of treatment by the best scientific authority. Its history in connection with its introduction into Europe, and the effects produced on the people as a food material and civilising agent, require the attention of the literary historian; and as an article of commerce, especially in relation to its production in this and other countries for the supply of our markets, it would furnish a topic that would need the abilities of a political economist to do it justice. These are but a few of the many features that suggest themselves to the reviewer as needing more expansive treatment than Mr. Pink has been able to afford. Still it is with satisfaction that we note that some useful information has been gathered, small in amount but not devoid of interest. Slightly putting the cart before the horse, the author brings into his first chapter some information as to the uses of the Potato and as to its relative value as an article of food, with its comparative productiveness per acre, &c.; and the second chapter is devoted to some account of its native habitat, botanical character, and assumed periods of introduction into Britain. In offering his various suggestions as to its first appearance here, it would have been more acceptable if the author had furnished the reader with the names of his authorities, because information of this kind can only be obtained from other books, and in giving the names of the various authorities the reader would be enabled to gauge their relative value and trustworthiness. Whilst the Spaniard receives the credit of having first introduced the Potato into the Continent of Europe, Sir John Hawkins and Sir Francis Drake, both English Admirals, get the credit of having been the first introducers into Britain.

The chapter that treats of the preparation of the soil contains useful information for novices in gardening, but offers nothing new to gardeners; indeed what is here recommended for the Potato is done in all good gardens for the production of all ordinary garden crops. The chapter which treats of manures has, perhaps, a wider application to other crops than any other portion of the book; indeed in the face of the well-known fact, that all kinds of manures should be used with the Potato as sparingly as possible, a chapter on their suitability seems out of place. The chapter is rather an essay on agricultural chemistry than an illustration of any special application to the cultivation of the Potato. It is not until we reach the chapter devoted to the supposed degeneration of the Potato, the selection of seed tubers, and the cutting of the Potato into small sets, or otherwise, that we get into the domain of practical Potato culture. And here we must protest against our author's assumption that the Potato is degenerating, or that it is the practice to select the refuse of the Potato heap as seed. Certain theorists unable in past years to probe the origin of the Potatodisease, raised the cry of degeneracy because of the defective storing and selection of seed tubers. The theory has long since been exploded, as proof has been given over and over again that crops grown from tubers selected year after year with the greatest

care and stored in the most enlightened way will be as diseased as those grown from seed saved under old-fashioned conditions. Year after year statistics have been given, showing the relative produce of sets cut and sets whole, and as a rule the result has been in favour of whole tubers. Mr. Pink seems to favour the single eye plant, at least as far as the American kinds are concerned, and this enables him to introduce a quotation from the Messrs. Bliss's catalogue with their well-known illustration of the method by which the most is made of the individual eyes of a tuber. The chapter on methods of culture, such as the ridge system, &c., is one of the most practical and valuable in the book. It shows, indeed, nothing fresh, as its description of the ridge system is nearly identical with that adopted by Mr. Fenn and other growers twenty years since, and so often described in these pages; but really useful practical information will always bear repeating, and in this sense the author has done good service. He deprecates the growing of strong growing kinds in gardens, and prefers sorts having haulm of medium height, and which are at least second early, that other crops may be planted for succession.

Hybridisation, a subject of such exceeding interest to raisers, gets scant consideration, but the disease obtains a special and lengthy chapter, in which some of the old and exploded notions respecting it are alluded to; considerable recourse is had to Mr. W. G. Smith's writings upon the subject, and there are a few of Mr. Smith's fungoid illustrations. As to the saving the crop from the effects of the disease Mr. Pink asserts that there is no other means than by lifting the tubers at once or destroying the haulm before the fungus reaches the tubers. On the question of the advantage resulting from change of seed Mr. Pink is most pronounced. He asserts that it has no value, and considers that careful selection of seed and healthy storing are far more efficacious. The concluding chapter is devoted to the International Potato Exhibitions, as to the origin of which nothing is stated but much is said as to the sorts suitable for exhibition, and long lists of names are given that were found on the exhibition tables at the Crystal Palace last year. The lifting, cleaning, packing, and staging of tubers and some special reference as to points in judging are of interest to exhibitors, but the author's insistence on the giving of points to quality lands many judges in a difficulty in dealing with newer kinds, as a knowledge of their table qualities must of necessity be limited. The book is illustrated with some dozen or so of engravings of Potatoes, chiefly American kinds; these, to say the best for them, are far behind the cuts usually found in Potato catalogues—they are small and indefinite. The book would have proved a much more valuable reference for the Potato had it been illustrated with full-sized coloured plates of at least a dozen of the best and most distinct Potatoes of the present day.

A Travers Champs: *Botanique pour tous*. Par M^{me}. J. Le Breton. Paris: Rothschild.

Under the title *Across the Fields*, Madame le Breton has drawn up in the diffuse style usually adopted in "popular" works in France, a history of the principal families of the vegetable kingdom. The work is beautifully got up, and richly illustrated with good woodcuts, many of which have done duty elsewhere, but the style is to an Englishman intolerably tedious and far too much in the manner of "Sandford and Merton" to be agreeable. The jam is liberally bestowed, but the powder for all that is very apparent, and the "vehicle" becomes as nauseous as the medicine it is meant to conceal. On being taken to the seaside the hapless infants who are to be taught botany are supposed to ask the reason for the varied colours of the evaporating basins for the manufacture of salt. These different shades, replies the grandfather, "depend upon the plants which line the bottom of the compartment (*case*). The red colour is produced by the *Protococcus salinus*, a plant so small that 30,000 to 40,000 of them would be required to cover a square millimetre. It has no roots, no stems, no leaves, no flowers, it is an Alga. Algae are cellular plants without vessels, bark, or epidermis,"—and so on for the best part of the page. And this sort of thing is carried out throughout the whole book. The authoress can never have seen Leech's picture of Master Tommy, who objected to have his mind improved. To those who like a book to "look at" rather than to read this one may be recommended, for the type and "get up" are excellent,

Garden Operations.

FLOWER GARDEN, ETC.

The pruning of the general stock of Hybrid Perpetual and other Roses may now be commenced, and it will be as well to select the more robust and vigorous varieties first. I fear that some of the tenderer and weakly growing sorts will be found much injured by the severity of the frost, and such as are on their own roots may be very closely cut back, and there will be a reasonable chance of their breaking up stronger from below; those also which are on the Manetti, and having been planted deep, have thrown out roots independent of the stock, are in the best possible condition, and may either be pruned closely for the production of flowers for exhibition, or the shoots may be left at greater length to insure an abundance of blooms for cutting, but such as do not possess sufficient vigour to throw out roots above the stock are generally spindling and weak, producing during a short season a few fine flowers, and gradually dwindling away and becoming worthless. Roses are very particular as to their soil and situation, and under precisely similar conditions as to cultivation some sorts will affect one locality before the other, and private growers who have only a limited space would do well to confine themselves for the general stock to those varieties which they have proved to grow well in their soil, but always reserving a space for experimental purposes, or interest would flag, and many gems be missed.

The weather has been up to the present time such as to interfere materially with cultural operations in the open air, as, for example, the digging up of the borders of herbaceous plants. The first opportunity, when the soil is in a suitable condition, should always be taken for this operation, so that the plants may the sooner recover from the necessary mutilation of the roots during the process; whenever, therefore, the ground becomes dry enough for the purpose, no time should be lost in digging over the borders and regulating the plants by reducing all extra strong clumps, and making good all vacancies, bearing in mind to keep all the permanent perennial and bulbous patches at a sufficient distance apart to allow of the introduction of the necessary intermixture of the many varieties of annuals, both hardy and tender, during the summer. If the soil is at all poor, some well-decomposed manure may be turned in with great advantage. No vacant beds should now be left untrenched, and a liberal allowance of manure should be worked in for all those plants whose beauty consists mainly in a very abundant development of foliage. The situations intended for Dahlias should also be liberally treated in the same manner. Beds already prepared for the half-shrubby Calceolarias, such as Golden Gem and aurea floribunda will be benefited by being turned over, and the manure, which should be liberally applied, well incorporated with the soil, which should be of a retentive rather than a light nature; a cool bottom and highly enriched soil appear to be the great desiderata for these plants, and to guard as much as possible against the baneful influence of the burning sun early planting to ensure root action and surface mulching are indispensable.

The necessary operations connected with a neat appearance in the dressed or ornamental part of the grounds have been much retarded by the late severe weather and falls of snow, and as every day is now bringing forward its own portion of work an increased exertion, and in some extreme cases more strength, must be put in force to keep all these arrears of work well beforehand. I have urged enough about the necessity of bringing all operations connected with alterations, levelling the ground, planting and turfing to a close as speedily as possible, for in seasons like the present, when vegetation has been so much retarded, we may reasonably expect a very rapid burst into activity as soon as a more genial temperature commences; and any arrears of that kind will be found to interfere very much with the due performance of all those operations which a more kindly atmosphere will assuredly bring upon us. I am glad to find that *Myosotis* and other spring flowering plants are much improved in appearance and afford hopes of a nice display, the bulbs too are pushing through fast and strong in all directions; stirring the surface and an occasional dressing with soot and lime will be all they will require at present. A sowing of Golden Feather should be made at once and placed in heat to be forwarded for potting, or pricking out under glass. Another sowing, to be raised without artificial heat, may be made about a week hence in shallow boxes which for the present may be placed in a cold pit, but when the room is wanted may be shifted to a sheltered south border. Where *Lobelias* of the different varieties used for bedding purposes are dependent upon seedling plants, the seed should be sown at once, and placed in a very gentle heat to germinate, after which they should be removed to a cooler situation, and when ready be pricked out under glass; but seedlings are apt to vary very much both in colour and habit of growth, and where uniformity in size and colour are indispensable it can only be

ensured by cuttings from selected plants, which should be propagated at once. The old plants of the tall Lobelias which are very effective in mixed borders should be parted at once, potted in small pots and placed on shelves in heat near the glass. Sow Sweet Peas, Ten-week Stocks, and Mignonette, in pots for early bloom. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

The pruning and nailing of Peach and Nectarine trees should now be pushed forward, and in laying out the main branches endeavour to dispose them in such a manner as will conduce to an equable flow of sap to all parts of the tree. The ordinary fan shape is the best and most common form for these trees. It admits of some little variations as to whether the branches be laid in quite straight or with more or less of a curve from end to end, but this is of no consequence beyond pleasing the whim or fancy of those concerned. Remove all over-gross as well as weakly shoots that escaped the knife last summer and autumn; there should, however, be but little of this to do now. Be careful to cut back to a wood-bud where cutting must be done, but in the case of *Grosse Mignonne*, *Noblesse*, and some others that do not produce wood-buds freely throughout their whole length, it is better to lay the young wood in at full length than to risk the safety of the crop by having a number of shoots without a leading wood-bud. Bear in mind that space will be required for laying in the young growth during the coming summer, and leave sufficient room for that to be carried out without overcrowding, which is always an evil, and one of several that contribute largely to the non-success of Peaches and Nectarines on open walls. See that no branch is left in contact with naked nails or wires, as branches so situated, young ones especially, are nearly sure to gum and die. Where wire and ties are used the plan of turning the tying material once round the wire before fastening the branch is a commendable one, as it helps to keep the trees from being damaged by pressing too hard upon the wires; and whether in nailing or tying see that the strength of the fastenings is in proportion to the weight they have to carry, as it is not uncommon, especially where learners are at work, to see a large branch fastened up with a small nail and a shred that will barely go round it, while small branches are occasionally treated to a large nail and a shred big enough to make two suitable for the purpose. Aphides and red-spider are more or less troublesome everywhere, and had better be tackled in time, for though they may not yet be visible, their eggs and other belongings are undoubtedly lurking about the trees and walls, and are sure to develop with the blossoms and young growth if not previously destroyed, to the great detriment and may be ultimate ruin of both crop and tree. Soapsuds from the laundry is good for this purpose, but cannot always be had without a good deal of trouble; it, however, can easily be made by dissolving soft-soap and washing-soda, at the rate of a pound of the former to a quarter of a pound of the latter in four gallons of water, sufficient to wash the trees and walls down a time or two with a syringe or garden-engine before the blossoms begin to expand, and this had better be done thoroughly, as it will be the last opportunity of attacking the enemy without hurting the trees for some time to come. Fig trees on the open walls that have been thatched up during the winter should now have that covering removed and a much lighter one substituted for it, preparatory to their being nailed in for the summer. Standard Apple and Pear trees that are healthy but not of approved sorts may now be headed back, so that they can be re-grafted with better varieties in a few weeks hence. It is not well to cut off the whole head of the tree, as is sometimes done, as by that method it will take the tree the longest possible time to develop a new head, and thus arrive once more at a fruit-bearing state. It is better to shorten back the main branches of the tree into a stag's-head sort of shape, placing a graft or two upon the end of each branch. This plan entails a little more labour in the first instance, but that is amply repaid by the earlier redevelopment of the tree. Scions of the sorts to be thus increased should be taken off at once and bedded-in on the north side of a wall or some other shady place where they will not be likely to get withered or dried. Duly attend to any fruit that may still remain in the fruit-room, and note carefully what sorts render the most service and are most esteemed, as this should be the key to any further extensions, excepting such as may be made for the purposes of trial. *F. Harrison, Knowsley.*

FRUIT HOUSES.

PEACHES AND NECTARINES.—Early houses up to the present time having been brought on entirely under the influence of fire-heat it is more than probable that red-spider will soon be found in near proximity to the hot-water pipes, and as this is the most troublesome insect we have to contend with in this department, the syringe must be vigorously applied until the enemy is destroyed. Inside borders if allowed to get too dry, either inwardly or on the surface, produce conditions

favourable to its rapid spread, while the check to the trees is often the cause of the young fruit falling off; as a powerful aid to the syringe every part should be well mulched with short horse-dung and thoroughly soaked with tepid water, a few degrees above the mean temperature of the house. Proceed with disbudding, thinning and tying in the young shoots that emanate from the lower parts of the bearing wood, and pinch back where it is thought desirable to form spurs. Ventilate early and gradually as the temperature rises, reduce in the same way and endeavour to redeem lost time by running up to 80° with sun-heat and moisture after closing for the day. A night temperature of 55° to 58°, according to the state of the weather, until after the stoning process is over will be quite safe, as it will admit of giving a little air without getting the pipes too hot. Succession-houses now in bloom should have a free circulation of air, with just sufficient fire-heat to prevent sudden depressions. Shake the trellis frequently, pass the brush over the flowers once a day, and give a little extra attention to the shy-setting kinds by conveying pollen from others that produce it in abundance. Keep the paths, walls and stems well syringed on fine days, and be more sparing of water when the weather is dull and cold. The latest houses, particularly where the heating power is weak or altogether absent, must be retarded by abundant ventilation, in order to escape danger from spring frosts. Look well after the borders. Keep them nicely mulched and watered. Lack of water at the roots early in the season is the cause of many failures in the culture of Peaches under glass. *W. Coleman, Eastnor.*

MELONS.—With the occasional glimpses of sunshine with which we have been favoured lately, the subjects in this department will have made satisfactory progress, but nevertheless we shall have to be "up and doing" to make up for lost time—time lost through the long absence of sunshine—for, as all practical gardeners are aware, no amount of artificial heat can sufficiently compensate for a deficiency of solar heat. Therefore, we must make the best possible use of the opportunities vouchsafed to us of bright sunny days—when they come—by entrapping that bright orb, the sun, in his western transit, and cooling his brilliant rays with congenial vapour. The plants growing in hot-water pits and dung, and which have been stopped some short time back, will now have made some laterals, three or four of which should be trained over the surface of the bed, and stopped when they have made about 18 or 20 inches of growth, which will result in the production of sub-laterals or fruit-bearing shoots, which in their turn should be stopped at one joint beyond the fruit, after which, with the necessary stopping and thinning of the shoots, the plants can be allowed to furnish the allotted space. Impregnate the blossoms on fine days when the pollen is dry, and maintain, as far as practicable, a rather dry atmosphere while the plants are in this stage of growth, *i.e.*, until they have set their fruit. So soon as the plants in the Melon-house proper have reached the third or fourth wire they should be stopped, and the shoots resulting therefrom trained horizontally to the wires. Successional sowings and plantings must now and for the next couple of months be made in accordance with the requirements of the establishment, so that the supply may be equal to the demand. Earth-up any young plants that may require it, and plant out or otherwise shift the plants into larger pots before they become pot-bound. *H. W. Ward, Longford Castle.*

CUCUMBERS.—Plants in full bearing will now require liberal and frequent applications of tepid liquid manure. Let the tying, stopping, and thinning of the shoots be regularly attended to, and all superfluous and misshapen fruits be removed forthwith. Ply the syringe both ways through the plants twice a day on bright days, which will keep red-spider and fly in check, and shut up the house, with plenty of atmospheric moisture, at 2.30 P.M. Keep the evaporating-pans filled with liquid manure, the ammonia of which is beneficial to the health of the plants, and not very favourable to insect life. Young plants will now be making vigorous growth, which must—they having been previously stopped on attaining the third wire—be trained regularly, but not too closely, over the trellis. Add some more soil of the same ingredients as previously recommended to the hillocks, and which must be added to as the roots push through the soil, and until the allotted space has been filled. See that the linings of hotbeds are duly attended to, and that a quantity of fermenting material is kept in reserve for present and future use. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

The weather so far has not been very cheering to plant cultivators, but with the advanced season and increased amount of light we are now getting all vegetation is on the move, which being the case it is high time to give the various occupants of the stove

a general overhauling that any requiring it may at once be repotted and thoroughly cleansed of all insects before starting into growth, as any sponging or handling after that cannot well be done without injuring the young tender foliage. Although it may not be necessary with the majority of plants to give them a large shift, nearly all are more or less benefited by receiving fresh soil, a fair quantity of which may be given without much increasing the size of the pot or disturbing the ball sufficiently to interfere with the roots to check or injure the same. By working carefully among these with a sharp-pointed stick made for the purpose, the loose inert soil may be readily removed, to facilitate the doing of which it should previously be allowed to become tolerably dry, when it will be found to crumble away at the touch or admit of being shaken out by the hand. Plants that have been cut back and have little top to support will bear this being done pretty freely, after which it is always advisable to put them in pots as small as they can fairly be got into, that in a month or so they may be shifted on again—a course of treatment which although involving more time and labour, is highly congenial to their welfare. Since I can remember, it used to be the practice in most gardens to sift the soil before using it for potting, but experience has proved how mistaken this was, and the most successful cultivators now find that instead of doing this and using the fine as was then done, it is far better to remove some of the more earthy portion and retain in its place the whole of the fibre and other undecomposed vegetable matter formerly rejected. The great advantage of this is that the roots ramify in it more freely, and make an increased number of feeders, besides which, being more open, water percolates readily through, and there is always a large amount of food and air in it, so requisite for sustaining and keeping plants in the highest perfection of health. In preparing soil, therefore, these facts should be borne in mind, as success in a large measure depends on what they have to grow in, for nothing in after-management can make up for any defect at starting, however careful the tending may be. Although some few stove plants do best in all peat or loam, the greater part prefer a mixture of the two, the former correcting the tendency of the latter to become close, and containing that within which is absent from the other. Not only should these when incorporated together be used moderately rough, but it is essential also that both are in a fairly dry condition, so as to admit of being pressed well into the pots without binding into a compact solid mass, as wet soils do when handled in that way. After undergoing a general repotting it will be necessary to maintain a close moist atmosphere for a time, together with a slight increase of heat to give the plants a start. To do this advantage should be taken of any sun we may get to aid in raising the temperature, the warmth from which is much more genial to plants than any obtained from other sources, except perhaps such as is afforded by means of fermenting material like tan, the steam arising from which so regularly is a great help at this season. The best way of utilising it is to have a good large body under the stage or in the bed where the pots can be stood on inverted pans or pieces of slate laid on it, where, duly syringed during the afternoon of bright days, their progress will be most rapid. March is always a treacherous month for giving air, as, the foliage being young and tender and the winds keen and searching, it requires much watchfulness to prevent harm being done, to guard against which the ventilators should not be made too free use of, as it is better that the heat should run up 10° or 15° higher than ordinary rather than admit cold blasts, that chill where they go. By keeping the fires in abeyance, that their influence is not felt on the water in the pipes till required late in the day, houses may be kept almost entirely closed at this season not only without injury but with manifest advantage to the occupants within.

The gradual pushing up of young Fern fronds is the signal that they, like other plants, require immediate attention, not in removing all the old, as is frequently done, very much to their detriment, but in dividing, repotting, or surface-dressing and filling-in, as the case may be, according to the way in which they are grown. It often occurs with those planted out in the natural style among rockwork that the soil shrinks away from the sides of the pockets or recesses in which they are placed, thus causing fissures or cavities that drain off the water to such an extent as to leave the roots without a proper supply, however much or often it may be administered. Some turf loam and peat thrust in with a blunt-pointed stick will rectify this and be a great help to the Ferns by affording them something fresh to lay hold of. The same kind of soil chopped up rather roughly will just suit any that require repotting, but in order to keep it well open some charcoal or coal cinders about the size of marbles should be added and mixed up with it, together with a little sand, as then they can be freely watered without risk of rendering the balls sour and moisture-logged, a condition that soon throws the plants out of health. *J. Sheppard, Woolverstone.*

THE
Gardeners' Chronicle.

SATURDAY, MARCH 8, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, March 10 | Sale of Orchids, at Stevens' Rooms Sale at the Lea Bridge Nurseries, by Protheroe & Morris. |
| TUESDAY, March 11 | Royal Horticultural Society: Meeting of the Fruit and Floral Committees, at 11 A.M.; and Scientific Committee, at 1 P.M. Sale at the Royal Nurseries, Ascot, by Protheroe & Morris (four days). |
| WEDNESDAY, Mar 12 | Sale of Roses, Herbaceous Plants, &c., at Stevens' Rooms. |
| THURSDAY, March 13 | Sale of Orchids, at Stevens' Rooms |
| SATURDAY, March 15 | Sale of Trees and Shrubs, Bulbs, &c., at Stevens' Rooms. |

THE retirement of Professor BALFOUR from the Professorship of Botany in the University of Edinburgh, after a lengthened career of unusual success as a teacher, naturally gives rise to some suggestions as to the future of botanical teaching in this country. But before all it is incumbent on us to express the regret felt at the cause of the veteran Professor's retirement, and the general feeling of admiration of the zealous way in which he has so long performed the duties of his office, no less than of the many personal qualities which have endeared him to his friends and to so many successive generations of students.

As the Professorship of Botany in the University in question is at present the highest prize, so far as emolument is concerned, within reach of British botanists, it is natural that much interest should be felt in the matter, while all admit that it is specially desirable that the electors should very carefully consider the responsibility they have in making their choice of a successor. And truly their office is not an enviable one, for it is well known that several of our foremost botanists are, or are likely to be, candidates for the office. Many of the candidates are Edinburgh graduates, and these, we presume, other things being equal, would have a prior claim over botanists hailing from the south of the Tweed, or not previously connected with the University. There is, however, quite an *embarras de richesses* in the matter of candidates, and any one of those whose names we have heard mentioned would, no doubt, make a competent and efficient Professor.

Into this personal matter, however, we cannot enter. The election is an extremely important one in the interests of botanical science, and no doubt those with whom the choice rests will be sufficiently impressed with their responsibilities to take all possible care to make a fitting selection. Dismissing, therefore, the personal question, we have no hesitation in expressing our opinion that in the interests of botany and of the collateral sciences, and of those which are more or less dependent on it, such as horticulture, agriculture, forestry, it would be very desirable that the Professorship should no longer be confided to one individual, but that it should be held by at least two professors. In a great University like that at Edinburgh the object of the Professor should not merely consist in dealing out to medical students the modicum of information required by the curriculum. Instruction in the elements, if not given at school, as it ought to be, should, in the large Universities at any rate, be confided to demonstrators or assistant Professors, leaving the more experienced Professor to pursue the higher branches of the science, and specially to follow himself, and put others in the way of following, independent research whereby the boundaries of the science may be enlarged.

When botany consisted, or was treated as if it consisted, merely of a string of hard words and an artificial jumble of classes and orders, one Professor could without undue strain upon

his powers instruct his pupils in proportion to the science of the day. But things have wonderfully altered of late years. Botany now includes so vast a range of subjects that it is absolutely impossible for any one man to be equally *au fait* in all departments of the science, or even sufficiently so to do justice to his pupils. Hitherto by most of the examining bodies botany has been looked on simply as an element in the education of medical students. It has been thought, and thought rightly too, that while some knowledge of botany is essential to medical men who have to deal in poisons and drugs derived from the vegetable kingdom, its chief value consisted in fostering the faculties, first of accurate observation, and then of correct reasoning upon observed facts—qualifications most essential to a successful practitioner of medicine. Whether such qualifications are ensured by a three months' course of lectures and demonstrations is a matter for doubt. Be this as it may, however, this view of the subject appears to us to be a very insufficient one for a great University to uphold.

In theory a University should teach and promote the extension of each science for its own sake. The diffusion and extension of knowledge should be its principal aim, the use to which that knowledge is to be put being a secondary consideration. Botany, now-a-days, must be treated as a branch of Biology or the study of life in all its manifestations, its machinery, its beginnings, its workings, its modifications, its endings. Botany and vegetable physiology cannot properly be dissociated from zoology and animal physiology. There is no science of life for the one absolutely different from the other. The time has passed when it was possible to draw a hard and fast line between plants and animals. The consequence is that biology becomes more and more essential every day in the attempt to unravel the problems of existence, the mysteries and miracles of Creation and evolution, and even the processes of thought.

But as the general scope of biology is so vast, division of labour becomes essential. Few, indeed, are the minds, however gifted, who can grasp the entire subject. And what is true of the whole is in its degree true of the part: no botanist, and no zoologist is competent to deal with the whole extent of his department of the science. He may have a general knowledge of the whole, and a special acquaintance with one or two subdivisions, but of the whole as a whole no one can now-a-days have a more than superficial acquaintance. If then the pupil is to get a well-grounded general view of the whole subject, such as is likely to be of service to him, and of use as regards the promotion of science, he should, if possible, have the advantage of tuition by more than one botanist. In small Universities this may not be practicable, though the example of the smaller German Universities, where there are very generally two Professors of Botany and sundry assistants, or "docents," shows that, in Germany at least, it is practicable. How much more so, then, should it be possible in a large University like Edinburgh, with its botanical pupils numbering more nearly 400 than 300.

A division of labour by which one Professor should devote himself to flowering plants and to vegetable morphology, another to the so-called flowerless plants, another to physiology proper, would be by no means excessive in the present state of science. By such a division there would be a chance of botany being efficiently taught according to the standard of the times, and there would be opened up possibilities of original research now so lamentably deficient in our Universities.

The matter is also important from a practical point of view. Sooner or later a School of Forestry must be instituted. Agriculture already

has, and horticulture should have, its Professor at Edinburgh. The life-history of plants, the diseases to which they are subjected, the influences to which they are exposed—all these must be systematically investigated and taught somewhere, or our position as a nation will retrograde. Such schools do exist abroad, and in America, very often in connection with the Universities, as, for instance, at Ghent. Now suppose these matters to be, as they ought to be, taken up by our Universities it is obvious that no one Professor would be capable of dealing with them; but by an increase of the professorial staff, and a suitable distribution of the work according to the qualifications of the Professors, a "faculty" dealing with horticulture, agriculture, and forestry, could readily be established. It does not exist at present, but it is none the less an urgent necessity, if we are not to be beaten in the long run by our more far-seeing competitors. But even as things are at present there is ample room, as we think, for two Professors of Botany in so large a school as that of Edinburgh, and the interests of the pupils and those of the science would, in our opinion, be forwarded by the formation of two Professorships.

— OUR FRUIT CROPS.—Some of our correspondents have been indulging in prophecies as to the probabilities of next season's fruit crop. Before committing themselves too far it will be well to examine the buds to see what, if any, injury has been done by the frost. A few days since we had the opportunity of examining some Pear shoots of various kinds, and we found that in several cases the bud at the end of the shoot, or rather the spur itself just beneath the bud, was killed, the young flowers safely tucked up in their fluffy bud-scales being uninjured; but, seeing that the source whence they must derive their food was destroyed, it is needless to say what their fate must eventually be. The buds on the sides of the shoots were not so much injured.

— DEATH OF M. FRANZ KLABOCH.—Intelligence has reached us of the death, in Mexico, early in February, of M. FRANZ KLABOCH, the well-known plant collector. At present we are without full particulars of this sad occurrence.

— NATIONAL ROSE SOCIETY.—We are informed that the Earls of STANHOPE and EGMONT have recently become members of this Society, and that the Rose Societies of Maidstone, Reigate, Brookham, and Leek have affiliated themselves to it, and so become entitled to receive its medals. This shows steady progress.

— LORD LONDESBOROUGH'S ORCHIDS.—We noted the following Orchids in flower in Lord LONDESBOROUGH'S fine collection at Norbiton, a few days ago:—*Angræcum citratum*, and *A. eburneum*; *Cattleya chocoensis*, and *C. Trianae*; *Cymbidium eburneum*, and *C. Hookerianum*, which is rarely seen in flower, but will shortly have ten blossoms open on one spike; *Cypripedium hirsutissimum*, and *C. Lowii*; *Dendrobium infundibulum*, *D. teretifolium*, *D. nobile*, *D. Williamsoni*, small, white, and very sweet; *D. Farmeri*, *D. Kingiana*, an Australian species, with flowers almost blue in colour, and very pretty; and *D. speciosum*; *Odontoglossum cariniferum*, *O. Uro-Skinneri*, *O. bicktonense*, *O. pulchellum*, *O. grande*, *O. Hallii*, *O. Cervantesii*, *O. Alexandrae*, *O. Andersoni*, and *O. coronarium*; *Oncidium aurosum*; *Cœlogyne cristata*, *Pleione humilis*, *Phalænopsis Schilleriana*, *Sophranitis grandiflora*, and *Vanda gigantea*.

— CANTERBURY ROSE CLUB.—A meeting was held at Canterbury on February 28, at the Rose Hotel, Captain LAMBERT in the chair, for the purpose of founding a Rose club for Canterbury and the county of Kent. Amongst those present were Col. COX, the Revs. H. B. BIRON, J. B. BUCHANAN, and H. HONYWOOD D'OMBRAIN, Dr. PITTOCK, Messrs. YOUNG, KIDD (of the firm of KINMONT and KIDD), MOUNT, BENSTED, &c. Much enthusiasm in the cause of the Rose was manifested. The Rev. H. B. BIRON and Mr. LUCOMB were appointed Secretaries, and it was determined to hold the first

exhibition on July 3. The Society has made a good start, and we trust will prosper.

— *RHODODENDRON FALCONERI*.—A remarkably fine specimen of this grand Rhododendron is now in full bloom in Messrs. DOWNIE & LAIRD's winter garden at West Coates, Edinburgh. The plant is 7 feet high, and stated to be covered with bloom.

— *RENANTHERA COCCINEA*.—This lovely Orchid, a native of Cochin China, is generally considered very difficult to bloom. At the present time there is a grand specimen flowering very freely in the early vinery at Posingworth, near Uckfield, the seat of L. HOUTH, Esq. It is a very fine plant, and in

There are few shortcomings in Nature. An allwise Providence, that brought the smallest and most insignificant of these into existence, has given them powers to resist the severity of the season, or instinctively taught them how to get beyond its reach. On the mild days we have had lately, when the wind chopped round to the South, large colonies of gnats were for hours together keeping on their dance; and a week ago we found several fine fat slugs in an empty flower-pot—one in the middle of a dozen that had been stuck in each other; on replacing and carefully examining them we found that there was no more room in any direction for getting either in or out than would have admitted a darning needle, and we were convinced that they must have been in the drainage

them. There is also a grand display of Orchids in flower now, consisting of fine examples of *Dendrobium Wardianum*, *Cœlogyne cristata*, *Lycastes*, *Sophranites*, *Cypripediums*, &c.

— *SUMMER BEDDING PLANTS*.—"It's an ill wind that blows nobody good," and although the winds of the North and East have brought a winter of great severity, and the nurserymen have had a very bad trade season, yet there is a good prospect in store for the traders in soft-wooded and bedding stuff presently when the usual bedding-out time shall come. Into thousands of small greenhouses, frames, and other supposed shelters for bedding plants during the winter months the severe weather has carried



FIG. 43.—THE FLOWER GARDEN AT HADDO HOUSE, ABERDEEN. (SEE P. 299.)

splendid health, indeed the largest shoots measure about 6 feet in height, and there are no less than ten fine spikes, many with over 100 flowers on a spike! The bright deep red flowers are mottled with orange, the lip crimson, and the throat white, and are produced on long branching panicles which are exceedingly attractive. Mr. REID, the gardener, told our informant that he had already cut five spikes in addition to those remaining. He attributes his success to growing it cool, with plenty of light and sun.

— *THE DESTRUCTION OF INSECTS BY FROST*.—We have not nearly so much faith in the certainty of severe winters effecting such complete destruction of insects and other small members of the animal kingdom which prey upon garden plants as is often possessed. During a tolerably lengthened experience we have had many proofs to the contrary.

material left in the bottom of the pot they were found in when it was put away with the others in the autumn. The pots had stood in the open air during all the frost, with no shelter of any kind, and yet the slugs were as safe as if they had been entirely out of reach of the pinching weather.

— *ÆCHMEA MARIE REGINÆ* is now beautifully in flower at the Victoria and Paradise Nurseries, and is one of the finest Bromeliaceous plants in commerce; the bracts are of a bright magenta colour, and the blue flowers make a striking and beautiful contrast. The Camellia-houses in this establishment are well worthy of a visit, containing many fine specimens in full flower. Mr. WILLIAMS has always made a speciality of this much-admired class of plants, and as objects of floral beauty at this time of the year, when flowers are so scarce, there is nothing to equal

death and destruction, and the unfortunate possessors must now turn to the trade to replace their losses. In view of this inevitable demand every effort is being made to supply the enormous public requirements, and the ingenuity of the florist combined with his resources in glasshouses and artificial heat will render him equal to the occasion. Those amateur gardeners of both sexes who have during the past winter put their faith in gas stoves, petroleum lamps, and other contrivances for excluding cold—often useful in their way during a mild winter—have been terribly disappointed to find that they were but broken reeds. Nothing less than a good flue or hot-water piping will give enough warmth to exclude frost when the thermometer stands at 12°, or even higher, and such protection is by far the cheapest in the end. When the season of spring sales of bedding plants arrives, auctioneers may look for a better price and keener

competition. It is one of the curious features incidental to our national love for bargains that we prefer to buy many things cheap at a sale that we may not want, rather than go at once to the tradesman and purchase what we really do want at a rather higher figure. Probably in the end it is best for the trade, as a quantity of plants is thus disposed of that may not otherwise be sold. It is, however, fair to the purchaser to believe that, even above the love of making a bargain, there is yet a higher stimulant in this case, and that is, a pure love for flowers and gardens.

— PRIZES FOR AMARYLLIS. — An amateur, anxious to encourage the cultivation of this fine tribe of plants, offers the following prizes to be competed for at the Royal Horticultural Society's meeting to be held at South Kensington, on April 8 :—

A. For the best dark seedling, 1st prize, £2; 2d prize, £1. For the best light seedling, 1st prize, £2; 2d prize, £1.—B. For the best six Amaryllis, named, three to be dark and three light varieties, 1st prize, £2; 2d prize, £1.—C. For the best variety selected from among the plants exhibited in class B. For the best dark variety, £1; second best ditto, 10s. For the best light variety, £1; second best ditto, 10s.

The prizes are to be awarded only if the exhibits are considered of sufficient merit.

— A NEW USE FOR CONES. — A writer in the *California Horticulturist* tells us how, in the course of his holiday trip, he collected some cones, and on his arrival at home fastened a wire around them, so as to be able to suspend them from the roof of his conservatory. The spaces between the scales were filled in with fine soil, in which were sown grass seeds. In due time, the cones having been carefully moistened occasionally, the grass grew and was mown close by scissors—an operation repeated several times, till the soil was quite tied together by the roots of the grass. Spores of Ferns, such as *Cheilanthes californica*, were then sown, and by-and-bye their young fronds took possession of the whole cone, producing doubtless a very pretty effect.

— DRIED VEGETABLES. — While fresh vegetables are so scarce and dear, we may do worse than direct the attention of our readers to a list of dried vegetables sent to us by Mr. THEODORUS ALKEMADE of Nordwyk, Holland, through Mr. T. ALKEMADE, 5, Melrose Terrace, Stamford Road, Tottenham, and which includes Broad Beans, French Beans, Scarlet Runners, Green Peas, Sugar Peas, Carrots, Cauliflowers, Brussels Sprouts, Celery, Parsley, Potatoes, Savoy, &c., all dried and offered for sale in this condition, at so much per pound; the prices ranging from 6s. 6d. per pound for Cauliflowers, to 1s. 8d. for Potatoes. The process of preserving or drying is carried out in heated rooms, after the vegetables have been partially boiled, and before being cooked they all require soaking in cold water for at least six hours, and must be boiled slowly for a little longer time than fresh vegetables require. We have tried the Scarlet Runners and French Beans, 1½ ounce of either making a nice little dish—and they were the best of their kind that we have had.

— THE SPRING BEDDING. — After such a severe winter, and taking into consideration the unusually blackened condition of most early flowering hardy things, there appears to be but a small chance of any lengthened display of spring bedding, unless the plants be allowed to remain in the beds longer than usual. When this occurs, however, the inevitable consequence is, that the reign of the summer occupants is proportionately shortened; and when the spring subjects are allowed to stand beyond their time it not unfrequently happens, if roasting dry weathers set in, that the summer bloomers have a hard struggle to get hold and grow in a way that enables them to flower satisfactorily at the time they are required, for although it is no doubt correct that if the beds have not become weakened by producing a full sheet of bloom at the ordinary season, they generally make a good show later on. There are few matters in the whole routine work of a garden that we have felt so much reluctance in doing, as turning out these spring flowers when in full bloom, and which, in addition to the pleasing associations connected with their simplicity and beauty, were much more effective than the after-comers could be for several weeks. In such arrangements there is ordinarily a necessity for going on the principle of give and take, and a good deal may be done if means are taken sufficiently early to

give more than the usual amount of pot-room to the autumn-struck summer bedders, and to propagate all that have to be raised in spring soon enough and treat them so that the whole may be large, and in a free-growing condition when put out.

— TAPEWORM IN CUCUMBERS. — An extraordinary story is going the round of the Press, even of the Medical Journals, which ought to know better, and which would be unworthy of notice were not the name of Dr. LEIDY associated with it. Dr. JOSEPH LEIDY, of Philadelphia, is one of the best living authorities on the subject of parasites, and it is to be doubted if he has asserted the existence of tapeworm in Cucumbers. The occurrence of cistode Entozoa within plants, says Dr. COBBOLD, is altogether opposed to the experience of helminthologists. The resemblance of the segments (often called cucurbitini or proglottides) of tapeworms to the seeds of Cucurbitaceous fruits was recognised by the earliest writers. Probably there has been some mistake on the part of the reporter of Dr. LEIDY's alleged announcement.

— ORCHIDS IN FLOWER AT COOMBE COTTAGE. — Calling upon Mr. BAKER, gardener to E. C. BARING, Esq., at Coombe Cottage, Norbiton, a few days ago, we noted the following Orchids as being in flower :— *Dendrobium nobile*, *D. moniliforme*, *D. Wardianum*, *D. speciosum*, *Cypripedium barbatum*, *C. villosum*, *Phalenopsis Schilleriana*, a remarkably healthy plant, with a six-branched spike of lovely violet-shaded flowers; *Odontoglossum Alexandræ*, *O. Andersoni*, *O. pulchellum majus*, *O. cirrhosum*, *Masdevallia Harryana*, a very richly-coloured form; *Cattleya Dayana*, a late flower; *Sophranites grandiflora*, *Cattleya Trianae*, *Cœlogyne cristata* in fine masses, and *Lælia anceps*.

— INDIAN FORESTS, THEIR RELATION TO CLIMATE. — The October number of the *Indian Forester* contains an article by Surgeon-General BALFOUR on the influence of trees on the climate and productiveness of the peninsula of India. It contains an abstract of the conclusions arrived at by various officials in India, almost all of whom agree in the necessity of protecting what forests remain, and of planting the hills of southern India with trees wherever a tree will grow. "Fine districts were not destined by Nature to be the prey and sport of famine and scarcity, but have been rendered subject to these calamities by the thoughtless action of man." Some valuable tables are given showing that the total amount of actual rainfall has not diminished of late years, but that man, by denuding the land of forests, is allowing the rain-water to rush off the surface, sweeping away with it the mould, breaking down the tank-dams, starving the springs, and draining off the waters of the springs, rivulets, and wells. Replanting is strenuously advocated, the growing plants being protected from fire, grazing animals, and other destructive agencies. Pasturages should be secured for the animals, which should be prevented from browsing on the plantations. Even the roots of the valuable grass, *Cynodon Dactylon*, are, we are told, dug up in the hot weather for fodder for the horses. Moving sand should be restrained by suitable planting and a proper system of forest-conservancy introduced, not only in British territory, but in the allied and feudal States likewise. The rainfall, repeats Mr. BALFOUR, has not diminished, but "man, partly ignorant and wholly reckless, has denuded the soil of its trees and shrubs, and bared the surface to the sun's rays, thus depriving the country of its conservative agents, and making the extremes of floods and droughts of more frequent occurrence and more severe."

— RHUBARB FOR MARKET PURPOSES. — If statistics of the number of acres devoted to the cultivation of Rhubarb for market purposes round London were given, the sum-total would be positively surprising. There is an enormous demand for this vegetable in spring, and it is one that finds favour with all classes of society. Last summer some 4 acres of an early light gravelly soil, forming part of a huge market garden near Acton, was planted with Rhubarb. The ground was deeply ploughed and heavily manured. Then a large number of old roots of Victoria Rhubarb were carted to the spot and cut up in what would seem to have been a reckless manner; so long as there was an eye it mattered little how small the roots

attaching to it. These were planted in lines some 4 feet apart, the roots rather more than 2 feet apart in the rows, and trodden firmly into the soil. Then came a time of drought, and here and there a root sprang into growth, but the majority made no sign. Later on rain fell, and towards the end of the summer (the planting having been done in June), a generous growth set in, and it was difficult to find a failure along the many lines. In the autumn the leaves withered, and during the severe weather, when the frost relaxed somewhat, the ground between the lines was cleaned and dug, and a mulching of long fresh manure spread over the surface. The recent snow-fall buried this for a few days, and when the thaw set in and melted it, the Rhubarb roots were seen to have started into growth, and the single crowns grown into plants having five and six strong crowns each. With genial weather and some warm sun, there will soon be crops of Rhubarb fit to pull for market.

— CONCENTRIC RINGS IN CONIFERS. — While in most trees in this climate the rule is that one ring is the result of one year's growth, some doubt exists as to the Conifers. M. BAILLON says the age of a Conifer cannot in the least be determined by counting the number of rings from the centre to the circumference, because Conifers have no spiral vessels, and are evergreen. We hardly think M. BAILLON has been correctly quoted, for spiral vessels are not found as a rule in the wood of Dicotyledons except near the pith. The question has been raised by a writer in the *Indian Forester*, and it is one which may possibly be answered by some of our home foresters who have to deal with plantations of Larch or Scotch Fir of known age. We should be glad to hear the experiences of our correspondents on this matter.

— ACID FRUITS. — Referring to a paragraph in a recent issue (p. 242), and in which mention was made of the prize offered by the Italian Government for the best monograph on the genus *Citrus*, an Italian correspondent obligingly points out that the word *agrumi* has been twice translated as "acid fruits," while in Italy the word in question denotes the plants of the genus *Citrus*. The expression "acid fruit" is that made use of in the official document communicated to us from the Foreign Office.

— RHODODENDRON HODGSONI. — Outside its alpine homes in the mountain valleys of the eastern Himalayas, perhaps, no finer exemplar of this fine species could be met with than that which for some weeks has been, with several of its allies, the floral glories of one of the cool conservatories at Glasnevin. The specimen here immediately alluded to is quite a tree, being some 12 feet or 14 feet high, well furnished, and carrying no less than 160 of its gorgeous flower-heads. As one looks on it and others of its race in the same house, the thought crops up as to what would be the effect of a structure of ample scope and verge enough to admit of their full and free development entirely devoted to these magnificent outcomes of the flora of the Himalayas, for which we are indebted to the researches of GRIFFITH and HOOKER, notably the latter. Several other species, as *R. lancifolium*, &c., as also a fine variety of the old but peerless *R. arboreum*, shared with R. Hodgsoni the admiration of visitors to Glasnevin during the past month. *Irish Farmers' Gazette*.

— ARTIFICIAL FLOWER MAKERS. — The *Sanitary Record* puts in an urgent plea for the unfortunate work-girls who are employed all day long in manipulating artificial flowers laden with arsenic. These girls work, in fact, in an atmosphere of poison which seldom fails to produce its terrible effects in the shape of eruptions, skin diseases, nausea, sickness, palpitation of the heart, debility, fever, headache, dimness of sight, and general ruin of the constitution. Phosphorus poisoning has been put an end to in our match factories by the introduction of red or "amorphous" phosphorus, which is non-poisonous in its effects. Cannot something also be done to abolish the use of arsenic in artificial flowers? A medical report to the Privy Council, so far back as 1862, contains a thorough investigation into the subject. Yet nothing has been done to remedy these frightful evils, which, moreover, never will be remedied till public feeling is brought to bear on them. Had the

young women in such manufactories been slaves, the property of their employers, their lives would have been too valuable to be thus sacrificed; but being free and employed on daily wages, the day's wage is paid for the day's work done, and as one falls off another comes on.

— THE AGE OF THE SEED.—At a meeting of the Botanical Society of France M. DUCHARTRE called attention to a statement of M. F. CAZZUOLA in the *Bulletin of the Tuscan Horticultural Society* in 1877, to the effect that Melons raised from fresh seed bear a large proportion of male flowers and very few female flowers, while, on the other hand, seedlings raised from old seed bear many more female flowers than male. The statement was confirmed by M. MILLET, a French grower; and, we may add, by the experience and practice of gardeners in this country.

— THE ORCHIDS AT OAKLEY, FALLOWFIELD.—Some noteworthy plants are at present flowering in Mr. LEACH's superb collection, as we gather from a letter from our esteemed correspondent, Mr. SWAN. The first which Mr. SWAN mentions is *Calanthe Turneri*, which is flowering very finely. It is a useful and desirable species, and though still very scarce, is by no means difficult to grow or increase. Coming into bloom so late, the introduction of this plant has lengthened out the *Calanthe* season at Oakley. The first to flower in the middle of October was the yellow-eyed variety of *C. vestita*, and *C. Turneri* will be in bloom, it is expected, up to the middle of March—five months in which these useful flowers could have been used for cutting purposes. *Zygopetalum rostratum* also flowers very freely at Fallowfield, and remains a long time fresh, one of its singular points being that a spike will appear as soon as the bulb is formed; this flowers, another shows and flowers, and again a third will bloom, so that it gets looked upon as a very familiar and very useful friend. *Vanda Cathcartii* is now flowering: it showed seven buds, but three would not come on, so that there are only four perfect flowers, but these are very singular and are much admired for their curious form and the length of time they remain in good condition. *Dendrochilum glumaceum* with thirty-six spikes is suggestive of drooping ears of Barley, and is strongly perfumed. *Restrepia antennifera* in the cool house is another rarity, and a great favourite; its form reminds one of a wasp, fly, or some other curious insect. *Dendrobium Ainsworthii* with nine flowering bulbs and over eighty blooms, all expanded together, is a most beautiful plant; its flowers have remained fresh for over five weeks and are mostly perfect yet. There is also a magnificent pair of *D. crassinode* now in flower, one with four flowering bulbs, one bulb of which is over 3 feet long, flowering from eighteen nodes, having produced altogether fifty-one perfect flowers (all open at the same time), made up of thirteen threes, four twos, and one four. Another plant with six flowering bulbs has brought 148 flowers, all now open! That these two plants have given pleasure to all who have seen them, and satisfaction to their owner, one cannot doubt for a moment, for we should think their equal has not been seen in this country before. A number of plants of *Dendrobium Wardianum* are just opening their flowers, and about 350 blossoms will shortly be very fine. Some fine plants of *Odontoglossum Cervantesii* are also just coming into bloom, one small plant on a block showing ten spikes.

— ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.—At the monthly meeting of the Council of this Society, held on Monday last, a letter was read from the President, the Right Honourable the Earl of DERBY, intimating that his lordship will attend and open the National Horticultural Exhibition, to be held in the gardens, at Old Trafford, on May 30 next; and Mr. FINDLAY was instructed to prepare plans and procure estimates for a new range of glass.

— THE PANSIES AND THE FROST.—A considerable mortality has taken place in beds of Pansies planted out in autumn, and that not so much from the effects of frost, as from the drying north-easterly winds that followed hard on the heels of the first severe spell of frost. The effect of the frost was to disintegrate the soil, and to thrust the plants up out of it, and then the cutting winds told on them with redoubled force. Happy are they who have

store boxes or beds of seedlings from which to draw supplies to fill the vacancies. These should be planted out as soon as genial weather follows, and when this is done, all the plants need to be pressed firmly into the soil, and some top-dressing added as surface food. Drying March winds are very hurtful to newly-planted plants, as they get dried up before they can establish their roots in the soil. It is of importance that the plants get hold of the soil as soon as possible, so as to be secure against harm from sunny and sometimes hot weather at the end of March. Sprays of Spruce Fir stuck round the beds and amid the plants make an excellent screen from frosty winds which are so common in March. If some seed be sown now, there will be insured a supply of plants to put out in June and July, after being transplanted to nursery beds so as to have good balls of soil about the roots when finally planted out. This should be done during what the market gardeners term "dripping weather," i.e., when invigorating showers are prevalent.

— THE NEW FRUIT AND VEGETABLE MARKET FOR THE CITY.—The Markets Committee of the City of London Corporation, through Mr. ISAACS, have recently reported on the establishment, on a site adjoining the Metropolitan Meat and Poultry Market, of a fruit and vegetable and flower market for the City of London. They stated that the amount authorised to be raised for that purpose was £250,000, the entire site, extending from Charterhouse Street to Snow Hill, and from Farringdon Road to the London, Chatham, and Dover Railway, had been excavated, and all necessary works done, so that the construction of the basement could be at once proceeded with. All the approaches to the market were formed and in use, excepting only the western portion of the southern roadway from the Metropolitan Railway to Snow Hill, but the excavations and foundations for that were finished. They trusted within a comparatively short time to be in a position to report definitely upon the design, and thus carry out the last portion of the series of markets designated collectively as the London Central Markets, and including meat, poultry, provision, fruit, vegetable, and flower markets.

— PREVENTION IS BETTER THAN CURE.—Medical men are recognising now-a-days that they can do much more efficient service by preventing than by curing disease, the latter, indeed, often being impossible. The intelligent co-operation of the public is, however, specially required in order to enable the doctors successfully to resist the invasion of disease. Thoughtlessness often leads to serious consequences: for instance the medical papers are recording an outbreak of measles at Wellington, which originated through a bouquet of flowers sent from an infected house to a child living at Wellington, who sickened a few days after its receipt.

— THE ROYAL FLORA SOCIETY OF BRUSSELS.—The 102d exhibition of this Society will be held at the Zoological Gardens, Brussels, from April 20 to 22, inclusive. Foreign exhibitors are invited to compete, and a reduction of 50 per cent. is accorded in the charge for transport of goods for the exhibition by the Belgian railways. There are 120 classes. M. LUBBERS, Rue de Berger, 26, Ixelles, Brussels, is the Secretary.

— CRANBERRIES AT HOME.—Mr. MEEHAN in his excellent publication, the *Native Flowers and Ferns of the United States*, gives the following details of the manner in which the Cranberry is grown in America:—"As we have before noted, its natural place of growth is among grass and other coarse herbage, against which latter, however, it generally manages to hold its own. When the cultivator wishes to improve such a native Cranberry bed, he covers the soil several inches deep with sand, and the coarser weeds, excluded from the light, give up at once and die; but the Cranberry pushes through to the surface, sending out its hair-like roots as it grows, till at length it finds itself in almost undisputed possession of the ground, when it rewards the assistance given it by an abundance of large fruit."

— THE "INDIAN FORESTER."—Owing to prolonged indisposition Dr. SCHLICH, Conservator of Forests, Bengal, has found it necessary, at any rate for a time, to relinquish the honorary Editorship of

the *Indian Forester*; and, to his great regret, to retire from the management of the periodical. Mr. J. S. GAMBLE, F.L.S., Assistant to the Inspector-General of Indian Forests, has kindly undertaken to conduct the Editorship, and it is requested that in future all communications for the Editor may be addressed to him in Calcutta.

— WINTER LETTUCES.—These have suffered severely from the effects of the hard winter, and especially in places where they were growing fully exposed in the open. We have seen large plantations in which the rows have been terribly thinned, leaving scarcely enough plants to form the outline of a row. In low sheltered places, and especially where the shelter was on the north or east, even if it were only lines of Currant and Gooseberry trees, the plants have stood much better, and have already commenced their spring growth. A partial loss of the Lettuce crop means something serious for the grower, and something approaching a famine for the consumer. A selection from the Paris White Cos, known as the Hardy Winter White Cos, is one much grown for a spring supply; it is of large size, and under favourable circumstances comes in very early, yielding a good supply of succulent Lettuces till the main crop of spring-sown Lettuces comes in. The black-seeded Bath Cos Lettuce, and the Hammersmith Hardy Green Cabbage Lettuce, are also staple market varieties, and, like the Hardy Winter White Cos, are largely grown. The ground in which Lettuces are grown is richly manured, as this ensures a rapid development, and that quick succulent growth which makes a good Lettuce deliciously crisp and sweet, and pleasant to the palate.

— THE GRANTHAM HORTICULTURAL SOCIETY.—From the report presented to the members at the annual meeting of this Society held on February 27, we learn that at the exhibition held in July last the practical utility of the Society's operations—the encouragement of gardening amongst the working classes—was most satisfactorily demonstrated, the number of entries being 210 against seventy-six in the same class the preceding year. This result may, in some measure, arise from the annual gratuitous distribution of fruit trees of the finest kinds, to which, last year, gifts of thirty-five collections of vegetable seeds were added. During the present winter a double distribution of trees (268 in number) has been made. The total number of trees that have been distributed is 818, and in this work the clergy, and many kind friends in the villages around, have given very valuable assistance. All liabilities against the Society are discharged, and the treasurer has a balance in hand of £48 3s. 7d. It was resolved that an exhibition be held on Thursday, July 17.

— KINGSTON AND SURBITON HORTICULTURAL SOCIETY.—The fifteenth annual exhibition of this Society will be held in the Recreation Ground, Brighton Road, Surbiton, on June 19.

— THE WEATHER.—From the report issued by the Meteorological Office for the week ending March 3, we learn that the weather was extremely changeable. A good deal of cloud and rain was reported, but interspersed with several short periods of very fine weather. Snow and hail showers fell in the south-east of England at the beginning of the week. The temperature was again below the mean for the time of year, but the deficit was not so large as during the previous week. The coldest weather was at the beginning of the week, when the minimum readings in the shade were as low as 25° in Ireland, 21° to 24° over England, and 12° in "Scotland, E.," the value last mentioned being recorded at Glenalmond on the morning of February 26. The maximum readings during the latter part of the week were above 50° in very many places, and as high as 57° at Valencia on March 3. The rainfall was about the mean in "Scotland, E.," "England, S.," and "England, N.W.," but less in all other districts; the deficit not being very large anywhere, but greatest in "Ireland, S." Some snow fell over England and Scotland during the first day or two. The wind was generally north-easterly on February 25, but south-westerly winds appeared in the north of Scotland on the 26th, and extended to all parts of the country during the succeeding day. The wind veered to the northward on the 28th, but on March 1 the south-westerly current once more set in, and continued till the close of the period. Moderate north-easterly gales were experienced in the south-east on the night of the 25th, and a south-westerly gale in the more northern districts on March 2.

Home Correspondence.

Fertilising Early Peaches: Pampas-grass v. Bees.—That bees are good and useful fertilising agents none can deny, but to my idea it is a very cruel practice to put a hive of bees in an early Peach-house, and so to sacrifice a host of lives that one may through their instrumentality secure a good crop of fruit. I have taken great interest in bees for some years, and have repeatedly noticed that when they emerge from the hive in a strange place they commence flight by darting to and fro, as it were, to learn the geography of the district. In Peach-houses many fly out never to return; they fly to the light and buzz, buzz, buzz against the glass until they drop exhausted and die; and if ventilation is put on they fly out and go to perish on the original stand of the hive, thus weakening the hive very considerably. The warmth of the house also promotes early breeding; the queen, finding the temperature of the hive to increase, commences laying eggs freely, at any rate to the extent of filling every cell that there are bees to cover. The length of time necessary for the bees to remain in the house varies according to circumstances, for instance, a number of varieties may be grown in the same house and may not all flower together, or, as in our case, one end of the house may be sheltered and the other exposed, which this year made a difference of six days in a house 27 feet long and wholly occupied by one tree. The whole of the warmest end was in flower and set fully five days earlier than the end next the door; thus the bees would have to remain in so much longer than if the whole of the house or tree was in bloom at one time. Suppose the bees were in a house ten days, there would be ample time for the queen to lay a quantity of eggs, hatch them, and for the white larva to develop themselves sufficiently to occupy the whole of the bottom of their cells. We will further suppose that the next Peach-house in succession is not forward enough for the bees to operate on by the time they have done in the first or early house, as in our case. What is to be done? Carry them out-of-doors again, and let them take their luck? If so, what would follow? If we had adopted such practice this year, I should have expected the 17° and 19° of frost that we experienced lately to have killed all the young larva produced in the Peach-house, which would be followed by foul brood, to the destruction of the colony. I differ very considerably from my friend, Mr. Miller, when he says, at p. 139: "My argument goes only to show that bees may advantageously be employed as safe and clever fertilisers in the matter of early Peach-houses. Their agency saves an enormous amount of labour and anxiety—no amount of manual labour could equal their work, or do it half so well," &c. It may be interesting to Mr. Miller and your readers to know something of a system that we have adopted for some years, which is most effectually carried out in less time than would be occupied in fetching one of our hives of bees into the house. Each operation is, in fact, performed in less than five minutes. Immediately the anthers burst and the pollen is dry and in a fit state for fertilising, I have the whole of the blossoms wiped over lightly with a plume of Pampas-grass. The tree alluded to at p. 242 and in the above portion of this letter expanded its earliest blooms on January 23, part of the tree at the cooler end of the house being fully six days later, consequently I had the tree wiped over at three different times, the whole collectively not occupying more than a quarter of an hour; the result is a marvellous set of fruit. I forward some of the shoots, which are a fair sample, for your inspection. By the above practice I have never failed in getting Peach blooms to set freely, and that with the lowest minimum of labour, and I sincerely hope that when this becomes known the cruel practice of sacrificing the lives of so many useful bees by putting them in Peach-houses will be abolished and become a thing of the past. *J. Ollerhead, The Gardens, Wimbledon House.* [No one could wish a finer "set" than is shown on the branch received. EDS.]

Quickset Hedges.—I would observe, in reply to Mr. J. Jeffery (p. 267), that I did so from my knowledge and experience of their great utility, as explained by me at the time, and it stands to reason that a hedge so formed and bound together with branches interlaced and running in a horizontal direction, must be stronger and safer against the inroads of cattle than one having them vertical, and which, as every one knows, often get hollow and naked below. Mr. J. Jeffery might as well call in question the system of road-making pursued by our forefathers, on which and many other operations then carried out I fear we have not much improved, and it is just possible that the plan of managing hedges made mention of by your correspondent may be the most antiquated of the two. Scotland certainly must be exceptionally favoured in having fences that a sparrow cannot penetrate, but although those I spoke of do not yet approach that state of perfection, they answer every

purpose of confining any kind of stock to the field or pasture required, and yet afford a home for the feathered songsters we all like to hear. *J. S.*

Chamærops excelsa, or Fortunei.—I am surprised at the hardness of this Palm. We see in many places large plants of it, which, having been more or less protected, have survived many winters out-of-doors; but I have a small plant here on a rockery which has withstood the frost of several winters, and finally the late severe weather of this winter, quite unprotected. It is now (Feb. 19) in a growing state, and, since the change of temperature, is pushing forth its young centre leaf, whilst *Veronica Andersoni*, by its side, is killed, and sweet Bays of three years' growth have fared very little better. *Bambusa Fortunei* has also suffered much, and *Corypha australis*, which was planted side by side with the *Chamærops*, was killed before Christmas. The above fact, I think, fully proves this Palm to be quite hardy in the neighbourhood of London. *G. E.*

Peas for Exhibition.—To have fine Peas for exhibition at specified dates, when the varieties eligible for competition are limited in the schedule of prizes to two or three kinds, there is no better plan than to make sowings every ten days or so, according to the geniality of the weather or otherwise, as the case may happen to be. As regards a regular succession (without which success is impossible), the plan of calculating upon results by time is an error; unless the weather should happen to be in a settled state during the periods intervening between the sowings. The safest way is to make underground examinations periodically, and to make small sowings at a time, because the progress that seeds make at this season depends entirely upon the warmth of the soil from the action of solar rays. The soil best adapted for growing exhibition Peas is that which is inclined to be clayey, and which is generously cultivated and richly manured. Some of the grandest crops of Peas we have ever gathered were those which were grown upon an artificially prepared soil, which, before it was taken in hand, was worn out and thoroughly impoverished. The improvement was effected by adding a heavy top-dressing of clay every winter for two or three years, and by burning large heaps of clay, which, together with wood ashes, was incorporated with the soil till its whole texture became so changed as to present a totally different appearance from what it once was. If the ground was manured and ridged, or thrown up in a rough state last autumn, the surface will only require to be levelled and broken over with a five-pronged fork to a few inches in depth at sowing time, which is now at hand. The lines should be drawn at about 6 feet apart, and rows of Spinach, or other temporary crops, may be grown between the rows. Tall growing sorts should be allowed a little more space where land is not scarce, and in any case they should be grown as much as possible by themselves, in order that they may not shut out the light from dwarfier growing kinds. Last season we tried various plans of sowing, some lines being planted in double zig-zag rows, the single seeds being placed at about 6 inches apart, but we gathered quite as fine pods from lines which were sown in the ordinary useful way. As to varieties, *Culverwell's Telegraph* is the most wonderful Pea I have grown or seen anywhere. *Carter's Challenger* is a most prolific sort, and a dwarf Pea which is destined to take the lead in small gardens on account of its rich flavour and dwarf habit, and is also a fine variety for exhibition. Little Wonder, also a speciality of Messrs. Carter's last year, turned out useless on our soil; it never filled its pods well all through the season, and I think I remember that at Preston there were but few dishes of the latter that figured conspicuously at the exhibition. Has any one found a better variety than the old *Ne Plus Ultra* for all purposes? We had it in good form in Lanca shire in an open garden on July 10 last year. *W. Hinds.*

Dendrobium Wardianum at Ormiston House.

—This splendid species is in magnificent inflorescence at Ormiston House, in Mr. W. B. Boyd's very choice and well cultivated collection of plants. One plant alone carries 250 flowers, and such flowers as an enthusiast might be fain to worship. Unlike many cultivators, Mr. Boyd's gardener, Mr. Fairbairn, grows them in liberal pot-room and stakes up the pseudobulbs, which shows that there is more than one way of successful cultivation in the Orchid family. These bulbs, or the biggest of them, will be 30 inches long, and the quantity of flowers from the nodes down nearly 20 inches of its length is really surprising, looking to the general appearance of the plant. The more one sees of this importation of *Wardianum* the more convincing does it appear that although not specifically different from the one originally introduced, yet it is in many respects a very much superior variety in respect of size, quality, and freeness of bloom: in fact there is no *Dendrobium* yet introduced can cope with it in the general merits principle. It

seems to go on best in brisk temperature during the growing season, and Mr. Boyd says he never practises too much of the cool drying treatment of it during winter. Some have erred in this way, and the plants suffer in consequence, and once suffering it takes some "coopering up" to bring them back to their wonted health. *J. A.*

—I had no idea that *Dendrobium Wardianum* was such a magnificent Orchid as it is until I saw it a day or so ago at Mr. Boyd's, of Ormiston, near Kelso. Mr. Boyd kindly invited me up to see them—his two plants in flower. The largest and strongest bulb is upwards of 3 feet high from top of pot and very strong, quite as big as one's thumb, and I did not attempt to count the number of flowers on it; but some of the flowers—indeed all of them I may say—were 3 inches across! A plant of *Dendrobium chrysanthum* had a bulb 5 feet high ready for flowering, and making others that will be equally fine for another season. *Odontoglossum Cervantesii*, *O. album*, *Colax jugosus*, *Vanda suavis*, *V. tricolor*, *Brasavola glauca*, and *Phalænopsis Schillerianæ*, were all in admirable flower. *Colax jugosus* is a very beautiful Orchid, and stands long—weeks—in flower. Mr. Boyd has also a very promising plant of *Vanda Lowii*, which should flower in a year or two at least. The plant I saw flowering at the Paris Exhibition in 1867 was not much larger, and it had two spikes many feet in length. It will be worth seeing when in flower—this one at Ormiston. I noticed also a fine plant of *Dendrobium Cambridgeanum*, and *Saccobolium Blumei majus* very fine. Altogether this is a collection of Orchids increasing in importance and value, for the collection is of the most *recherché* description, and Mr. Boyd may well be proud of his valuable pets. *Henry Knight, Floors.*

A Simple Remedy for Vine Bleeding.

Having some vigorous rods of young Vines that took to bleeding copiously this season on the rise of the sap, though they had been pruned at least three months previously, we tried frequent dusting with fresh Portland cement. This, with a cool temperature, has stopped the bleeding by forming a sort of hard crust over the ends of the cuts. It took several dustings in succession, however, to stop the bleeding, the first few being washed off by the flow of the sap. I have seldom seen Vines bleed after being pruned so long as these, which probably arose chiefly from their youth and vigour. The cultivators are familiar with the fact that the liability of Vines to bleed is very much in the ratio of their youthfulness and strength; the sap vessels are so much larger in young Vines, and vital force is also more vigorous. *D. T. Fish.*

The Flow of Sap in Fruit Trees.—As an instance of the motion of sap in fruit trees caused by the natural agency of the sun, I may cite an instance of a Pear tree which I have noticed for the past five years, and which is trained partly on a west and partly on a south wall. The branches which are trained on the south wall come into flower and set their fruit before those on the west wall expand their flowers; but the balance of growth seems to rectify itself when the roots are called into action as the season advances. This, I think, is a significant instance of how Nature provides herself beforehand with supplies of sap, which under the most natural conditions is excited into action when the roots are yet in an incredibly low temperature. *W. Hinds.*

Pruning Conifers.—Different opinions on this subject were published in your columns a few years ago, and the late Mr. MacNab was among those who then advocated a moderate use of the knife in forming handsome specimens. Last autumn, when walking round the gardens of Baron A. de Rothschild at Ferrières, I was struck with two specimens of *Araucaria excelsa*, perfect in health and symmetry, which M. Bergman informed me were four years ago the two most unsightly plants he had in the garden, being naked in their branches and irregular in growth. He decided to prune them into pyramidal shape, cutting them in to within a foot or two of the main stem, and their present satisfactory state is the result of the operation. *J. Roberts, Gummersbury Park.* [We have seen the plants in question, and can confirm our correspondent's statement. The plants form an exceedingly handsome pair. EDS.]

Camellias Planted Out v. Camellias in Pots.

—The Camellia-house just now at Dalkeith Park is one of the grandest sights that any lover of flowers could witness. It measures about 80 feet long by 25 feet wide, and is filled with plants planted out in the border with plants kept and trimmed like great symmetrical specimens of Portugal Laurels and abounding in flower. The cutting-in not only adds to the symmetry of the specimen but to its productiveness. At the time of my visit there would be quite 10,000 fully expanded flowers—the great whites towering above their neighbours like conical heaps of snow.

The old white still stands pre-eminent among its fellows, although *fimbriata*, *candidissima*, Lady Hume's Blush, and the more modern Duchesse de Berri, are capital representatives of whites, shading from pure white to the colour of Lady Hume's Blush. Jubilee is grand planted out, coming more regularly imbricated than when in pots. Nothing seems to eclipse Saccoi nova for a pink nor imbricated for a red. Mr. Dunn informed me that he grows them in pure turfy loam, and nothing certainly could be better, looking to results of general health and productiveness accompanied with great blooms of first quality. M.

Comparative Hardiness of Ferns.—In compliance with Mr. Neill Fraser's request, I annex a list of those Ferns that are generally considered most tender, but that have stood the winter in the house I described; also a list of the species that succumbed: those marked ? being hardy will probably revive. I have omitted species ordinarily classed as greenhouse, except where they are natives of the tropics, but the list has been made out somewhat hastily, and no doubt mistakes may occur. Alfred O. Walker.

Species Uninjured.

| | |
|------------------------------|---------------------------------------|
| <i>Adiantum amabile</i> | <i>Diplazium Thwaitesii</i> |
| " <i>ciliatum</i> | " <i>Shepherdii</i> |
| " <i>tinctum</i> | " <i>sylvaticum</i> |
| " <i>excisum</i> | <i>Elaphoglossum crassinerve</i> |
| " <i>colopodes</i> | <i>Gleichenia dichotoma</i> (injured) |
| " <i>cuneatum</i> | " <i>rupestris</i> |
| <i>Asplenium obtusilobum</i> | <i>Lastrea pubescens</i> |
| <i>Blechnum glandulosum</i> | <i>Nothochlæna chrysophylla</i> |
| " <i>polypodioides</i> | <i>Polypodium vacinifolium</i> |
| " <i>gracile</i> | " <i>lycopodioides</i> |
| <i>Cheilanthes hirta</i> | " <i>sepultum</i> |
| " <i>elegans</i> | <i>Phegopteris effusus</i> |
| " <i>pulveracea</i> | <i>Platyloma ternifolia</i> |
| <i>Davallia Tyermanni</i> | <i>Pteris semipinnata</i> |

Species Killed.

| | |
|------------------------------|---------------------------------|
| <i>Adiantum macrophyllum</i> | <i>Davallia polyantha</i> |
| " <i>pedatum</i> (?) | <i>Gymnopteris quercifolia</i> |
| <i>Aspidium cristatum</i> | <i>Leucostegia chærophylla</i> |
| <i>anum</i> (?) | <i>immersa</i> |
| <i>Asplenium formosum</i> | <i>Nephrolepis davallioides</i> |
| <i>Davallia hemiptera</i> | <i>Nothochlæna nivea</i> |
| " <i>bullata</i> | <i>Platyloma calomelanos</i> |

Arenga saccharifera (the Sago Sugar Palm).—Within the last fortnight we have had to cut down two of perhaps the finest specimens in Europe of this noble Palm. Both plants were over 60 feet in height, and have for a number of years formed a prominent feature in the stove. Early in 1870 they showed symptoms of flowering, and by the middle of March of that year they had developed several large spadices. They continued to flower freely till the beginning of 1878, when they suddenly lost all their vigour, and gradually withered and died. This was evidently from exhaustion, arising from over-flowering. The largest tree was 69 feet in height, that is, from the base of the tub in which it was growing to the points of its most upright leaves. It was this plant which sent its leaves through the roof of the old Palm-stove, and was thus the means of hastening the Government in granting a vote of £6000 in 1855 for the erection of the present handsome building: a description of which, with woodcut, appeared in the *Gardeners' Chronicle* for 1875. According to botanical works this species of *Arenga* was introduced into Britain from the Asiatic islands in 1830, and, judging from the size and appearance of the plants, I am of opinion that they must have been reared from some of the earliest imported seeds. I have watched their progress of growth since 1854. The soft part of the stem is a mass of starch, and quite sweet. The model of that part of Christopher North's (Professor Wilson's) statue in Princes Street, representing a Palm, was taken from the largest specimen. John Sadler, Curator, Royal Botanic Gardens, Edinburgh, March 3.

Hardiness of Broccoli.—The remarks made by Mr. J. Roberts as to the hardiness of Broccoli are very opportune, as the season is now at hand for sowing the seed. My experience of the different varieties is, that Cattell's Eclipse is the most hardy and reliable of the late sorts; as when most others have been greatly injured or utterly destroyed, plants of these escape entirely unharmed. This has been the case again this season, as out of a large plantation scarcely one can be found showing signs of distress, or bearing any traces of the trying ordeal through which they have passed. This immunity from harm is to be accounted for by the short sturdy growth they make, and the hard woody stems they form, on which frosts seem to have little or no effect. Those the reverse of this are mostly a mass of rottenness and putrefaction, the frost having shivered them to pieces at the base of the leaves, the most vulnerable part in Broccoli, as there they are not only more soft, but are full of sap, which when frozen expands and ruptures the vessels and tissues, and cause their decay. It follows, therefore, that any system of culture that will harden the stem, and check this tendency to softness near the heart, must help to render them more enduring; and this may be done in two ways, the one by planting in

hard unmanured ground, and the other by partly lifting and laying them down in the autumn—a practice which, although it reduces the size of the heads, is often the means of saving the whole of the plants when otherwise they would be lost, or a great portion spoiled. All so treated last winter stood the weather well, the snow proving a safe and effectual covering, as it always does with all kinds of vegetation brought in close proximity with the ground. Left standing erect, Broccoli often have their leaves borne down by their weight, thus leaving the tender crowns more exposed. Among the early sorts Snow's and Backhouse's have stood best with me. Veitch's Autumn is a valuable Broccoli that every one should grow, as it succeeds the Cauliflower, and carries on the supply till the two named before it come in. Young plants of all kinds of these are greatly improved by being drawn from the seedbed when large enough to handle, and then pricked out in rows before planting. This salutary check prevents them running up leggy, and renders them altogether in a better and more fit state for transferring to the open quarters later on in the season, when other crops are cleared off to make room for them. J. Sheppard.

How to Make a Mushroom-Stool.—Several correspondents of the *Gardeners' Chronicle* have written to enquire how a Mushroom-stool, like the one figured on p. 213, should be constructed. Well, the top should be formed from a slice from a tree-stem; this should be about 18 inches in diameter and 5 inches in thickness; its upper surface should be

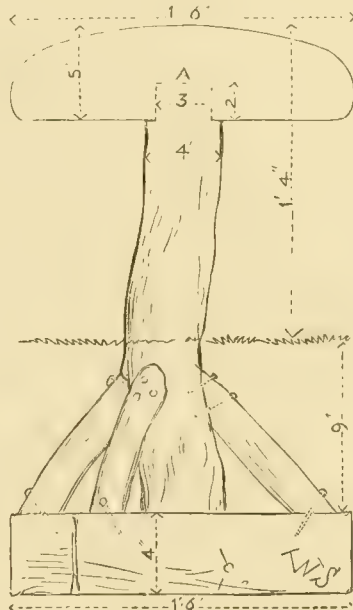


FIG. 44.—HOW TO MAKE A MUSHROOM STOOL.

planed round, so as to let it take the form shown in illustration (fig. 44). The stem should be formed from part of another tree-stem 2 feet long and at least 4 inches in diameter when barked. The upper part of the stem must be cut square or round, as at A, so that the stem may be firmly fixed at least 2 inches into the top. The lower part of the stem must rest on a plank 18 inches square or 18 inches in diameter and 4 inches in thickness; this in its turn must be supported by at least three strong braces, as shown in the illustration appended herewith. A hole 18 inches square and the same in depth must be dug in the ground to receive the base, which latter may be well pitched before insertion, to protect it from the moisture of the soil. The earth must be well rammed down both before and after the insertion of the stool. W. G. S.

Calanthes in Shallow Pans and in Small Pots.—The popularity of *Calanthes* as winter blooming plants is so well known that it would be superfluous to expatiate upon their merits as decorative subjects; they are cultivated in various ways and with varying success in the hands of different growers. The potting of the bulbs being seasonable work at the present time, the stock will be in process of being examined, and a general overhaul will be made before potting is commenced: the old roots should be clean cut away, and in case there are any symptoms of decay in the bulbs let them be dusted with dry lime to prevent any further spread of the disease when they are introduced into a growing atmosphere. That grand variety *Veitchii* may also be increased by cutting large well developed bulbs into twos and threes according to the length and "number of joints" in the bulb. After the bulbs are cut let the base be dusted with dry powdered charcoal and inserted in pans or

boxes of dry silver sand, until the wound has dried up, about which time the young growth for the coming year may be observed forming itself immediately above where the cut was made. In potting *Calanthes* it is not perhaps sufficiently recognised by cultivators that small bulbs develop and grow into larger ones much more rapidly when they are grown either singly in 4-inch pots or planted in threes in small shallow pans well drained. Acting upon this principle the bulbs should be arranged according to their size and strength, the very finest samples being kept for forming large specimen pots either for exhibition or for conservatory decoration; and the medium-sized and smaller bulbs might be grown in pots of various sizes to come in for a variety of purposes, always, of course, keeping the prospective in view by encouraging weakly bulbs in the way suggested. The pots or pans of whatever size should be clean washed and thoroughly drained, a thick layer of sphagnum being placed over the drainage; and the compost for potting should consist of rich loam, a small addition of peat and cow-dung rubbed through the hands, and a sprinkling of broken charcoal. The ingredients require to be well mixed with each other and to be firmly pressed in the pots, and the bulbs, when placed, should be slightly elevated above the rim of the pot in order to make safe against an excess of moisture secreting itself about the bulbs in case of over watering. There are more *Calanthes* killed by over watering before they have formed roots to absorb the moisture, and by excessive atmospheric applications, than many growers imagine. To obviate this we use a thin coating of sphagnum to cover the surface-soil, and the bulbs are just laid on the surface and "pinned" by sticking a few wooden pegs sharpened to a point in the sphagnum around them. This covering prevents the moisture in the soil from evaporating, and the consequence is that little or no watering is required for weeks after the bulbs are potted, in fact, no water should be applied to the soil except through a syringe till it is a certainty that young roots are numerous enough to require occasional applications of water. It may also be observed that a saturated atmosphere is also baneful to the well-being of *Calanthes*, even when they are in full growth; the effect may be seen in the dark blotches in the leaves, which also attacks the bulbs if the mischief is not noticed in time and a drier atmosphere maintained. A rich open compost and a moderate degree of heat, with an atmosphere kept on the dry side, are the essentials for producing a fine display of those lovely winter flowers. Cultivator.

Gardenias in Small Pots.—As sweet-scented flowers these are unsurpassed in beauty, and are universally admired for wedding bouquets as well as for other purposes of floral decoration. It may not, however, be generally known that by a system of "dwarfing" these plants may be grown of a suitable size to fill vases for room decoration, where their flowers keep fresh for a considerable time longer than when they are used in a cut state. The plan of growing them is as follows:—Cuttings are taken from strong healthy young plants, say from two to three years old, just when the flower-bud is set, and from three to four of these cuttings are inserted in a 4-inch pot, which has been moderately drained and filled with a compost of peat and sharp sand. The pots are plunged in a sharp bottom-heat of from 85° to 90°, and kept dewed overhead with a syringe and shaded from the sun till they are rooted, a process that soon takes place when the wood is in such a favourable condition for emitting roots, and is brought under favourable influences. When the cuttings are well rooted, lift the plants by degrees out of the bottom-heat, and set them on the surface of the bed while the buds are developing towards expansion. They ought to be liberally and frequently supplied with liquid-manure after the pots are well packed with feeding roots, to keep the leaves healthy and of a rich green; and it will also be necessary to remove the plants by degrees into a cooler house for a few days previous to employing them with other subjects for house decoration. Plants that are grown singly in small pots in the same way one year and pricked, so as to make bushy little plants, also come in admirably for the same purpose the second year after being propagated, and little compact bushes of this sort, with from four to six expanding flowers, are no mean objects for house decoration. W. Hinds.

Galanthus.—In your interesting article on *Galanthus* no mention is made of a fine species with very woolly leaves which is in cultivation. It is a native of Turkestan, flowering at the same time as *Crocus Scharogani*, a beautiful yellow species, flowering late in autumn or early winter. *Aberia*. [We know nothing of this plant. EDS.]

Protecting Trees from Hares and Rabbits.—I am very much troubled with hares as well as rabbits. I have tried several recipes, and have found the right one at last. This is train oil mixed with cart grease and soot to the consistency of thick

paint, put on with a paint-brush, as high up the stem as 2 feet. One dressing is sufficient, for the winter rain or frost does not destroy its effect in the least. For young nursery stuff that has to be marketed I should omit the soot, as it makes them unsightly. *W. H.*

Rhinopetalum Karelini is mentioned by Messrs. Krelage & Son, p. 276, as in flower at Haarlem, as they suppose for the first time in Europe. We flowered it last year at Colchester, and it has been in flower in our cool frame during the greater part of last month. A description of it with plate will be found in Mrs. Loudon's *Bulbous Plants*, p. 256. It is there stated to have been introduced in 1835 by M. Kareline, and to flower in January. A reference is also there given to Sweet's *British Flower Garden*, 2d ser., p. 283. *Alexander Wallace, Colchester.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, March. 5, 1879.

| MONTH AND DAY | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DE- DUCTIONS FROM GLAISHER'S TABLES 6th Edition. | | WIND. | RAINFALL. |
|---------------|---|---|-------------------------|---------|--------|------------------|--|------------|-------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 10 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 10 years. | Dew Point. | | |
| Feb. 27 | In. 29.74 | -0.07 | 38.0 | 28.6 | 9.4 | 33.0 | -6.9 | 32.1 | WSW | 0.06 |
| 28 | 29.56 | -0.26 | 46.2 | 35.4 | 10.8 | 40.8 | +0.7 | 38.6 | WSW | 0.11 |
| Mar. 1 | 29.90 | +0.07 | 43.8 | 34.0 | 9.8 | 38.9 | -1.4 | 35.6 | NNE | 0.09 |
| 2 | 29.95 | +0.10 | 49.7 | 30.5 | 19.2 | 39.2 | -1.2 | 32.5 | WNW | 0.00 |
| 3 | 29.78 | -0.08 | 40.3 | 31.3 | 15.0 | 38.6 | -1.9 | 36.7 | WSW | 0.05 |
| 4 | 29.92 | +0.03 | 49.4 | 30.0 | 19.4 | 39.4 | -1.1 | 35.3 | WSW | 0.00 |
| 5 | 29.83 | -0.08 | 53.8 | 42.2 | 11.6 | 47.0 | +6.5 | 44.1 | WSW | 0.00 |
| Mean | 29.81 | -0.02 | 46.7 | 33.1 | 13.6 | 39.6 | -0.8 | 36.1 | WSW | 0.31 |

Feb. 27.—Overcast, dull, and cold throughout. Snow fell till 11 A.M., and rain fell after 1 P.M.
— 28.—Overcast, dull day. Milder. Rain fell after 8 P.M. Miserable day.
March 1.—Dull in morning, fine afternoon, overcast and dull in evening. Rain fell early A.M.
— 2.—A very fine clear day almost cloudless throughout. Hoar-frost early A.M.
— 3.—Fine, clear till 11 A.M., overcast and wet to 3 P.M. Fine and clear afterwards. Cloudless at night. Hoar-frost early A.M.
— 4.—A fine day, cloudy at times. Hoar-frost early A.M. Lunar halo at night.
— 5.—A fine day, partially cloudy. Mild. Few drops of rain at 10.30 P.M.

LONDON: *Barometer*.—During the week ending Saturday, March 1, in the vicinity of London the reading of the barometer at the level of the sea increased from 29.47 inches at the beginning of the week to 30.02 inches by the morning of the 25th, decreased to 29.96 inches by the evening of the same day, increased to 30.12 inches by the evening of the 26th, decreased to 29.71 inches by the afternoon of the 28th of February, and increased to 30.18 inches by the end of the week. The mean reading for the week at sea level was 29.89 inches, being 0.68 inch above that of the preceding week, and 0.10 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 46½° on February 28, to 33° on the 23d; the mean value for the week was 39½°. The lowest temperatures of the air observed by night varied from 22½° on the 24th, and 27° on the 25th, to 35½° on the 28th; the mean value for the week was 29½°. The mean daily range of temperature in the week was 9½°, the greatest range in the day being 17½° on the 24th and the least 2½° on the 23d.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—February 23, 31.5, -7.7; 24th, 30.7, -8.6; 25th, 31.8, -7.7; 26th, 32.9, -6.8; 27th, 33, -6.9; 28th, 40.8, -0.7; March 1, 38.9, -1.4. The mean temperature of the air for the week was 34.2, being 5.5 below the average of sixty years, and 14½° lower than the value for the corresponding week in 1878.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 116½° on the 24th, and 105½° on February 25; on the 23d, 26th, 27th, and 28th the highest readings varied from 39° to 47°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were

19½° on the 24th, 24½° on the 25th, and 27½° on the 27th; the mean of the seven lowest readings was 27°.

Wind.—The direction of the wind was N.N.E. and S.W., and its strength gentle.

The weather during the week was generally fine, but cold, and the sky was very cloudy.

Rain or snow fell on five days during the week; the amount measured was 0.28 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, March 1, the highest temperatures of the air observed by day were 52° at Sunderland, 51° at Plymouth, and 50° at Truro; the highest temperature of the air at Wolverhampton was 43½°, and at Brighton and Hull 45°; the mean value from all places was 47½°. The lowest temperatures of the air observed by night were 17½° at Bristol, 19½° at Wolverhampton, 20½° at Nottingham, 21° at Cambridge, 22½° at Sheffield, and 22½° at Blackheath; the lowest temperature at Sunderland was 30°, and at Liverpool was 29½°; the general mean from all stations was 24½°. The extreme range of temperature in the week was the greatest at Bristol, 32°, and the least at Liverpool, 16½°; the mean range of temperature from all places was 23°.

The mean high day temperature of the air was the highest at Truro, 46°; Plymouth, 44½°; Bristol, 43½°; and Sunderland, 42°; and the lowest at Wolverhampton, 37½°, Bradford 39°, and Blackheath 39½°; the mean from all stations was 41°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 27°, Nottingham 27½°, Bristol 28½°, and Leicester 29°, and the highest at Liverpool, 34°, and Sunderland, 33½°; the mean value from all places was 30½°. The mean daily range of temperature in the week was the least at Liverpool, 6½°, and the greatest at Truro, 15°; the mean daily range from all places was 10½°.

The mean temperature of the air for the week from all stations was 35½°, being 12½° lower than the value for the corresponding week in 1878. The mean temperature was the highest at Truro, 38°, Plymouth 37½°, and Sunderland 37°; and the lowest at Wolverhampton, 31½°, and Nottingham, 33½°.

Rain or snow fell on every day in the week at Nottingham and Sunderland, and on four or five days at most other places. The amounts measured varied from 0.75 inch at Sunderland, 0.67 inch at Leicester, and 0.51 inch at Nottingham, to 0.08 inch at Norwich and 0.13 inch at Liverpool; the average amount over the country was 0.35 inch.

The weather during the week was somewhat finer but cold, and frequent snow and rain fell. The depth of snow at Sunderland on the 24th was 4 inches, and at Leicester was 6 inches.

SCOTLAND: *Temperature*.—The highest temperatures of the air varied from 48° at Leith to 45° at Dundee; the mean value from all places was 46½°. The lowest temperatures of the air varied from 14° at Perth, and 22° at Dundee, Aberdeen, and Paisley, to 26½° at Leith; the mean value from all places was 24½°. The mean range of temperature in the week from all places was 23½°.

The mean temperature of the air for the week from all places was 35°, being 10° lower than the value for the corresponding week in 1878. The highest were 36½° at both Glasgow and Leith, and 35½° at both Greenock and Edinburgh, and the lowest were 31½° at Perth, and 34½° at Dundee and Aberdeen.

Rain or snow was measured to the amount of 0.80 inch at Paisley, and 0.37 inch at Edinburgh, but at Glasgow 0.08 inch only was measured; the average amount over the country was 0.27 inch.

DUBLIN. — The highest temperature of the air was 51½°, the lowest 23½°, the range 28°, the mean 37½°, and the amount of rain and melted snow was 0.08 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

BEQUESTS TO GARDENERS.—It would interest many of your readers to know whether gardeners qualified by the efflux of time are included in the general bequest sometimes made of twelve months' wages to servants that had been a certain time in the service of the testator at the time of his death. I know of instances where coachmen—outdoor servants—have benefited by it, and why should not gardeners? If you would kindly give this inquiry prominence in the next issue of the *Gardeners' Chronicle* it would perhaps evoke the experience of others. *T. O.G.* [We have always understood that gardeners were included in such bequests, and do not know of a single case of a gardener being excluded by executors where the general term "servants" has been used. *Eds.*]

GLAZING WITHOUT PUTTY. — Will some of your readers be good enough to say how they have got on during the late severe weather with houses glazed without putty, &c.? I have been unable to keep the temperature as high by 5° or 6° as by the old plan of sashes and putty. *South Wilts.*

ORANGE TO NAME. — *J. C. B.* sends us a small Orange no bigger than a good-sized Cherry, with a thin green rind, the interior being perfectly ripe. What is the variety?

TULIPS FOR FORCING.—Will some of your English or Dutch readers volunteer, for the benefit of others, the information, What varieties of Dutch Tulips besides the Duc van Thol will answer best for very early forcing in December and January; and what treatment in forcing most favours the production of large flowers on high stems? *America.*

Answers to Correspondents.

ACROPHYLLUM VENOSUM: *R. P.* This is not an easy plant to strike from cuttings, but I have rooted them by both the following methods:—The nearly matured shoots in autumn taken off at about the third joint from the point, inserted in pots filled with silver sand, covered with a bell-glass, and kept through the winter in a temperature of 45° or a little more; by the spring they were callused over, and then put in a bottom-heat of 65°, when they soon made roots. Another plan I have followed is to start a plant in moderate heat about Christmas, and as soon as the young shoots were long enough to take them off with a heel and at once put them in bottom-heat. In this way a considerable number will strike in much less time than required by the first-named method. But I doubt the plants of this and other similar delicate constituted subjects being so long-lived from the latter manner of increasing them, at least such has been my experience. The most usual way of raising this *Acrophyllum* is from seed, but there is one objection to seedlings, that they vary so much in the quality of their flowers, whereas if increased by cuttings from a good form of the plant there is no disappointment on this score. *T. Baines.*

BAY TREES: *A. J. L., Kensington.* As soon as you see the buds on the sound wood are on the move, prune the shoots back to a good plump eye or bud.

INSECTS IN SEVILLE LONGPOD BEANS: *R. S.* The little beetles which are so plentifully ensconced in the Beans you send are those of a weevil (*Bruchus granarius*), a pest well known to all seed dealers. The

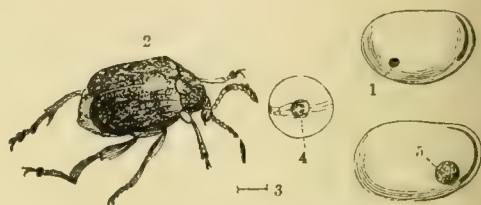


FIG. 45.—BRUCHUS GRANARIUS.

weevil lays its eggs in the Beans whilst the seeds are quite soft. The wound in the Bean is quickly healed over, and the grub when hatched feeds in safety beneath the hard skin on the soft interior. In the illustration (fig. 45), 1 and 5 are holes in Beans; 4, portion of insect in a Pea; 2, beetle magnified; 3, natural length of the beetle. Seedsmen cannot prevent the insects getting into their parcels of Bean seeds, but they should take care not to distribute badly infested samples.

BOOKS: *A. J. H. Hooker's Students' Flora of the British Islands* is published by Macmillan & Co., Bedford Street, Covent Garden. The price is about half-a-guinea.

CAMELLIA LEAVES FALLING: *J. M.* We can only suppose the plant has been dry at the root; or have you been using any of the strong insecticides, for we notice a slight discoloration on some of the leafstalks?

CHRISTMAS TREES: *Constant Reader.* The common Spruce Fir, being the cheapest, is the most used for Christmas trees; but any neat and quick-growing variety may be used if they can be grown and sold at a remunerative price.

CROTON PRINCESS OF WALES. — Mr. C. Rann, gr., Handcross Park, Sussex, informs us that he, and not Mr. B. S. Williams, as inadvertently stated by us, was the exhibitor of this plant at the meeting of the Floral Committee on February 11.

DRYING FLOWERS: *A. G. H.* The more quickly they are dried the better. Use plenty of paper, and change it often. The processes resorted to for keeping the colour are of little value for practical purposes.

"I": *J. M.* The rule that should be followed is that of the Latin grammar, though as modern names are often such as the Latin language affords no precedent for, considerable diversity of practice has in consequence arisen. Euphony in such cases is the best guide. Supposing Millerus to be the Latin equivalent of Miller, then the generic would be Milleri; if Millerius then Millerii. Proper names of places are now generally written with a small letter—thus anglica, gallica, &c.; and this is even carried so far, especially by the zoologists, that names of persons are written with a small letter—thus, smithii. For our own parts we prefer Smithii.

FICUS ELASTICA: *J. Kelly.* The plant, if cut back, would probably produce two or three shoots. If you have bottom-heat you can easily strike the top, which will soon form a plant; or each separate leaf, if cut with the bud and a short length of the wood at the

base, will also develop roots and eventually a young shoot from the eye, and form a young plant.

HOLLIES: *J. Kelly.* These are propagated both by cuttings and grafting, but you will find it rather a slow process. The cuttings are put in in autumn, and are kept under glass till rooted.

INDIAN AZALEAS: *A. O. P.* There is such an evident want of vigour in the young growth of your Azaleas, that we should suppose something must be wrong at the roots. Possibly, as you suggest, they may have been kept too wet, especially if the roots are not actively working in the new soil.

INSECTS: *F. C.* The white objects found among the roots of your pot Vines are the pupæ of the pretty *Chrysomela polita*. They are harmless insects, doing no hurt to the Vines.—*F. C.* The grubs which have destroyed your Cyclamens are the larvæ of the destructive *Otiorynchus vastator*. The earth should be carefully riddled and baked before using for potting or repotting the roots of the plants. *I. O. W.*

LILiums: *Miss L.* A mixture of peat, loam, and sand will suit them all admirably, or if peat is not readily obtainable substitute leaf-mould. The soil should be drained if of a retentive nature; and the position selected for planting should not be too much shaded.

LIME TREE: *J. M.* The broken part, if protruding, should be cut off clean and the surface covered with thin lead to keep out the wet. Or if the wound forms a hollow in the wood, it may be filled and plastered with a mixture prepared like grafting-clay, which will facilitate its healing, but may have to be renewed if the damage is very severe.

NAMES OF PLANTS: *W. B.* How can you expect us even to try to identify such rubbish—two rotten leaves and a couple of almost leafless twigs—the most miserable bits, apparently, that you could get off the plants? Try again, and don't be so niggardly with the sample.

—*G. H.* *Centradenia rosea*, *Pteris cretica*.—*H. G. J.* 1, *Begonia punctata*; 2, *B. Helene Uhder*; 3, *Pelargonium crispum*.—*T. Simpson.* 1, *Acacia Riceana*; 2, *A. dealbata*; 3, *A. verticillata*; 4, *A. dodonæfolia*; 5, *Akebia quinata*; 6, *Myrsiphyllum medeoloides*; 7, specimen insufficient.

PELARGONIUMS: *G. A.* The spot is caused by too damp an atmosphere during so long a period of sunless weather. During such a period the water should not have been used while intensely cold as it runs from the roof, but the chill should have been taken off by admixture with warm, or at least by standing in pots for as long a time as possible in the warmer atmosphere of the house.

POLYANTHES TUBEROSA: *P. B.* This is a native of India, Java, and Ceylon (see Kunth, *Enumeratio*, iv., 846). There is a Mexican species described, but we will make further investigation.

PUFF-BALL: *G. T. M.* Many thanks. The "natives" are quite right. It is a good thing to staunch the blood from a small wound, but we should not care to use it on a large scale.

SHEEP MANURE: *M. Goddard.* We cannot tell you where you can purchase half-a-ton of this manure, which, so far as we know, is not collected and sold in the ordinary way of trade. Have you no friend amongst the farming class who would let you have it?

STAMFORDIAN TOMATO: *J. Wilkes.* The Tomato recommended by Mr. Miles under this name is the same as Jackson's Favourite, under which name you will find it in some of the seed catalogues, and especially in that of Messrs. James Dickson & Son, of 108, Eastgate Street, Chester, who sent it out a year or two ago.

SEAPHYLEA COLCHICA: *R. W.* We have already commended this plant for its excellent qualities as a forcing shrub, and illustrated it at p. 117 of our present volume.

THE ROYAL HORTICULTURAL SOCIETY: *H. G. Q.* We do not know the reasons why the offer was not entertained, but we do not doubt that to the Council they appeared valid ones. The neglect to reply to the communication, if not a mere oversight, was unbusiness-like and rude.

VINERY: *K.* What you propose to do would seem to be sufficient. The Vines on the back wall are probably too much shaded to be productive.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED:—Joseph Baumann (5 and 7, Nouvelle-Promenade, Gand, Belgium), Lists of New Plants, Conifers, &c.—J. B. Moore (Concord, Mass., U.S.A.), Catalogue of Small Fruits, Asparagus, New Seedling Grapes, &c.—Messrs. R. and A. Morrison (The Nurseries, Elgin, N.B.), Retail List of Forest and Ornamental Trees, Shrubs, Plants, &c.—Messrs. Carter & Co. (High Holborn, London), Illustrated Descriptive List of Farm Seeds, &c.—H. Hildmann (Berlin, Schul-Strasse, 40), Catalogue of Succulent Plants.

COMMUNICATIONS RECEIVED:—A. M.—H. E. W.—R. O. (many thanks).—N. G. (next week).—H. W.—R. T.—B. W.—W. Porter.—Sulphuratus.—W. P.—D. T. F.—J. D.—J. C.—J. L.—J. Hart.—R. G.—S. C.—P. B.—T. K.—J. H.—D. M.

Markets.

COVENT GARDEN, March 6.

A few Strawberries and new Grapes have made their appearance, but there is very little trade for either. The prices of vegetables still keep high, though there are signs in some cases of an easier state of things. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|---------------------------|-------------|-------------------------|-------------|
| Apples, ½-basket .. | 1 6-5 0 | Oranges, per 100 .. | 4 0-8 0 |
| Cobs and Filberts, lb. .. | 0 9-1 0 | Pears, per doz. .. | 4 0-3 0 |
| Grapes, per lb. .. | 3 0-8 0 | Pine-apples, per lb. .. | 1 0-2 6 |
| Lemons, per 100 .. | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|----------------------------|-------------|----------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. .. | 4 0-.. |
| Globe, doz. .. | 2 0-4 0 | Lettuces, Cabbage, | |
| — Jerusalem, bush. .. | 6 0-.. | per doz. .. | 1 6-.. |
| Asparagus, Fr. sprue, | | Mint, green, bunch. .. | 1 6-.. |
| per bundle .. | 1 6-.. | Onions, per bushel. .. | 4 0-.. |
| — Eng., per 100 .. | 10 0-15 0 | — young, per bun. .. | 0 4-0 6 |
| — Fr., per 100 .. | 30 0-.. | Parsley, per lb. .. | 2 0-3 0 |
| Beans, French, p. 100 .. | 3 0-4 0 | Peas, per quart .. | 12 0-.. |
| Beet, per doz. .. | 1 0-2 0 | Potatoes, new, basket 1 .. | 0-.. |
| Brus. sprouts, bush. 10 .. | 0-.. | Radishes, Fr., bunch .. | 0 6-.. |
| Cabbages, per doz. .. | 1 0-2 0 | — New Jersey, doz. .. | 2 0-.. |
| Carrots, per bunch .. | 0 4-0 6 | Rhubarb, doz. .. | 10 0-.. |
| Cauliflowers, per doz. .. | 2 0-5 0 | Shallots, doz. .. | 0 6-.. |
| Celery, per bundle .. | 1 6-2 0 | Seakale, per punnet .. | 2 6-.. |
| Chilis, per 100 .. | 2 0-.. | Spinach, per bushel .. | 5 0-10 0 |
| Cucumbers, each .. | 0 9-1 6 | Sweet Potatoes, per lb. .. | 0 6-.. |
| Endive, Batav. dozen .. | 1 6-.. | Tomatos, per dozen .. | 2 6-3 0 |
| Garlic, per lb. .. | 0 6-.. | Turnips, p. 12 bunch. .. | 3 0-6 0 |
| Herbs, per bunch .. | 0 2-0 4 | | |

Potatoes: — Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|----------------------------|-------------|-------------------------|-------------|
| Arum Lily, or Rich- | | Ficus elastica, each .. | 2 6-15 0 |
| ardia æthiop., doz. .. | 9 0-18 0 | Foliage Plants, vari- | |
| Azaleas, per dozen .. | 24 0-60 0 | ous, each .. | 2 0-10 6 |
| Begonias, per doz. .. | 6 0-12 0 | Genista, per dozen .. | 12 0-24 0 |
| Bouvardias, per doz. .. | 18 0-24 0 | Hyacinths, per doz. .. | 6 0-18 0 |
| Camellias, per dozen .. | 18 0-60 0 | Mignonette, per doz. .. | 6 0-9 0 |
| Cinerarias, per doz. .. | 12 0-18 0 | Myrtles, per doz. .. | 6 0-12 0 |
| Cyclamens, per doz. .. | 9 0-30 0 | Palms in variety, | |
| Cyperus, per dozen .. | 6 0-12 0 | each .. | 2 6-21 0 |
| Dracæna terminalis .. | 30 0-60 0 | Pelargoniums, scar- | |
| — viridis, per doz. .. | 18 0-24 0 | lets, zonal, doz. .. | 6 0-12 0 |
| Epiphyllum, per doz. .. | 18 0-60 0 | Primulas, per dozen .. | 4 0-12 0 |
| Erica hymenalis, doz. .. | 12 0-42 0 | Solanums, per doz. .. | 6 0-18 0 |
| Euonymus, var., doz. .. | 6 0-18 0 | Spiræa, per dozen .. | 12 0-30 0 |
| Ferns, in var., p. doz. .. | 4 0-18 0 | Tulips, per dozen .. | 8 0-12 0 |

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|--------------------------|-------------|----------------------------|-------------|
| Abutilon, 12 blooms .. | 0 6-1 0 | Lily of Val., 12 sprays .. | 2 0-6 0 |
| Arum Lilies, 12 blms. .. | 4 0-12 0 | Mignonette, 12 bun. .. | 6 0-12 0 |
| Azaleas, 12 sprays .. | 0 6-1 6 | Narcissus, paper- | |
| Bouvardias, per bun. .. | 1 0-4 0 | white, 12 sprays .. | 1 0-2 0 |
| Camellias, per dozen .. | 1 0-6 0 | Pelargoniums, 12 spr. .. | 1 6-3 0 |
| Carnations, per dozen .. | 1 6-4 0 | — zonal, 12 sprays .. | 1 0-2 0 |
| Cineraria, 12 bunches .. | 9 0-18 0 | Primula, double, per | |
| Cyclamen, 12 blooms .. | 3 0-1 0 | bunch .. | 0 9-1 6 |
| Deutzia, 12 bunches .. | 6 0-12 0 | — single, 12 bunch. .. | 6 0-12 0 |
| Epiphyllum, 12 blms. .. | 1 0-3 0 | Roses (indoor), doz. .. | 3 0-12 0 |
| Euchuris, per doz. .. | 4 0-12 0 | Snowdrops, 12 bun. .. | 1 0-6 0 |
| Euphorbia, 12 sprays .. | 3 0-6 0 | Tropæolum, 12 bun. .. | 2 0-6 0 |
| Gardenias, 12 blms. .. | 12 0-24 0 | Tuberose, per dozen .. | 3 0-6 0 |
| Heliotropes, 12 sp. .. | 0 6-1 0 | Tulips, 12 blooms .. | 1 0-3 0 |
| Hyacinths, 12 spks. .. | 4 0-12 0 | Violets, 12 bunches .. | 3 0-6 0 |
| — Roman, 12 spks. .. | 0 6-2 0 | | |

SEEDS.

LONDON: *March 5.*—Although field work is still greatly in arrear, and a spell of dry open weather is required to deprive the soil of its present excess of moisture, there is, nevertheless, much more inquiry for farm seeds, and a sharp consumptive demand may shortly be expected. With regard to Clover seed no alteration can be noted: samples of English continue in good supply, and prices are very moderate. There is a scarcity here of American seed, still the stock on hand is quite equal to the demand. White Clover keeps steady at the late advance; in Alsike there is for the moment but little business doing. A decided rise has during the last few days taken place in Trefoil, and a large quantity of seed has been changing hands; to-day's quotations are fully 1s. per cwt. above those of a week ago. For perennial and Italian Rye grasses there is a fair inquiry on former terms. Spring Tares on the spot seem about exhausted; currencies have consequently tended against the buyer. Hemp and Canary seed are both steady, but the consumption of both these articles is small. White Millet, being good and cheap, attracts attention. For blue Peas there is an improved sale at full prices. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

POTATOS.

From the Borough and Spitalfields markets we learn that there were larger supplies of Potatoes, and quotations are 5s. to 10s. per ton lower. Good Potatoes move off steadily. Regents, 95s. to 120s.; rocks, 65s. to 75s.; champions, 70s. to 95s.; Victorias, 110s. to 130s.; flukes, 110s. to 130s. per ton.—The imports into London last week comprised 62,197 bags from Hamburg, 1634 Boulogne, 2800 Bremen, 4414 Antwerp, 3623 Ghent, 207 Rotterdam, 143 Dunkirk, and 67 Rouen.

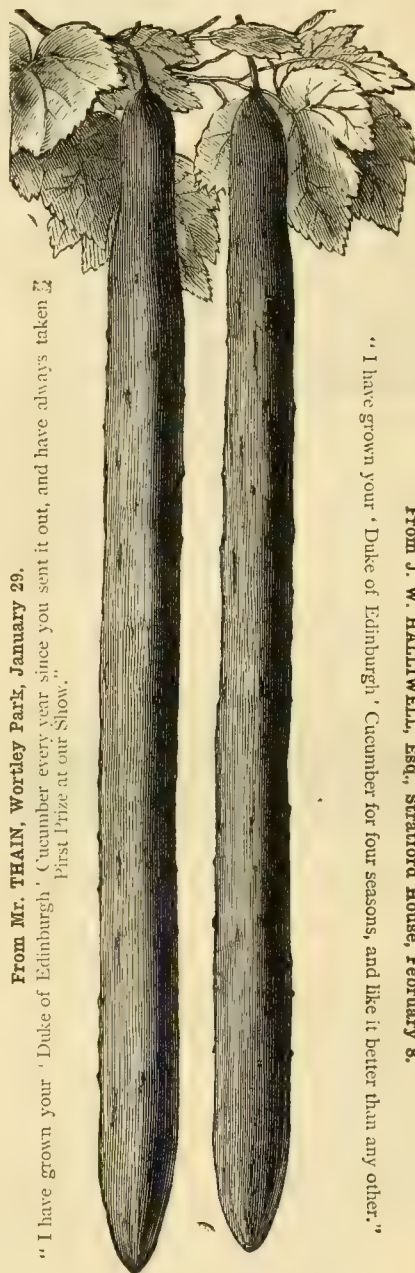
COALS.

The market for house coals was dull on Monday, and prices fell 1s. per ton. Hartleys gave way 6d. The quotations for Wednesday's business were as follows: — Bedside West Hartley, 13s. 3d.; Walls End—Hetton, 18s.; Hetton Lyons, 14s. 9d.; Hawthorns, 14s. 9d.; Original Hartlepool, 18s.; South Hetton, 18s.; Tunstall, 14s. 9d.; East Hartlepool, 17s. 9d.; Salvins' Hutton, 17s.; Thornley, 17s. 3d.; Radford Navigation, 15s. 9d.



DANIELS BROS.' "DUKE OF EDINBURGH" CUCUMBER.

"The finest in Cultivation."



From Mr. THAIN, Wortley Park, January 29.
"I have grown your 'Duke of Edinburgh' Cucumber for four seasons, and like it better than any other."
First Prize at our Show.

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"Duke of Edinburgh" Cucumber.

Per Packet, 1s. 6d. and 2s. 6d.

Trade price on application.

A magnificent variety, of a fine robust constitution; its fruit growing rapidly to the length of 30 to 36 inches, being at the same time of the most beautiful proportions and splendid quality. Immensely prolific, and unrivalled for exhibition or general use.

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LEICESTER RED CELERY, 1s. per packet.
The best and hardiest in cultivation.

Just received.

Testimonial from JAS. WATHALL, Long Eaton, Feb. 18, 1879.
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last year, from your seed, and the best I ever had in my
possession."

Testimonial from H. J. GREENHOUGH, Esq., Mansfield,
January 10, 1879.
"It is the best Celery I can obtain."

HARRISON & SONS,
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SPECIAL OFFER.

| In 1 Cwt. Bags. | Per Cwt.—s. d. |
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| NAPOLÉON, Rough Red | 12 0 |
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| MAGNUM BONUM (SUTTON'S) | 16 0 |
| MYATT'S ASHLEAF | 14 0 |
| TRUE OLD ASHLEAF | 21 0 |
| FLUKE | 12 0 |
| EARLY ROSE | 11 0 |
| IMPROVED PEACHBLOW | 21 0 |
| REDSKIN FLOURBALL | 10 0 |
| PATERSON'S VICTORIA | 14 0 |
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No charge for bags. Free on rail, Norwich, on receipt of Post-
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ROBSON'S CHALLENGE ROUND,
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EARLY OXFORD,
EARLY FOXE'S SEEDLING,
EARLY KING,
EARLY FLOURBALL.

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TREE FERNS and PALMS.

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Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

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Respectfully invites the Nobility and Gentry to an inspection of the above.

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AGRICULTURAL
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| No. 1 | contains a Season's supply in sufficient quantities for a very large Garden | 63 | 0 |
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| No. 3 | " " " " medium-sized Garden | 21 | 0 |
| No. 4 | " " " " small Garden | 10 | 6 |

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DICK RADCLYFFE & CO., 128 and 129, HIGH HOLBORN, W.C.

THERE WAS ONLY ONE GREAT INTERNATIONAL EXHIBITION

OF
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AT
PARIS.

AND THE
HIGHEST PRIZE
AND
GOLD MEDAL
WAS AWARDED TO
CARTERS,
AND TO
NO OTHER ENGLISH
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NO OTHER ENGLISH HOUSE WAS AWARDED A GOLD MEDAL FOR POTATOES
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AWARDED THE GOLD MEDAL

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PORTERS' EXCELSIOR
THE EARLIEST ROUND VARIETY
Per Bus., 14/- Per Cwt., 25/-

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AN IMMENSE CROPPER
Per Bus., 10/8 Per Cwt., 17/8

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PER BUS., 12/- PER CWT., 21/-

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POTATOS
AT
PARIS.

(See other side).

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Mr. PENNY, Head Gardener to H.R.H. the Prince of Wales, has produced 15 TONS of handsome POTATOS of CARTER'S Improved Magnum Bonum in a Field Crop of 2 Acres.

This is not the result of a Small Trial Plot.

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THE QUEEN'S SEEDSMEN.
HIGH·HOLBORN: LONDON.

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OF
POTATOS
GRATIS and POST-FREE.

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Strong Standard PEARS, Standard-trained APRICOTS, Turkey and English OAK, English and Scotch ELMS, LIMES up to 12 feet, BEECH up to 7 feet, and a general Nursery Stock. Prices on application.
The Nurseries, London Road, Cheltenham.

SPECIAL CHEAP OFFER of HARDY GROUND ORCHIDS, &c.

Sound this year's flowering Bulbs and Crowns, at 6s. per 100, of Adonis vernalis, Asarum europæum, Anemone pulsatilla, A. ranunculoides, A. sylvestris, Crypedium calceolus, Convallaria bifolia, C. multiflorum, C. polygonatum, Epipactis latifolia, E. palustris, E. rubiginosa, Hepatica alba, H. cœrulea, H. rubra, Gymnadenia conopsea, G. odoratissima, Listera ovata, Liliun Martagon, Orchis latifolia, O. mascula, O. maculata, O. Morio, Orobis vernus, Pyrola rotundifolia, Platanthera bifolia alba, P. chlorantha, Trollius europæus.

At 10s. per 100:—Convallaria verticillatum, Gonydera repens, Cephalanthera rubra, C. pallens, Orchis pallens, O. fusca, O. militaris, Ophrys myoides.

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At £2 per 100:—Hepatica cœrulea fl.-pl.: Liliun Martagon album.

Cheaper by the thousand. Orders executed in strict rotation.
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Special Offer to the Trade.

SURPLUS STOCK on SALE,
as the land must be cleared by Lady Day next; all fine healthy plants—many times transplanted:—

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CHERRIES, Half-standards, very strong, 5s. per dozen, 40s. per 100.
PEARS, Half-standards, very strong, 4 to 5 feet, 6s. per dozen, 45s. per 100.
,, Pyramids, very strong, 3 to 4 feet, 5s. per dozen, 30s. per 100.

CURRENTS, Black Naples, strong, 7s. per 100, 60s. per 1000.

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BEECH, 4 to 5 feet, strong, 8s. per 100; 5 to 6 feet, strong, 16s. per 100; 6 to 8 feet, strong, 25s. per 100; 8 to 10 feet, strong, 30s. per 100.
CHESTNUTS, Horse, 6 to 8 feet, strong, 16s. per 100; 8 to 10 feet, strong, 60s. per 100.
,, Scarlet, 5 to 6 feet, strong, 6s. per dozen; 6 to 8 feet, strong, 10s. per dozen.

LIMES, 2 to 3 feet, strong, 2s. 6d. per 100; 3 to 4 feet, strong, 5s. per 100; 4 to 5 feet, strong, 8s. per 100; 5 to 6 feet, strong, 15s. per 100; 6 to 8 feet, strong, 25s. per 100.

Evergreen Shrubs.

BOX, Green, 1 to 1½ foot, 2s. per dozen, 25s. per 100.
YEW, English, 9 to 12 inches, 8s. per 100; 1½ to 1½ foot, 10s. 6d. per 100; 1 to 2 feet, 12s. per 100; 2 to 3 feet, 15s. per 100; 3 to 4 feet, 40s. per 100; 3 to 4 feet, 6s. per dozen.

B. WHETHAM, The Nurseries, Reddish, near Stockport.

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MY COLEUS KENTISH FIRE, LORD FALMOUTH, and G. BUNYARD are now a grand sight, totally eclipsing Chameleon (syn.) Duchess of Edinburgh. Cuttings, 6d. each; rooted ditto, 9d. The Twelve best and most distinct of the whole family, including the above cuttings, 2s. 9d.; rooted little plants, 5s., post-free.

Verbenas.

H. CANNELL begs to announce that his is the finest collection in the world, and now ready in fine plants, 6d. each, 5s. per dozen, 28 kinds in rooted cuttings for 10s. Also his 12 New sorts, which far surpass all other varieties hitherto sent out. See the eulogistic reports throughout last season in all the London horticultural journals of his wonderful exhibits, and awarded the Royal Horticultural Society's Medal. How to grow and show these Phlox or Auricula-like kinds, which impart such a delicious odour, and to greatly excel those seen twelve years ago, see H. C.'s *Floral Guide*. Sent free for twelve stamps.

H. CANNELL begs to announce that he can offer in good plants to the Trade the following, invaluable both for bedding and cut flowers:—

ZONALS—WHITE VESUVIUS, well known; invaluable for both winter and summer, 1s. each, 9s. per dozen, 60s. per 100.

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„ **GUINEA**, nearest yellow, 3s. 6d. each, 36s. per dozen.

Cuttings of these half price.

The Two Best New Bedding Plants of the Year.
AGERATUM "CANNELL'S DWARF," never exceeding 6 inches in height. The brightest blue, and the best of all; a gem.

IRELINE BRILLIANTISSIMA, with foliage nearly equal to that splendid ruby-crimson seen in our church windows.

Both are acquisitions for bedding.

Extract, *Gardeners Magazine*, October 19, 1878:—
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2s. 6d. each, 20s. per doz., post free to any part of Europe.
For further particulars see H. C.'s *FLORAL GUIDE*, the best annual work on flowers ever published, free for twelve stamps.

H. CANNELL, F.R.H.S.,
THE HOME FOR FLOWERS, SWANLEY, KENT.

SEAKALE for Forcing, excellent large roots, 10s. 6d. per 100, and 1s. packing. **ASPARAGUS, RHUBARB, TARRAGON, Ashleaf Kidney and Dunbar Regent POTATOS.** Price on application. A remittance must accompany all orders.
ALFRED ATWOOD, Market Gardener, 8, Palk Road, Battersea, S.W.

SEED POTATOS.—Myatt's Prolific, Royal Ashleaf, Mona's Pride, Gloucester Kidney, Extra Early Vermont, Early Rose, Veitch's Ashleaf, Old Ashleaf, Snowflake, Magnum Bonum, Scotch Champion, Scotch Regent, International Kidney, Schoolmaster, Prince Arthur, Trophy, Triumph, Superior, Table King, &c. Prices low, on application to
G. BRAMLEY, Hambleton, near Selby, Yorkshire.

RICHARD WALKER has to offer East Ham, Enfield Market, and Robinson's Drumhead **CABRAGE PLANTS**, all at 3s. per 1000; Red Dutch Pickling Plants, 4s. per 1000; **LEMON THYME** and **PENNYROYAL ROOTS**, 8s. per 100; **SAGE** and **Black THYME**, 5s. per 100; splendid **SEAKALE**, for planting, 4s. per 100; best Sovereign **RHUBARB ROOTS** in cultivation, for planting, 2s. per dozen; White Spanish **ONION SEED**, all new and genuine, 1s. 8d. per pound. Terms cash.—Market Gardens, Biggleswade, Beds.

Special Offer.

GEORGE FARNSWORTH has to offer large quantities of the following, which are good and well rooted:—

ALDER, 2 to 4 feet, 22s. 6d. per 1000.
ARBOR-VITÆ, American, 2-yr. seedling, 10s. per 1000.
ASH, Mountain, 1-yr. seedling, 3s. per 1000; 3 to 5 feet, 25s. per 1000.

Common, 2 to 3 feet, 20s. per 1000.
BERBERIS AQUIFOLIA, 2-yr. seedlings, 5s. per 1000; 1-yr. seedling and 1-yr. bedded, 10s. per 1000; 15 inches to 2 feet, bushy, 4s. per 1000.

COTONEASTER MICROPHYLLA, 1-yr. cuttings, 23s. per 1000.

WHIN or **GORSE**, Double, 1-yr. cuttings, 60s. per 1000; 1-yr. and 1-yr. transplanted, 12s. per 100.

HOLLY, Common, 9 to 15 inches, 100s. per 1000; 12 to 18 inches, 130s. per 1000; 1½ to 2 feet, 240s. per 1000.

IVY, Irish, 1-yr. cuttings, 30s. per 1000.

LAUREL, Common, fine, 1-yr. cuttings, 10s. per 1000; 15 inches to 2 feet, 70s. per 1000.

Portugal, 3 to 4 feet, very bushy, 9s. per dozen.
LIMES, 2-yr. layers, 1-yr. transplanted, 2½ to 5 feet, 80s. per 1000; 4 to 6 feet, 12s. per 100; 6 to 8 feet, 20s. per 100.

LARCH, twice transplanted, 1½ to 2½ feet, 22s. 6d. per 1000.

POPLAR, Balsam, 2½ to 5 feet, 30s. per 1000.

„ Black Italian, 2 to 3 feet, 20s. per 1000.

PRIVET, oval-leaved, twice transplanted, 1½ to 2 feet, 50s. per 1000.

RHODODENDRONS, 3-yr. seedling, 5s. per 1000; 3-yr. and 2-yr. bedded, 20s. per 1000; 6 to 10 inches, extra transplanted, 70s. per 1000; 1 to 1½ foot, 130s. per 1000.

„ ferrugineum, bushy, 15s. per 100.

„ hirsutum, bushy, 15s. per 100.

SPRUCE FIR, 1½ to 2 feet, 25s. per 1000.

Also other **NURSERY STOCK** as per LIST. Samples on application at The Nurseries, Matlock.

The Lovely Cape Water Lily.
APONOGETON DISTACHYON.—Strong native roots, 14s. and 21s. per dozen, 1s. 6d. and 2s. 6d. each. Price to the trade on application.
 HOOPER AND CO., Covent Garden, London, W.C.

To the Trade.
CLEMATIS JACKMANI, and other good sorts, 45s. per 100.
 ROSES, Standard, 3 to 4 feet stems, 60s. per 100.
 PEARS, Standard, 60s. per 100.
 CHERRIES, Standard, 70s. per 100.
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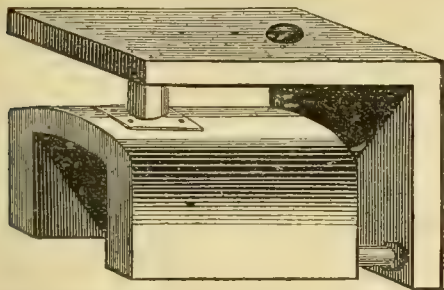
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|--------|--------|--------|------------------------|--------|----|----|
| High. | Wide. | Long. | Feet. | £ | s. | d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 | 0 | 0 |
| 20 " | 18 " | 24 " | 400 | 8 | 0 | 0 |
| 20 " | 18 " | 30 " | 500 | 9 | 0 | 0 |
| 24 " | 24 " | 24 " | 700 | 12 | 0 | 0 |
| 24 " | 24 " | 30 " | 850 | 14 | 0 | 0 |
| 24 " | 24 " | 36 " | 1000 | 16 | 0 | 0 |
| 24 " | 24 " | 48 " | 1400 | 20 | 0 | 0 |
| 28 " | 28 " | 60 " | 1800 | 25 | 0 | 0 |

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From Mr. CHARLES YOUNG, Nurseries, Batham Hill, S.W., May 29, 1873.

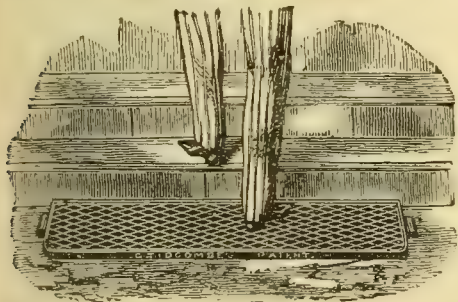
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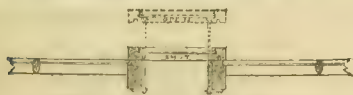
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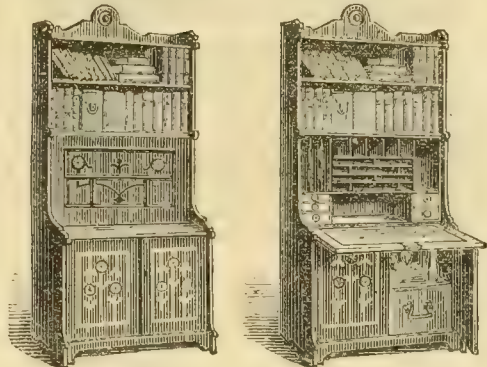
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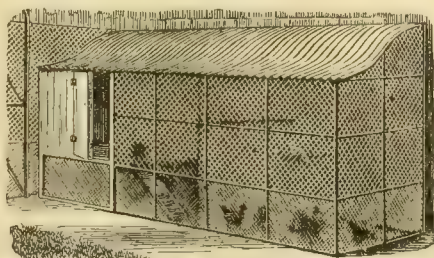
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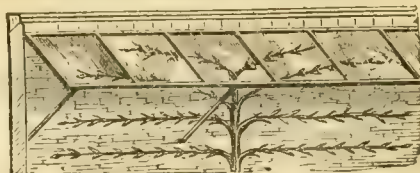
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A perfect Non-conductor of Heat, keeping, wherever it is applied, an even temperature.

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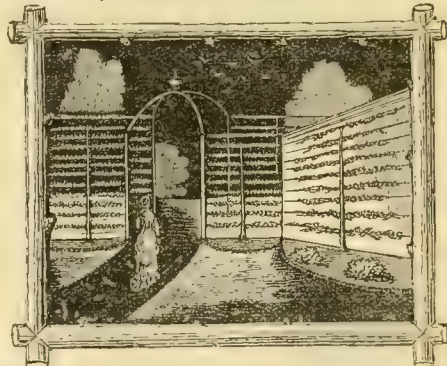
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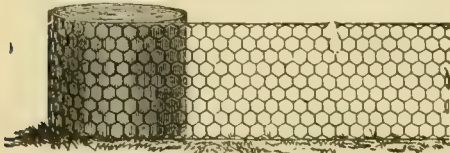
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|---------------|--------------------|-------|----------|-------|-----------|-------|-----------|
| 2 in. | Dogs or Poultry | 19 | 2 1/2 | 18 | 3 | 17 | 4 |
| 1 1/2 in. | Small Rabbits, &c. | 19 | 3 | 18 | 3 1/2 | 17 | 4 1/2 |
| 1 1/4 in. | Smallest Rabbits | 19 | 3 1/2 | 18 | 4 | 17 | 5 1/2 |
| 1 in. | Pheasantries | 19 | 6 1/2 | 18 | 8 1/2 | 17 | 10 1/2 |
| 3/4 in. | Aviaries | 20 | 9 | 19 | 10 1/2 | 18 | 1 0 1/2 |
| 5/8 in. | " | 22 | 1 2 1/2 | 20 | 1 4 | 19 | 1 6 |
| 1/2 in. | " | 22 | 1 8 | 20 | 1 9 1/2 | 19 | 2 0 |

*. See "Field" of this week, establishing Messrs. Brown & Co.'s claim to
The Sole Highest Awards for Galvanised Wire Netting
at both the Paris and Philadelphia Exhibitions.

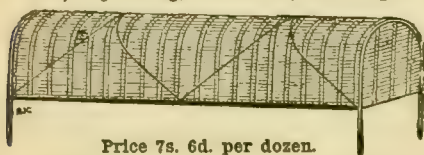
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FENCING, &c., for 1879, is now in the press,
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TO
J. J. THOMAS & CO.
Paris Exhibition, 1878,
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NEW PATTERN WITH DIAGONAL STAYS.
No. 76. 3 feet long, 6 inches wide, 6 inches high.



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The above are strongly recommended, being much smaller in the mesh than the ordinary diamond pattern, and proof against the smallest birds. Orders executed on receipt.

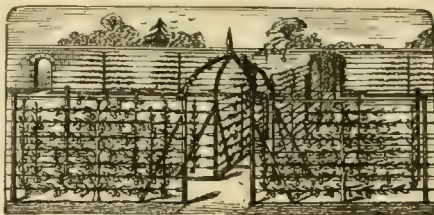
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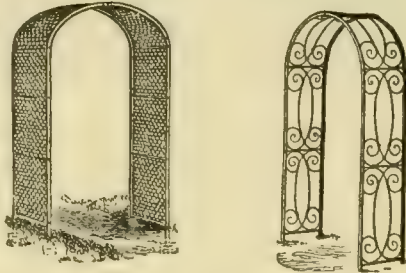
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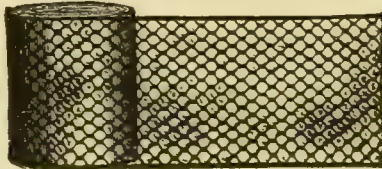
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| | Light. | Medium. | Strong. | Strong | |
| 2 in. | s. d. | s. d. | s. d. | s. d. | s. d. |
| 2 1/2 | .. 0 2 1/2 | .. 0 3 1/2 | .. 0 4 1/2 | .. 0 5 1/2 | .. 0 6 1/2 |
| 1 1/2 | .. 0 3 1/2 | .. 0 4 1/2 | .. 0 5 1/2 | .. 0 6 1/2 | .. 0 7 1/2 |
| 1 1/4 | .. 0 4 1/2 | .. 0 5 1/2 | .. 0 6 1/2 | .. 0 7 1/2 | .. 0 8 1/2 |
| 1 | .. 0 5 1/2 | .. 0 6 1/2 | .. 0 7 1/2 | .. 0 8 1/2 | .. 0 9 1/2 |

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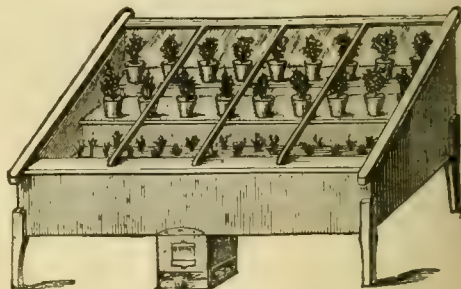
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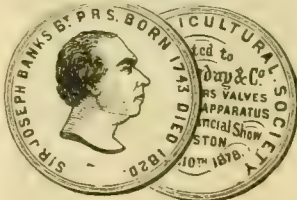
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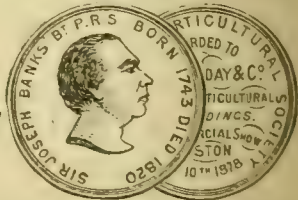
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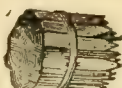
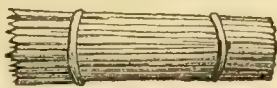
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|---------------|--------------------|--------|--------|--------|---------|--------|---------|
| Inch. | | | d. | | d. | | s. d. |
| 2 | Rabbits & Hares... | 19 | 3 | 18 | 3½ | 17 | 0 4½ |
| 1½ | Rabbits, &c. | 19 | 3½ | 18 | 4 | 17 | 0 4¾ |
| 1¼ | Small Rabbits | 19 | 4 | 18 | 4¾ | 17 | 0 6 |
| 1 | Pheasantries..... | 19 | 7½ | 18 | 9 | 17 | 1 0 |

WIRE
NETTING

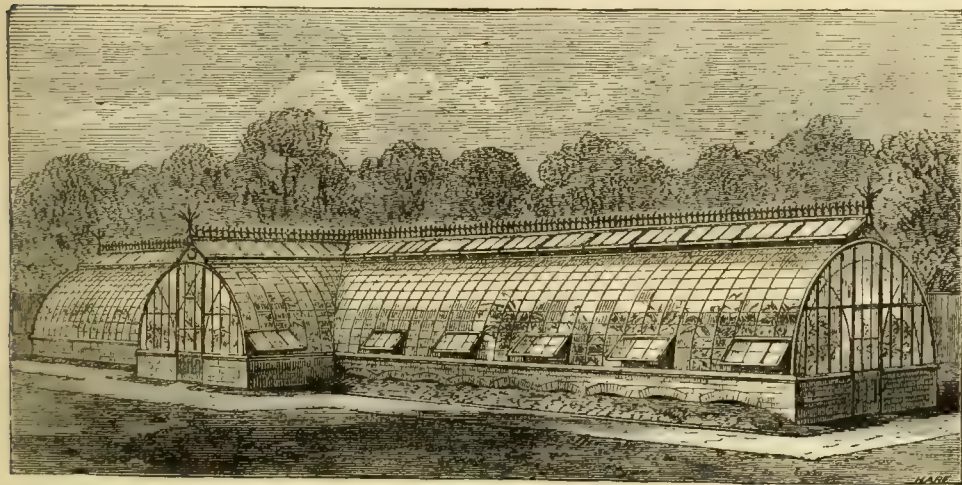
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GARDENER (HEAD, or good SINGLE-HANDED).—Age 28, married, no family; understands Gardening in all its branches. Good character.—T. H. J., 1, Tichbourn Cottages, Addington Road, Croydon.

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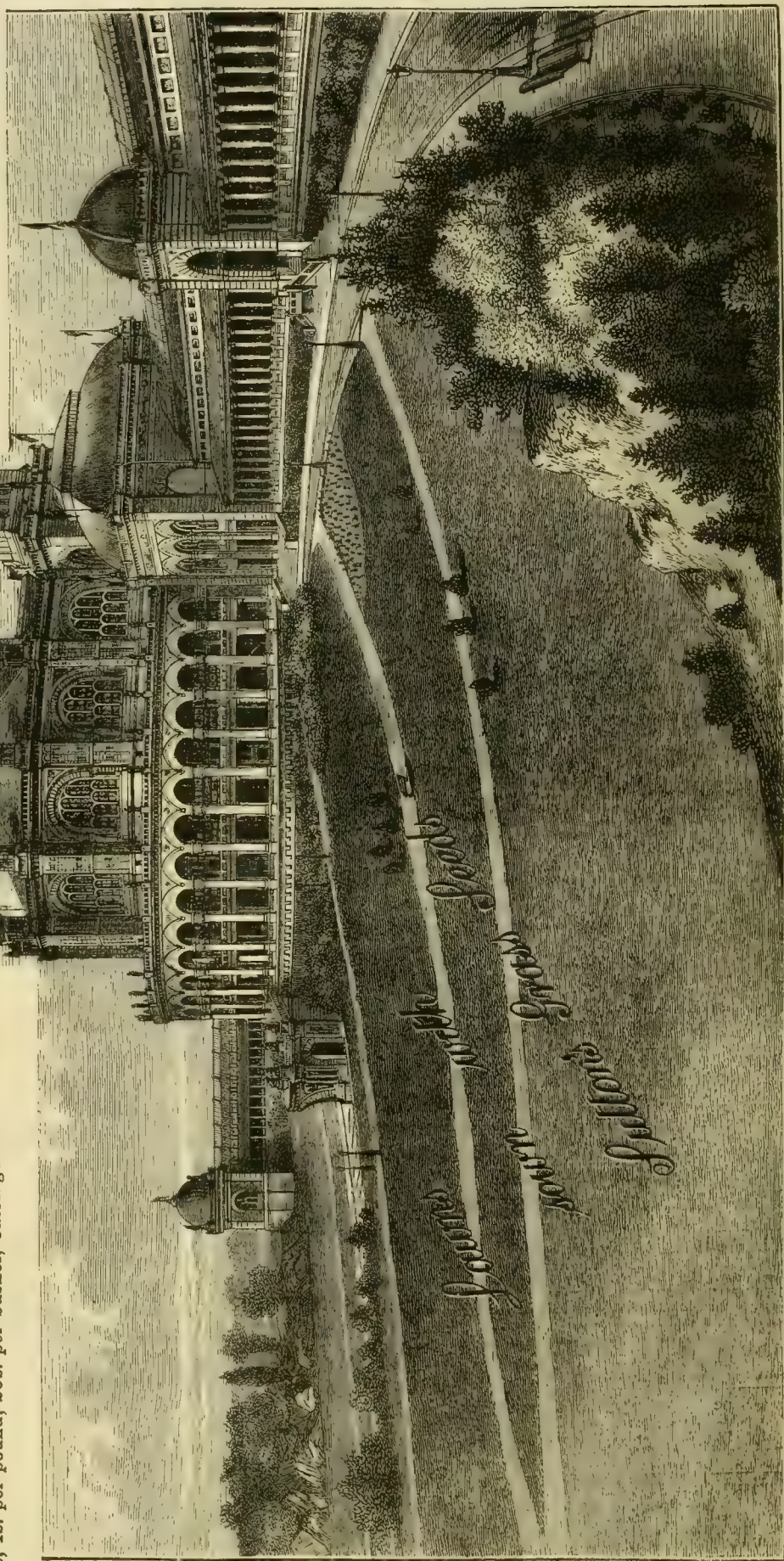
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No. 272.—VOL. XI. { NEW }
SERIES.

SATURDAY, MARCH 15, 1879.

{ Registered at the General } Price 5d.
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C.—For the best variety selected from among the plants exhibited in Class B. For the best Dark variety, £1; 2d best, 10s. For the best Light variety, £1; 2d best, 10s.
Entries to be made as usual.

THE INTERNATIONAL POTATO EXHIBITION will be held at the CRYSTAL PALACE, SYDENHAM, on September 17 and 18. Schedules and all particulars may be obtained on application to J. A. MCKENZIE, Tower Chambers, Moorgate Street, E.C.

WINTER GARDENS, SOUTHPORT.—The SECOND SPRING FLOWER SHOW will be held MARCH 20 and 21. For Schedules and all information apply to
A. CAMPBELL, F.R.H.S., Curator.

LEEDS HORTICULTURAL SOCIETY.
—The Schedule of Prizes for the GREAT SUMMER SHOW, JUNE 25, 26, and 27, are now ready, and may be obtained of the Secretary,
J. H. CLARK, Printer, Briggate, Leeds.

ROYAL SOUTHAMPTON HORTICULTURAL SOCIETY.
President—H.R.H. Prince LEOPOLD.
GREAT SUMMER SHOW, August 2 and 4.
GRAND CHRYSANTHEMUM and FRUIT SHOW, November 11 and 12.
Aggregate value of Prizes, THREE HUNDRED and FIFTY POUNDS.
Special Prize for 24 cut Chrysanthemums, distinct (no entry fee), 1st, £5; 2d, £3; 3d, £2; 4th, £1.
Schedules will be forwarded on receipt of stamp.
39, York Street, Lr. Avenue. C. S. FUIDGE, Sec.

Lemon Trees
MESSRS. JAMES VEITCH AND SONS are anxious to meet with six good LEMON TREES suitable for planting in an Orangery. The trees must be of the best variety, the fruit being required for use. Address with all particulars of size and price to
Royal Exotic Nursery, King's Road, Chelsea, S.W.

CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Illustrated Catalogues gratis and post-free. Awarded Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.

CAUTION.—No other English Seed House was awarded five Medals at the Paris Exhibition, and the Legion of Honour has not been awarded for Grass Seeds or English Seeds.

CARTERS, The Queen's Seedsmen, High Holborn, London, W.C.

Garden Seeds.

CHARLES TURNER'S Descriptive CATALOGUE of the above is now ready, containing several interesting and valuable novelties.
The Royal Nurseries, Slough.

The Duchess of Connaught.

A NEW ROSE.
Notwithstanding Shakespeare's dictum, "A Rose by any other name would smell as sweet," no Rose of recent introduction does smell as sweet as my new Rose, Duchess of Connaught.
CHARLES NOBLE, Bagshot.

Now Ready.

EWING AND COMPANY'S LIST of New Roses for 1879 is a most select one of the best New English and French varieties. Gratis and post-free to applicants.

EWING AND CO., Eaton, near Norwich.

NEW ROSES for 1879.—A selection of the very best only; the finest plants in the trade; ready in March.

LIST gratis, and post-free.

Mr. H. BENNETT, Manor Farm, Stapleford, Salisbury.

ROSES.—Standards, £5 per 100; Half-Standards, 75s. per 100; on own roots, 75s. per 100. A LIST of 200 of the best varieties to select from. Trade price on application.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

Seeds of Superior Quality.

W. M. CUTBUSH AND SON beg to announce that their Illustrated CATALOGUE of Select Vegetable and Flower Seeds, &c., is now ready, and will be forwarded post-free on application.
Highgate Nurseries, London, N., and Barnet, Herts.

Pelargoniums.

CHARLES TURNER can supply Strong Plants in all classes of above, which, if repotted at once, will produce a fine head of bloom this season.
CATALOGUES on application.
The Royal Nurseries, Slough.

Pelargoniums.

PELARGONIUS.—Strong healthy plants, in single pots, fit for immediate shifting, consisting of Show, French, and Fancy varieties, 35s. per 100, packing included. Cash with order.
HOLDER AND SON, Crown Nurseries, Reading.

VERBENAS, VERBENAS, VERBENAS.
—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s. Terms cash.
H. BLANDFORD, The Dorset Nurseries, Blandford.

A. VAN GEERT, the Continental Nurseries, Ghent, Belgium. PLANT and SEED CATALOGUES free on application. All orders have careful and prompt attention.
London Agents: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

Gentlemen's Gardeners, Amateurs, and Others

GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

WANTED, a quantity of MAIDENHAIR PLANTS, suitable for Cuttings. Large plants not objected to. State size, quantity, and price to
HEATH AND SON, Nurserymen, Cheltenham.

WANTED, 1 or 2-yr. Seedling QUICKS and Seedling BIRCH. Price and sample will oblige
JOHN CARTER, Nurseryman, Keighley, Yorkshire.

WANTED, English OAKS, transplanted, 2 to 3 feet, or 2 feet. Send price to
WM. WOOD AND SON, Woodlands Nursery, Maresfield, Sussex.

WANTED, English OAKS, 3 to 4 feet.—State price, &c., to
W. G. CALDWELL AND SONS, The Nurseries, Knutsford, Cheshire.

WANTED, lowest offers of true solid-stemmed PRICKLY COMFREY. State quantity and where delivered, by letter to
A. B. C., Messrs. Nutting & Son, 60, Barbican, London, E.C.

WANTED, RHUBARB ROOTS (Victoria).—State age, quantity, and Price for Cash per 100.—H. THORNTON, 1, Maxwell Road, Fulham, S.W.

Sutton's Seeds, &c.—Paris Exhibition, 1878.

SPECIAL HONOUR for REMARKABLE MERIT, as see the following telegram from Times Special Correspondent, which appeared in the Times of January 11, 1879:—

"Paris, Jan. 10.—The French Government has conferred the Legion of Honour on Mr. Martin J. Sutton, managing partner of the firm of Sutton & Sons, Reading, as a special recognition of the merits of the exhibits of that firm at the Paris Exhibition, and the services thereby rendered to horticulture and agriculture."

Sutton's Seeds, &c.—Paris Exhibition, 1878.

THE SPECIAL DECORATION of the LEGION OF HONOUR conferred on Mr. M. J. SUTTON was the only instance in which this great distinction was conferred on any English exhibitor of Seeds at the above Exhibition.

Sutton's Seeds, &c.—Paris Exhibition, 1878.

FIVE PRIZE MEDALS GOLD and SILVER—were awarded to SUTTON & SONS and their Paris Agent, for Sutton's Home Grown Seeds, &c.
SUTTON AND SONS, The Queen's Seedsmen, Reading, Berks.

TO THE TRADE.—Special cheap offer of Seedling FOREST TREES, &c., on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

ORCHIDS.—Thousands of handsome Orchids in good plants can be supplied, at 3s. 6d., 5s., and 7s. 6d. each. An inspection is invited; or by sending names of those already possessed, a good selection of other kinds will be made.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

NEW CATALOGUE for 1879.—The most comprehensive Catalogue issued of reasonably-priced Plants and Seeds of the best quality, and suitable for all who love a Garden or Greenhouse. See last week's large advertisement, and write for a Catalogue.

WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire.

BLACKTHORN for Covert Planting, one million of strong transplanted, 10s. to 15s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

SCOTCH FIR, LARCH, Seedling and Transplanted, for sale cheap. Carriage paid to London.
LEVAVASSEUR AND SON, Nurserymen, Ussy (Calvados), France.

SPANISH CHESTNUT, ASH, BIRCH, ALDER and HAZEL—stout, well-rooted, transplanted. A large quantity to be sold.
Mr. GEO. CHORLEY, Coaster's Nursery, Midhurst.

DOWNIE AND LAIRD, Royal Winter Gardens, Edinburgh, are now sending out their New Show and Fancy PANSIES, also VIOLAS, PENTSTEMONS, PHLOXES, &c., which they warrant all first-class flowers. Older varieties of the above by the 100 or 1000. Price on application.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.
THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.
CATALOGUES on application.

Fit for Immediate Working.

ROSA MANETTI and **R. MULTIFLORA** DE LA GRIFFERAIE, 25s. per 1000, £10 per 10,000.
A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Vines—Vines—Vines.

J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

Grapes this Year.

FRUITING CANES, perfectly ripened without Bottom-heat.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

BLACK HAMBURGH VINES, and other leading sorts, in fruiting and Planting Canes; also a few strong CALADIUMS, fine varieties, suitable for stock.
F. R. KINGHORN, Nurseries, Richmond, Surrey.

HAMPTON COURT BLACK HAMBURGH VINE.—Strong fruiting well ripened Canes of this well known Grape, 5s., 7s. 6d., and 10s. 6d. each; Planting Canes, 3s. 6d. each. Also a good stock of most of the best kinds.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Just published, free on application, a complete DESCRIPTIVE PRICED LIST of our unrivalled Collection of Tuberous BEGONIAS. Awarded Gold Medal at South Kensington, and First Prize at Preston.—JOHN LAING AND CO., Forest Hill, S.E.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

SALES BY AUCTION.

SALE THIS DAY AT HALF-PAST 12 PRECISELY.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, March 15, at half-past 12 o'clock precisely, 750 lots of **HARDY PLANTS** and **BULBS**, including Fruit Trees, Roses, Hollies, and Shrubs from Holland; choice Hardy Border Plants and Lilies; Standard and Dwarf Roses from English and French Nurseries; Rhododendrons, Begonias, Gladioli, Anemones, Ranunculi, &c.

On view morning of Sale, and Catalogues had.

Cymbidium Lowianum (Reichenbach fil.).

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 17, by order of Messrs. Hugh Low & Co., thirty-one strong established plants of the above, which on flowering proves to be a new and beautiful species. Fifteen of the plants have strong spikes with flower-buds, and one has twelve fully expanded flowers, which are of large size, on a spike 28 inches in length.

On view morning of Sale, and Catalogues had.

Aerides crassifolium

(described in *Gardeners' Chronicle*, No. 176 and No. 199, as "the King of all Aerides"), **CATLEYA DOWIANA**, and other choice ORCHIDS.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 17, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., upwards of 600 imported plants of **AERIDES CRASSIFOLIUM**, in splendid condition, with healthy leaves, many of large size, and making young roots. This is probably, without exception, the most lovely known species of the genus, as well as the most rare in collections. Also imported plants of *Vanda coerulea*, and upwards of 100 very fine plants of *Catleya Dowiana*, 200 *Odontoglossum Schleiperianum*, just to hand by R.M. ss. *Don*. At the same time will be offered established plants of *Phalaenopsis Schilleriana*, *P. amabilis*, *P. Luddemania*, *Odontoglossum cirrhosum*, with flower-spikes; 100 *O. Alexandræ*, *O. gloriosum*, *O. Roelzii*, with flower-spikes; *Cypripedium Boxalli*, *C. villosum*, flowering plants; *Dendrobium Wardianum*, *D. chrysotoxum*, *D. suavisissimum*, *Cymbidium affine*, and other choice ORCHIDS.

On view morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 19, at half-past 12 o'clock precisely, **CAMELLIAS**, **AZALEAS**, and **PALMS**, from Ghent; Standard and Dwarf ROSES, from France; FRUIT TREES, SHRUBS, choice HERBACEOUS PLANTS, rare LILIES, GLADIOLI, ANEMONES, **RANUNCULI**, &c.

On view morning of Sale, and Catalogues had.

Important Sale of *Odontoglossum Alexandræ*, and OTHER NEW GRENADIAN ORCHIDS.

MR. J. C. STEVENS begs to announce that he has received instructions from Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, N., to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 20, at half-past 12 o'clock precisely, 1000 plants of the lovely **ODONTOGLOSSUM ALEXANDRÆ**; also a quantity of plants of *O. GLORIOSUM*, *PILUMNA NOBILIS*, &c. The plants will be sold without reserve, and are in the finest possible condition, just ready to start. In the consignment will be found some magnificent pieces, probably the largest ever imported to this country.

On view morning of Sale, and Catalogues had.

New and Rare Orchids.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, March 21, at half-past 12 o'clock precisely, **ESTABLISHED** and **IMPORTED ORCHIDS**, among which will be found the magnificent new *Oncidium Kienastianum*, quite new; *Maxillaria rhombica*, believed to be offered for the first time; the white flowering *Oncidium ornithorrhynchum* album; the magnificent *Phalaenopsis Lowii*, large quantities of the beautiful *Odontoglossum nebulosum*, *Catleya citrina* and *Hartwegia purpurea*, the rare *Houlletia Brocklehurstiana* and *Trichopilia Wagneriana*, quantities of *Odontoglossum læve*, *Lælia purpuracea*, *Oncidium unguiculatum*, *Odontoglossum Reichenheimii*, *Oncidium incurvum*, *Catleya Mendeli*, *Oncidium macranthum*, *Arphyllum spicatum*, *Odontoglossum pardinum*, *O. maculatum superbum*, and a very large lot of *O. Rossi majus*, together with many other **COOL ORCHIDS**, the whole of which are in splendid condition, and which will be sold without reserve.

On view morning of Sale, and Catalogues had.

Importations of *Lilium auratum* and *L. Krameri*, in splendid condition.

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 24, 5000 splendid bulbs of **LILIUM AURATUM** from Japan, including many of unusual size; and 2000 fine roots of **LILIUM KRAMERI**; 5000 **TIGRIDIA GRANDIFLORA**, from New Jersey; importations of **DIONÆA MUSCIPULA** and **SARRACENIA FLAVA**, received direct from New Jersey; choice **CYPRIPEDIUMS**, **DISA GRANDIFLORA**, and other hardy ORCHIDS, **TREE FERNS**, &c.

On view morning of Sale, and Catalogues had.

Valuable Orchids, mostly in Flower.

MR. J. C. STEVENS has received instructions from Rev. J. B. Norman of Edgware, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 27, at half-past 12 o'clock precisely, 400 lots of first-class ORCHIDS from this well-known collection, including *Masdevallias* in flower, *Odontoglossum Alexandræ*, fine plants, in flower; *O. triumphans*, *O. Pescatorei*, *O. sceptrum*, *Trichopilia suavis*, *Cologyne conferta* in flower; *Oncidium*, many varieties in flower; *Cypripedium Dominianum*, *Dendrobium* in variety in flower; *Cymbidium Eburneum*, in flower; *Lycaste Skinneri* alba in flower; *Lælia anceps Dawsoni*, *Catleya exoniensis*, and other varieties; fine plants of *Odontoglossum vexillarium*, and many other varieties.

On view morning of Sale, and Catalogues had.

The Celebrated Collection of Plants at Dangstein.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, on the Premises, Dangstein, near Petersfield, EARLY in MAY, this magnificent COLLECTION of PLANTS, without the slightest reserve, comprising *Camellias* and *Azaleas*, *Palms*, *Dracenas*, *Crotons*, fine specimen *Gleichenias*, a most beautiful Collection of Filmy Ferns, *Trichomanes radicans* in quantity, a grand plant of *Trichomanes veniforme*, *Hymenophyllum demissum*, &c.; *Anacrostichum*, *Peperomias*, *Darlingtonias*, *Sarracenas*, *Platycyrtums*, &c.; also a choice Assortment of ORCHIDS, consisting of large plants of *Masdevallia Tovarensis*, *M. Veitchii*, *M. Harryana*, *Odontoglossum pulchellum*, splendid plants; *Catleyas* of sorts, *Dendrobies* of sorts, extra fine plants of *Stanhopeas* of sorts, *Angracum sesquipedale*, *Vandas*, &c. Further detailed particulars in future advertisements.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Imported and Home-grown Lilies, Plants, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, at the Mart, Tokenhouse Yard, near the Bank, E.C., on MONDAY, March 17, at half-past 11 o'clock precisely, an Importation from Japan, consisting of very fine Bulbs of **LILIUM AURATUM**, **KRAMERI**, **TIGRIDINUM PLENUM** and **FORTUNEI**, **THUNBERGIANUM**, **SPECIOSUM ALBUM**, and a rare Hardy ORCHID, viz., **PLATANANTHERA RADIATA ALBO MARGINATA**; a quantity of *Cypripedium spectabile*, just arrived from the States; a consignment from the Cape of *Aponogeton distachyon*, *Pelargoniums*, *Hemanthus*, *Brunsvigias*, *Sparaxis pulcherrima*, *Drimia*, *Strelitzia regina*, *Freessias*, *Oxalis*, and several others; 1000 fine roots of **TIGRIDIA GRANDIFLORA** from America, a large quantity of first-class Hardy English-grown LILIES, BULBS, and PLANTS, including *Agapanthus veltheimica*, *Dianella*, *Asparagus decumbens*, *Hypoxis*, *Hyacinthus candicans*, spotted-leaved *Callas*, *Imanophyllum*, *Clivias*, *Crinums*, *Pancratiums*, and others; also *Tree Carnations*, *Primulas*, *Phloxes*, **PICOTEEES**, and other Herbaceous Plants, *Begonias*, *Carnaeas*, choice *Dahlias*, &c.; together with an Assortment of 350 Standard, Half-standard, and Dwarf ROSES, from a well-known English Nursery.

View morning of Sale, and Catalogues had.

Importation from Japan.

MESSRS. PROTHEROE AND MORRIS will include in their SALE at the Mart on MONDAY NEXT, a separate importation of 1000 good bulbs of **LILIUM AURATUM**, 450 **L. KRAMERI**, also the very rare **LILIUM MEDEOLIDES**, and a black flowering LILY, 100 bulbs of the sweet-scented Orchid, **PLATANANTHERA RADIATA ALBO MARGINATA**, 60 good plants of **CALANTHE SIEBOLDII**, a new **CALANTHE**, and **AERIDES JAPONICUM**.

Drawings may be seen at the time of Sale. Catalogues of the Auctioneers.

St. Alban's.

CLEARANCE SALE.—Expiration of Lease.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, the Keyfield Nursery, London Road, on TUESDAY, March 18, at 12 o'clock precisely, the whole of the valuable NURSERY STOCK, consisting of thousands of Evergreen, Coniferæ, and other Shrubs in great variety, Ornamental and Forest Trees, Roses, &c.; also two Greenhouses, two Pits, Piping, Brick-work, and effects.

On view. Catalogues had on the Premises and of the Auctioneers.

N.B. THE NURSERY TO BE LET. Full particulars of Messrs. P. & M.

Important Sale of about 200 Choice Double Camellias,

2 to 4 feet, English-grown, in perfect health, well set; fine **AZALEA INDICA** and other **GREENHOUSE PLANTS**; a superb assortment of 500 handsome Standard and Dwarf ROSES of the best varieties; selected FRUIT TREES, hardy CONIFERÆ SHRUBS and **AMERICAN PLANTS**, with some fine Bulbs of **LILIUM AURATUM**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION the above, at the City Auction Rooms, 38 and 39 Gracechurch Street, E.C., on TUESDAY, March 18, at 12 o'clock precisely.

On view morning of Sale, and Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

In Liquidation.—Re William Rollinson & Sons.

FINAL CLEARANCE SALE OF PLANTS, together with the whole of the FIXTURES and UTENSILS IN TRADE.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to **SELL** by AUCTION, on the Premises, The Nurseries, Tooting, S.W., on WEDNESDAY, March 19, and following days, the remaining indoor Plants, consisting of a choice assortment of STOVE PLANTS, PALMS and FERNS, GREENHOUSE and NEW HOLLAND PLANTS, including several large *Camellias* planted out, also a number in pots; also *Azalea indica* in the newest and best kinds; a quantity of half-specimen *Ericas*, and a considerable number of small hard-wooded Heaths, *Boronia megastigma* and elatior, and other New Holland Plants; *Cyclamens*, *Bouvardias*, tuberous-rooted *Begonias*, *Yucca filamentosa variegata*; many thousands of *Geraniums* in store pots; *Roses* in pots, the whole of the extensive collection of hardy HERBACEOUS and ALPINE PLANTS, mostly in pots; Lilies, hardy ORCHIDS, together with the whole of the UTENSILS-IN-TRADE, SHOP FIXTURES, including two well-made nests of Seed Drawers, made to match, each 3 feet 6 inches by 6 feet 9 inches; Shop Counter, Lathe, Spring and Turnbrel Carts, Cart Horse, Harness, 200,000 Flower Pots, capital Iron Safe, 500 Bell Glasses, Water Cans, Garden and Water Barrows, Lawn Mower, the Loose Frames and Sashes, and numerous other effects.

May be viewed prior to the Sale. Catalogues may be had of G. WHIREN, Esq., Accountant, 8, Old Jewry, E.C.; of Messrs. LEWIS, MUNNS, and LONGDEN, 8, Old Jewry, E.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

N.B.—The valuable FREEHOLD ESTATE, of about 5A. CR. 25P., with DWELLING-HOUSE, COTTAGES, the whole of the extensive Ranges of GLASS, TO BE LET or SOLD, with immediate possession. Terms on application to the Auctioneers.

Hale Farm Nurseries, Tottenham, N.

POSTPONEMENT OF SALE.

MESSRS. PROTHEROE AND MORRIS beg to announce that the CLEARANCE SALE advertised to take place on the above premises on Tuesday, March 18, is unavoidably DEFERRED UNTIL the AUTUMN.

98, Gracechurch Street, E.C.

Leamington.

The Arboretum, close to two Railway Stations.

IMPORTANT UNRESERVED SALE of Choice Evergreen SHRUBS and TREES.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, The Arboretum, by order of Mrs. Hitchman, on THURSDAY, March 27, at 12 o'clock punctually, collections of unrivalled specimen Hardy CONIFERÆ and EVERGREENS ranging all sizes, in fine condition for removal and which were carefully prepared last spring, consisting of handsomely trained and symmetrically grown plants admirably adapted for immediate effect.

May be viewed and Catalogues obtained on application to Messrs. FIELD AND SONS, Solicitors, Leamington; of Mr. F. PERKINS, 51, Regent Street, Leamington; and of the Auctioneers, 98, Gracechurch Street, E.C.

Brixton, S.W.

About ten minutes' walk from two Stations, and 3 miles from Covent Garden.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, on the Premises, on SATURDAY, March 29, at 2 o'clock punctually, in one lot, the BENEFICIAL INTEREST in the LEASE of the Grove Nursery, Russell Road, North Brixton, S.W.—eighteen years' unexpired, at the exceedingly low rent of £3 per annum, with Six Greenhouses, Ranges of Pits, Cart-shed and Stabling standing thereon. At the same time will be SOLD the whole of the NURSERY STOCK, comprising about 3000 Evergreens and Coniferæ Shrubs, Flowering and Forest Trees in variety, fine Pyramid and Dwarf Fruit Trees, Standard and other Roses, &c.

May be viewed. Catalogues may be had on the Premises; and of the Auctioneers, 98, Gracechurch Street, London, E.C., and Leytonstone, E.

GREAT CLEARING SALE of NURSERY STOCK, Perryhill Nursery, Aberdeen.—In consequence of the death of Mr. Roy, the whole Stock is to be SOLD off without reserve by PUBLIC ROUP on FRIDAY, March 28, at 11 o'clock. The Stock is extensive.

Catalogues to be had on application to Messrs. COLLIE, Advocates, Aberdeen, Agents for Mr. Roy's Executors, or to the Auctioneer.

JOHN WILSON, Auctioneer, Aberdeen.

Trial Ground.

WANTED TO HIRE, about TWO ACRES of LAND, for a Trial Garden; must be in good heart and condition, and easy of access to the city.—Apply with full particulars to ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

TO BE SOLD, a SMALL NURSERY, well stocked and in good working order. Good neighbourhood for jobbing. With immediate possession.—Apply to C. FAIRINGTON, 16, Maida Vale, Edgware Road, London, W.

FOR SALE, by Private Bargain, a NURSERY and SEED BUSINESS.—The Business of Galloway & Graham, Nurserymen and Seedsmen, carried on at 138, Queen Street, Glasgow, with Nurseries at Old Kilpatrick, is offered for Sale, on account of the death of Mr. Galloway. The Stock at present is valued at £1832 9s. 5d. The firm have had a large connection. The Nurseries are favourably situated, and the stock is in good condition for a profitable business being in prospect.—Further information can be obtained on application to the Subscribers, with whom Offers are to be lodged on or before March 26.

MOORE AND BROWN, C.A., 128, Hope Street, Glasgow.

Hackney.

TO LET, about HALF an ACRE of LAND, enclosed with high wall, in full cultivation, Vines, &c.; with or without Stabling and Living Rooms. May be seen by appointment only, at 259, Mare Street, Hackney, E.

To Nurserymen and Florists.

TO LET ON LEASE, a most conveniently situated NURSERY and FLORIST BUSINESS, with excellent Dwelling-house, on the main road, 12 miles west of Covent Garden, and close to a railway station. There is about 1½ acre of ground, good Stable and Coach-house, nine newly erected Greenhouses, four 40-feet ranges of Pits, and an unusually well-grown Stock, consisting of the best varieties of *Pelargoniums*, *Cyclamens*, *Cinerarias*, &c. This is an opportunity seldom met with.—Apply by letter only, to T. W., 3, Bridge Road, Isleworth, W.

Notice to Debtors and Creditors.

ALL PERSONS HAVING any CLAIM or DEMAND against the Firm of SALISBURY and SMITH, of Melbourne, Derbyshire, Farmers and Market Gardeners, are requested to forward particulars of their Claims to the undersigned, on or before APRIL 6, 1879, that they may be examined and discharged.

All PERSONS INDEBTED to the said FIRM are requested to PAY the AMOUNT of their account forthwith to the surviving partner.

ROBERT SMITH, Shawe Farm, Melbourne.

March 4, 1879.

Borough of Wolverhampton.

To LANDSCAPE GARDENERS.

THE PARK and BATHS COMMITTEE of the Corporation of Wolverhampton invite DESIGNS for Laying-out the Interior of a proposed PUBLIC PARK, about 47 acres in extent, at an expenditure not exceeding £5000.

A Lithograph Plan and printed General Instructions and Conditions may be obtained from Mr. G. Eastlake Thoms, C.E., the Borough Engineer, at his Offices, Town Hall, on and after the 20th inst., on payment of One Guinea, which will be returned on receipt of bona fide Design.

The Committee offer Premiums of £50 and £25 for the best and second best designs respectively. No premiums will be paid unless the works can be carried out for the sum named—£5000. If the competitor obtaining such first-named premium is employed to carry out the work the premium shall merge in his commission, the rate of such commission to be hereafter agreed upon by the Committee.

Designs, accompanied in each case by specification and detailed estimate, under Motto, must be left at the said Offices not later than 12 noon, on SATURDAY, May 3, next, addressed to "The Chairman of the Park and Baths Committee."

H. UNDERHILL, Town Clerk.

Town Hall, Wolverhampton, March 12.

NATIONAL CHRYSANTHEMUM SHOW.—The Birmingham and Midland Counties Chrysanthemum Society being desirous to meet the wishes of various Chrysanthemum Growers in the United Kingdom will **GIVE TEN POUNDS** towards extra prizes for a National Contest of Cut Blooms at their next show, to be held in the Town Hall, Birmingham, on **NOVEMBER 26 and 27**, conditional upon £40 more being subscribed by others in the country interested in the movement, on or before the first week in April. If the £50 is subscribed the whole amount will be given in Prizes, less 10 per cent. for advertising and expenses. An entrance fee of 5s. will be charged to non-subscribers. Subscriptions accompanied by P.O.O. to be sent to the Secretary, Mr. CHARLES REDFERN, High Street, Birmingham. Should £50 not be raised the whole amount subscribed will be returned to each subscriber.

FRUITING PLANTS of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale. **THOMAS RIVERS AND SON**, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps. **CATALOGUES OF ROSES and ORCHARD-HOUSE TREES** post-free on application. **THOMAS RIVERS AND SON**, Sawbridgeworth, Herts.

MAHONIA AQUIFOLIA.—Transplanted, 6 to 12 inches, 12s. per 1000; 1 to 1½ foot, 20s. per 1000. **THOMAS PERKINS AND SONS**, 34, Drapery, Northampton.

RASPBERRY CANES.—For Sale, 150,000 Fastolf, at 17s. per 1000, free on rail. Cheque or reference to a London house required with order. **R. BATH**, Crayford.

Verbenas in Single Pots. **WILLIAM BADMAN** offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash. Cemetery Nursery, Gravesend.

Verbenas from Store Pots. **WILLIAM BADMAN** offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash. Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums. **WILLIAM BADMAN** offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100; 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash. Cemetery Nursery, Gravesend.

FOR SALE, 4000 of good 3-yr. old Crown Bob GOOSEBERRY TREES, true to name. Price £4 per 1000, delivered at Spalding Station. Cash or reference required. Apply **Mr. W. COLVIN**, Money Bridge Gardens, Pinchbeck, Spalding.

To the Trade. **SEED POTATOS.**—Our **SPECIAL LIST**, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application. **H. AND F. SHARPE**, Seed Growers, Wisbech.

Vines—Vines—Vines. **B. S. WILLIAMS** begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s **BULB CATALOGUE** for this year. Victoria and Paradise Nurseries, Upper Holloway, London, N.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade. **SANDER AND CO.**, Seed Growers, St. Albans.

Good Things. **JOHN MOGFORD**, Exporter of CAPE BULBS, can supply the Trade with all the leading kinds, DISA GRANDIFLORA, &c. 10, Camp Street Gardens, Cape Town.

Florists' Flowers. **J. FORBES' CATALOGUE** for 1879 (50 pages) of all the newest and best Carnations, Picotees, Pinks, Geraniums, Fuchsias, Pansies, Phloxes, Pentstemons, Antirrhinums, Begonias, Verbenas, &c., is now ready, and may be had free on application. The Nurseries, Hawick, N.B.

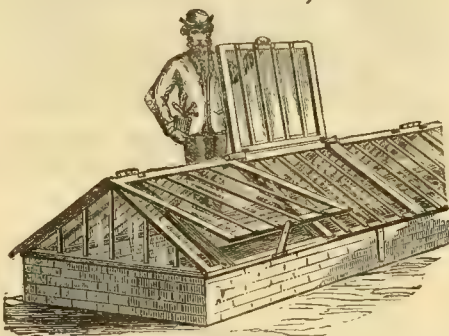
Special Cheap Offer. **TO SEEDSMEN, MARKET GARDENERS, and OTHERS** **PEA, Jeyes' or Payne's Conqueror.** About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to **W. BALL AND CO.**, Bedford Road Nursery, Northampton.

To the Trade. **NEW POTATO, "PRIDE OF ONTARIO."** and **F. SHARPE** are now sending out the above most prolific and handsome shaped new Potato. Full description and price may be had on application. Seed Growing Establishment, Wisbech.

Mangel Seed. **JOHN SHARPE** is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs. **Bardney Manor, Lincoln.**

FOREST TREES, Seedling and Transplanted.—The very extensive stock of the above is this season in splendid condition. **CATALOGUES** on application. The Lawson Seed and Nursery Company (Limited) Edinburgh.

BOULTON & PAUL, Horticultural Builders, Norwich.



No. 64. PATENT PLANT PRESERVERS.

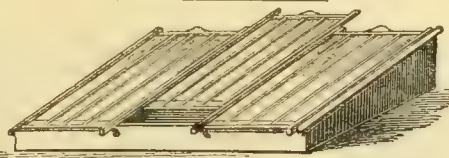
ARRANGED TO BUILD ON BRICK WALLS.

This is the Practical Gardener's and Nurseryman's favourite Frame, now largely used for storing the great quantities of bedding plants in winter, and in summer for growing Melons, &c.

Section No. 64 shows the frame built on brickwork, with a pit sunk low enough for making a dung bed for growing Cucumbers, Melons, &c. This form can be made up to any length required. (See List, free on application.)

CASH PRICES, including two glass ends to each length, painted four times, glazed with 21-oz. glass. Carriage paid.

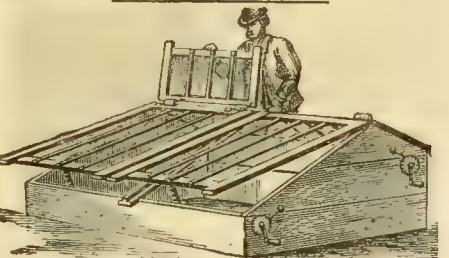
| Length. Feet. | Width. Feet. | £ s. d. | Length. Feet. | Width. Feet. | £ s. d. |
|---------------|--------------|---------|---------------|--------------|---------|
| 12 | 5 | 5 5 0 | 24 | 6 | 11 10 0 |
| 18 | 5 | 7 5 0 | 30 | 6 | 14 0 0 |
| 24 | 5 | 9 2 6 | 12 | 7 | 8 0 0 |
| 30 | 5 | 11 2 6 | 18 | 7 | 11 0 0 |
| 12 | 6 | 6 10 0 | 24 | 7 | 14 0 0 |
| 18 | 6 | 9 0 0 | 30 | 7 | 17 0 0 |



100 MELON and CUCUMBER FRAMES

Ready to dispatch on receipt of order. These Frames are made of the best red deal, thoroughly seasoned, and fitted by first-class workmen: 24 inches high at the back, 13 inches high in front; painted three coats of good oil colour, glazed with the best 21-oz. glass, every pane of which is nailed in and bedded in putty—the best method of glazing known, and adopted by the most eminent Builders and leading Nurserymen (see the *Garden* for January 13, 1877, p. 30). Iron handles to each light, and an iron strengthening bar across. Each light is 6 feet by 4 feet, and 2 inches thick.

| | CASH PRICES. | £ s. d. |
|--------------------|------------------|---------|
| 1-Light Frame..... | 4 feet by 6 feet | 2 0 0 |
| 2-Light "..... | 8 " 6 " | 3 7 6 |
| 3-Light "..... | 12 " 6 " | 4 17 6 |
| 4-Light "..... | 16 " 6 " | 6 7 6 |
| 5-Light "..... | 20 " 6 " | 7 17 6 |
| 6-Light "..... | 24 " 6 " | 9 7 9 |



No. 74. NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.

Our illustration shows a New Frame for Growing Cucumbers, Melons, &c., and for storing plants. It is made to give greater height and more convenience than the Melon Frame, No. 75. The front is 11 inches high, without the light, 32 inches high at the ridge, and 22 inches high at the back. The front lights can be turned back on the lights behind, and the back lights turned on to the front lights, giving access to all the plants. They are made of the best red deal, sides and ends 1½ inch thick, 2 inch lights; all are painted three times and glazed with 21-oz. sheet glass.

| | CASH PRICES—Carriage paid. | £ s. d. |
|--------|----------------------------|--|
| | From front to back. | Gearing extra to 8 ft. size and upwards. |
| No. 1. | 4 | 6 0 0 |
| No. 2. | 8 | 15 0 0 |
| No. 3. | 12 | 25 0 0 |
| No. 4. | 16 | 35 0 0 |
| No. 5. | 20 | 45 0 0 |

SPECIAL NOTICE.—Carriage paid to any railway station in England, also to Dublin, Glasgow, and Edinburgh, on order of 40s. and upwards.

Breakage seldom occurs. Should any glass be broken we will send sufficient to repair it, carriage free. Packing Cases charged cost price, and half allowed when returned free to our Works.

New Illustrated Catalogue of Greenhouses, Plant Preservers, Melon Frames, &c., post-free.

BOULTON & PAUL, NORWICH.

Now Ready. **CRANSTON AND CO.'S TRADE LIST** of NEW ROSES for 1879. King's Acre Nurseries; near Hereford.

Paul's Roses. **WM. PAUL AND SON'S** stock of ROSES is large, of excellent quality, and uninjured by frost. Standards, 15s. per dozen and upwards; Dwarfs, 9s. per dozen; Climbers, 6s. per dozen. Priced Descriptive CATALOGUES free by post. Paul's Nurseries, Waltham Cross, N.

DRACENA COOPERII and TERMINALIS, from 6 to 24 inches, to be sold cheap. For prices, apply to **W. AND T. SAMSON**, Kilmarnock.

TREE FERNS and PALMS.—Some fine specimens, **SEAFORTHIA ELEGANS** and a large **SAGO PLANT**, &c., to be sold, in consequence of Fern House being over-crowded. Apply, **F.**, Box 17, Post-office, Wolverhampton.

A Special Offer. **AUCUBA JAPONICA**, 1½ to 2 feet, fine plants, 30s. per 100; about 2000 of them. Also several thousands of 5-yr. old transplanted **QUICK**, price 40s. per 1000. Several thousands of 3-yr. **QUICK**, finely rooted, 25s. per 1000; on Cash terms. Address, **GEO. FLOWER**, The Nurseries, Newark, Notts.

ALTERNANTHERAS of Sorts, from Stores, 8s. per 100, or 70s. per 1000. Orders now booked and executed in rotation. LIST of Carpet and other Bedding Plants free on application. Terms cash. **WILLIAM MILES**, West Brighton Nurseries, Cliftonville, Sussex.

The Lovely Cape Water Lily. **APONOGETON DISTACHYON.**—Strong native roots, 14s. and 21s. per dozen, 1s. 6d. and 2s. 6d. each. Price to the trade on application. **HOOPER AND CO.**, Covent Garden, London, W.C.

GLASTONBURY or HOLY THORN.—Strong plants of above, 3 to 4 feet high, 2s. 6d. each. Always blossoms at Christmas. **J. GEO. HILL**, The Royal Nurseries, Merriott, Somerset.

Roses, Fruit Trees, &c. **WILLIAM FLETCHER'S CATALOGUE** for the present season is now ready, and may be had on application. The stock is very large and most healthy. The Ottershaw Nursery, Chertsey.

TODEAS.—Healthy young plants of T. superba and T. hymenophyllodes (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application. **ROBERT SIM**, Sidcup Hill Nursery, Foot's Cray, Kent.

Cabbage Plants. **CABBAGE PLANTS.**—Can now supply the following, good strong healthy plants:—Early Battersea, Early Nonpareil, Early Enfield Market, Early Oxheart, Robinson's Drumhead, and Red Pickling Cabbage. Prices on application. **W. VIRGO**, Womersley Nurseries, near Guildford.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers **AZALEA INDICA** of all sizes, **AZALEA MOLLIS**, and **A. PONTICA**; **CAMELLIAS**, **DEUTZIA GRACILIS**, **DIELYTRA SPECTABILIS**, **SPIRÆA JAPONICA**, **PALMS** for Table use, **DRACENAS**, **FERNS**, and **YUCCA VARIEGATA**. CATALOGUES free on application.

HARDY HEATHS.—60,000 good plants, in great variety—fine for Edging, Bedding, Covering Banks or raised mounds. The prices, which are very low, will be found in the CATALOGUE, free per post. **JAMES SMITH**, Darley Dale Nurseries, near Matlock.

To the Trade. **MANGEL WURZEL and TURNIP SEEDS.** **H. AND F. SHARPE** will be pleased to give special quotations for their fine selected stocks of home-grown **MANGEL WURZEL**, and **SWEDE** and other **TURNIP SEEDS** of 1878 growth, and raised from transplanted Bulbs. Seed Growing Establishment, Wisbech.

MILES' NEW HYBRID SPIRAL MIGNONETTE.—This being the best time to sow I beg to offer from the original stock, at 1s. per packet, or 12s. per dozen. The usual allowance to the trade. **WILLIAM MILES**, West Brighton Nurseries, Cliftonville, Sussex.

Pansy Seed. **DOWNIE and LAIRD** have to offer choice Fancy and Show **PANSY SEED**. Prices to the trade on application. **DOWNIE and LAIRD**, Nurserymen, Seedsmen and Florists, 17, South Frederick Street, Edinburgh.

Bedding Geraniums, Lobelias, &c. **GERANIUM**, Wonderful (the semi-double Vesuvius), 10s. per 100; stock plants with cuttings on, 2s. 6d. per dozen, 15s. per 100; Master Christine, 10s. 6d. per 100; Leamington Lassie, 5s. per dozen; all strong autumn-struck plants. **LOBELIA**, St. Martin's Blue, 7s. 6d. per 100; Brighton, 5s.; pumila magnifica 4s. 6d., post-free. **BEDDING VIOLAS and PANSIES**, a choice collection 10s. 6d. to 14s. per 100. **J. J. MARRIOTT**, Highfield Nurse, Matlock.

Camellias. **WM. PAUL AND SON** (Successors to the late A. Paul & Son, established 1806), Paul's Nurseries, Waltham Cross, Herts, invite attention to their large stock of the above. The collection, which comprises upwards of 200 varieties, is now coming into flower, and will continue in bloom throughout February and March. Plants nicely set with bloom-buds can be supplied, from 30s. to 125s. per dozen. Specimen plants from 21s. to £30 each. Visitors by railway can enter the Nurseries from the platform, Waltham Station, Great Eastern Railway, half an hour's ride from London.

Surplus Stock, to Clear Ground.

MESSRS. CRANSTON AND CO. are offering at very reduced prices the following well grown Nursery Stock:—

LAUREL fine bushy plants, 2 to 2½ feet, 12s. 6d. per 100; 2½ to 3 feet, 16s. per 100; 3 to 4 feet, 20s. per 100
 YEW, bushy, 2 to 2½ feet, 20s. per 100; 2½ to 3 feet, 30s. per 100; 3 to 4 feet, 50s. per 100
 RHODODENDRON PONTICUM, 1 to 1 foot, 15s. per 100; 1 to 1½ foot, 20s. per 100 bushy, 1½ to 2 feet, 25s. per 100
 BOX, Tree, 1 to 1½ foot, 10s. 6d. per 100; 1½ to 2 feet, 15s. per 100; 2 to 2½ feet, 20s. per 100
 THUJA WAREANA, 2 to 3 feet, 25s. per 100; 3 to 4 feet, 30s. per 100
 „ LOEBI, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen; very fine, 5 to 6 feet, 12s. per dozen
 PINUS EXCELSA, 1½ to 2 feet, 6s. per dozen; 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen
 „ AUSTRIACA, 3 to 4 feet, 6s. per dozen; 4 to 5 feet, 9s. per dozen; 5 to 6 feet, 12s. per dozen
 ABIES DOUGLASSII, 3 to 4 feet, 15s. per dozen; 4 to 5 feet, 18s. per dozen; splendid plants, 5 to 6 feet, 24s. per dozen
 CEDRUS ATLANTICA, 2 to 3 feet, 9s. per dozen; 3 to 4 feet, 12s. per dozen
 CEDRUS DEODARA, 1½ to 2 feet, 12s. per dozen; 2 to 3 feet, 18s. per dozen
 CUPRESSUS LAWSONIANA, 2 to 3 feet, 16s. per 100; 3 to 4 feet, 25s. per 100
 HEMLOCK SPRUCE, 2½ to 3 feet, 6s. per dozen; 3 to 4 feet, 9s. per dozen
 PICEA LASIOCARPA, 1 to 1½ foot, 24s. per dozen; fine, 1½ to 2 feet, 30s. per dozen
 „ NORDMANNIANA, 1½ to 2 feet, 15s. per dozen; 2 to 2½ feet, 18s. per dozen; 2½ to 3 feet, 24s. per dozen; 3 to 3½ feet, 30s. per dozen
 RETINOSPORA FISHERA, 2 to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen
 THUJOPSIS BOREALIS, 2 to 3 feet, 15s. per dozen; 3 to 4 feet, 24s. per dozen
 WELLINGTONIA GIGANTEA, transplanted last spring, 1½ to 2 feet, 18s. per dozen; 2 to 2½ feet, 24s. per dozen; 2½ to 3 feet, 30s. per dozen
 ACER NEGUNDO VARIEGATA, standard, 9s. per dozen
 SCARLET CHESTNUT, standard, 10s. to 15s. per dozen
 PEARS and CHERRIES, standard and dwarf-trained, very fine, 18s. to 24s. per dozen
 PEARS, Pyramid, bearing trees, 9s. to 18s. per dozen
 PEACHES, NECTARINES, and APRICOTS, dwarf-trained
 PEARS, Maiden 3 to 4 leading varieties, 4s. per 100
 MANETTI STOCKS, 50,000, from our own selected stock
 MARÉCHAL NIEL ROSES, standard and dwarf, extra fine ground plants
 ROSES, dwarf, Tea-scented, strong established plants, in 5-inch pots
 LIST of ROSES, including the new Roses for 1879, on application
 CRANSTON'S Nurseries, King's Acre, Hereford.

SURPLUS STOCK.

COLCHIC LAUREL, 3 to 4 feet, strong and bushy.
 SYCAMORE, 1½ to 3 feet.
 PINUS AUSTRIACA, 1 to 1½ foot.
 LARCH, 15 to 24 inches.
 SPRUCE FIR, 12 to 15 inches.
 Samples and Prices on application.

A. W. BARNES, Nurseryman and Seed Merchant, High Street, Skipton, Yorkshire.

SEEDS FOR SALE.—Brussels Sprouts, Early Cabbage, Myatt's Extra Curled Parsley, Yellow Intermediate Mangel, all from selected stock. Also a few tons of Snowflake Potatoes. For lowest cash price apply to F. AND C. MYATT, Offenham, Evesham.

Seed Potatoes.

THE BEST MAIN-CROP POTATO THAT CAN BE GROWN IS "MAGNUM BONUM."

Withstands Disease better than any other sort. Is the most abundant Cropper, 210 sacks of 240 lb. each per Acre having been lifted.

MR. LAWREN, "The Uplands," Handsworth, near Birmingham, can supply genuine SEED of this POTATO, for which he was awarded a Prize at the Great Root Show, in November last.

Prices in bags of 1 cwt., 15s. No charge for bags. Free on Rail, or to any address in Birmingham, on receipt of Post-office Order or Cheque

CHOICE FLOWER SEEDS.

STOCK, East Lothian, very select strains

„ Crimson, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.

„ Purple, Scarlet, White, and White Wallflower-leaved, per packet, 6d., 1s., and 2s. 6d.

ASTER, Betteridge's superb Quilled Globe (seed direct from Mr. Betteridge).

„ 24 varieties, separate, including latest novelties, 2s. 6d.

„ 12 ditto ditto, 1s. 6d.

MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex; per packet, 6d. and 1s.

COCKSCOMB, Sime's superb strain, First Prize at Carlisle International Show, and wherever exhibited. Was shown at Edinburgh with comb over 40 inches long. Per packet, 1s. and 2s. 6d.

PANSY, Show, from a superb collection of named Exhibition varieties: per packet, 1s. and 2s. 6d.

„ Fancy, from a first rate collection of named flowers: per packet, 1s. and 2s. 6d.

„ Above free by post.

TODD AND CO., Seedsmen and Florists, Maitland Street, Edinburgh.

EWING AND CO., having a Surplus Stock of

the following, are offering them at considerably reduced prices, which can be had on application:—

Manetti Stocks, Pyramid Pears on Quince, Dwarf-trained Apricots, Maiden Apricots, Nut and Filbert bushes, White Mulberries, large Horse Chestnuts, Limes, Poplars, Willows, and Elms; also the following Deciduous Flowering Shrubs and Climbers:—Cytisus nigricans, Deutzia scabra, Fortunei, candidissima, &c.; Forsythia suspensa and viridissima; Lonicera tatarica and tatarica alba; Lilac, common; Symphoricarpos vulgaris and montanus, Potentilla fruticosa, yellow-berried Privet, Red Dogwood, Spiræa callosa, Douglasii, prunifolia flore-pleno, Reevesii and salicifolia; Philadelphus mexicanus and Gordonianus, Tamarix gallica and narbonensis, Althea frutex, Rhus c. tinus, Kerria japonica variegata, Virginian Creepers, Lonicera aurea reticulata, &c.

The Royal Norfolk Nurseries, Eaton, near Norwich.



NEW AND CHOICE SEEDS FOR 1879.

WILLIAMS' CYCLAMEN PERSICUM GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per pkt.
 WILLIAMS' CYCLAMEN PERSICUM GIGANTEUM, 5s. and 2s. 6d. per packet.
 WILLIAMS' CYCLAMEN PERSICUM, finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.
 WILLIAMS' CALCEOLARIA, Herbaceous, finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.
 WEATHERILL'S CINERARIA, extra choice mixed, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.
 WILLIAMS' PRIMULA SINENSIS FIMBRIATA COCCINEA, new, 5s. and 3s. 6d. per packet.
 WILLIAMS' PRIMULA SINENSIS FIMBRIATA, red, white, or mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.
 WILLIAMS' BEGONIA, New Bedding, finest mixed, 2s. 6d. per packet.
 WILLIAMS' SOLANUM HYBRIDUM, Empress, new, 2s. 6d. per packet.
 WILLIAMS' VIOLA CORNUTA, Loveliness, new, 2s. 6d. per packet.



COLLECTIONS OF CHOICE VEGETABLE SEEDS

FOR ONE YEAR'S SUPPLY.

- A COLLECTION, 10s. 6d.
- B COLLECTION, 21s.
- C COLLECTION, 42s.
- D COLLECTION, 63s.
- E COLLECTION, 84s.

Illustrated Seed Catalogue, of New and Choice

FLOWER and VEGETABLE SEEDS, POST-FREE.

All Seeds amounting to 20s. Carriage Free to any Railway Station in England.

Flower Seeds Free by Post, except heavy kinds.



Special Offer.

W BALL AND CO., Bedford Road Nursery, Northampton, having a very large stock of the under-mentioned TREES, &c., in fine condition for removal, have much pleasure in offering them at the following low prices:—

ASH, 2 to 2½ feet, fine, 18s. per 1000.
 BERBERIS AQUIFOLIA, 1 to 1½ foot, very fine, 12s. per 1000.

ELMS, Canadian, 8 to 10 feet stems, with good heads, 100s. per 100.

„ English (upright), 6 to 7 feet stems, fine, with good heads, 100s. per 100.

HORNBEAM, 2 to 3 feet, fine, 20s. per 1000.

LIMES, 8 to 9 feet, very fine, 50s. per 100; 9 to 11 feet, ditto, 70s. per 100.

PRIVET, common, 2 feet, bushy, 10s. per 1000.

„ OVALIFOLIUM, 3 to 4 feet, very fine, 50s. per 1000.

WALNUTS, 6 to 7 feet stems, nice heads, 60s. per 100.

CHERRIES, Morelo, dwarf-trained, splendid stuff, 18s. p. doz.

APRICOTS, Moorpark, dwarf-trained, splendid stuff, 20s. per dozen.

ROSES, extra fine standards, large heads, fine varieties, 4 feet stems, no better in the trade, our selection, 70s. p. 100.

APPLES, fine standards, best market varieties, our selection, 60s. per 100.

PEARS, fine standards, best market varieties, our selection, 70s. per 100.

General CATALOGUE of Seed and Herbaceous Plants post-free on application.

DARLEY DALE NURSERIES.

—One Hundred and Sixty Acres of Ground covered with TREES and SHRUBS. Many thousands are grown for Ornamental Planting. Amongst them we have large quantities of Picea nobilis, P. Nordmanniana, P. balsamea; Pinus Cembra, P. Strobus, P. Laricio; Cryptomeria elegans, japonica, and Lobbi; Yews, Common and Irish. Golden in several varieties; Retinosporas, many kinds; Cupressus Lawsoniana and many beautiful varieties, including lutea and Smith's argentea; Libocedrus decurrens; fine Wellingtonias; Cedrus Deodara, &c. Also many fine specimens not mentioned in the CATALOGUE. Also large quantities of Flowering Shrubs, Ribes, Lilies, Weigelas, &c.

Prices and Sizes in CATALOGUE sent free on application to JAMES SMITH, Darley Dale Nurseries, Matlock.

TO THE TRADE.

SWEDS, Hall's Westbury Purple-top, 200 bushels nett growth of present season.

CABBAGE, Early Rainham and Enfield Market, nett growth present season. Prices on application to W. COCKS, Monk's Hall, Gosberton, Spalding.

L. PAILET, NURSERYMAN, Chateaux les

Sceaux, near Paris, has to offer the following:—Roses, Fruit Trees, maiden or trained; Ornamental Trees and Shrubs, Tree and sinensis Paeonies; Magnolia Lenné, oxoniensis and others; Camellias, Rhododendrons, Azaleas, Clematises, Conifers, Bamboos, Yuccas, tuberous Begonias, Viola Belle de Chateaux and others; Trees for Avenues, such as Acers, Platanus, Horse Chestnut, FRUIT TREE STOCKS, FORES TREES, and others of every description, grown in large quantities; Manetti, De la Griferaie and Brier Rose Stocks.

Send for Trade List and Catalogues to L. P., as above; or to his Agents in London, Messrs. R. SILBERRAD and SON, 15, Harp Lane, Great Tower Street, E.C.

TO THE TRADE.

100,000 LARCH FIR, transplanted.
 75,000 ASH, transplanted.
 50,000 CHESTNUTS, Spanish, transplanted.
 50,000 MANETTI STOCKS.
 20,000 LAURELS, Common.
 5,000 AUCUBAS.
 5,000 LAURELS, Portugal.
 STANDARD ROSES.

ASPARAGUS PLANTS, 2, 3, and 4-yr.

Extra fine Dwarf-trained PEACHES, NECTARINES, APRICOTS, APPLES, PEARS, PLUMS, and CHERRIES, also fine Pyramid APPLES and PEARS.

WM. WOOD AND SON, The Nurseries, Maresfield, Uckfield, Sussex.

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GOLD MEDAL BEGONIAS.—Seed saved from our unrivalled collection of named varieties, in sealed packets, 1s. 6d. and 2s. 6d. post free. Special offers to the Trade.

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ENGLISH YEWS.—Extra transplanted and well furnished, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 90s. per 100.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

Roses, Roses.

DOWNIE AND LAIRD are now sending out the above, the Finest Varieties in Cultivation, at 9s. per dozen, selection left to D. & L.

Royal Winter Gardens, Edinburgh.

WEBB'S CHOICE POLYANTHUS AND OTHER SPRING PLANTS. Early orders are solicited for the above choice plants. Apply to THE MANAGER, Calcot Gardens, Reading.

WEBB'S PRIZE COB FILBERTS AND OTHER NUTS.

Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to THE MANAGER, Calcot Gardens, Reading. CATALOGUES post-free on application.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to

The LAWSON SEED AND NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

CHAMPION POTATO is acknowledged to be, both in Kent and Scotland, the best Farmer's or Field Potato; most reliable in all soils and seasons, and its extended cultivation yearly is most marvellous.

Price per ton on application.

H. ORMSBY, Swanley, Kent.

SUTTON'S MAGNUM BONUM POTATOS for Sale. For Seed Bag of 4 stones, 8s. Post-office Orders payable at Uppingham.

J. W. KINGSTON, Glaston, Uppingham.

ASPARAGUS, ASPARAGUS.—Strong roots, 2-yr. old, Conover's Colossal and Giant, 15s. per 1000.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

To the Trade.

ASPARAGUS, Giant, 1, 2, 3, and 4-year.

JAMES BIRD, Nurseryman, Downham.

To the Trade, &c.

ASPARAGUS, GIANT.—Splendid Roots for Planting, in immense quantity.

EWING AND CO., Norwich.

SURPLUS STOCK.—50,000 MANETTI STOCKS, Gloire de Dijon, Cheshunt Hybrid, and Céline Forestier ROSES. Prices on application to

EWING AND CO., Eaton, near Norwich.

Valuable Offer to Planters.

SPECIMENS of the following:—**ARAU-CARIA IMBRICATA**, IRISH YEWS, from 5 to 7 feet, beautiful specimens and well rooted. These and some other things offered cheap for cash.

ROBERT HORSMAN, Longdown Nursery, Marchwood, Southampton.

W. AND J. BROWN can supply a few hundreds of **CENTAUREA RAGUSINA**, pricked out in 3's, 6s. per 100; also 50 Double White PRIMROSES, 16s. per 100. Cash with order.

Nurseries, Stamford.

To the Trade

THOMAS METHVEN AND SONS have a large and fine Stock of strong transplanted SCOTCH FIR and PINUS LARICIO, and will be happy to send special quotations on application.

Leith Walk Nurseries, Edinburgh.

KENTISH FRUIT TREES of every description, at extraordinary low prices. Send for Special LIST to

T. EVES, Gravesend Nurseries. Established 1810.

Carnations and Picotees.

CHARLES TURNER is now prepared to supply the above in fine Plants and in great variety. This is the best thing for planting to ensure a good bloom of these popular flowers. CATALOGUES on application.

The Royal Nurseries, Slough

J. ROCK AND SON have to offer for cash, **DAISIES** (AUCUBA/FOLIA) and **SAXIFRAGA GRANULATA PLENA**, in nice clumps, 4s. per 100.

Swinfen, near Lichfield.

Hazel—Scotch Fir.

J. GEO. HILL has a quantity of Strong HAZEL, 3 to 3½ feet; also Scotch FIR, 2 to 2½ feet, to offer on very liberal terms for cash.

J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

CARNATIONS AND PICOTEEES, fine named sorts and good plants, 12s. per dozen pairs; PINKS, 6s. per dozen pairs. Discount to the trade.

SAMUEL HARTLEY, Headingley Nursery, near Leeds.

SEED POTATOS.—Four Tons of Early White Kidney, grown on Moss. Price £4 10s. per ton; also 100 other varieties at moderate prices.

KERR AND FOTHERINGHAM, Seedsmen, Dumfries.

SEAKALE, extra strong, for Forcing, finest roots in the trade; also TARRAGON, extra large clumps. Price on application to

C. PAGE, St. John's Nursery, Walham Green, Fulham, S.W.

STAWBERRIES, prepared Plants.—Now is the time to plant for profit. The fact of my being located in the midst of hundreds of acres enables me to offer very fine plants of the best and most profitable Kentish kinds, true to name, 4s. per 100. Special prices for large quantities.

STRAWBERRIES.—Splendid strong plants, established in small pots for immediate private planting, to produce a crop of fruit at once, 12s. per 100.

STRAWBERRIES for Forcing.—Extra strong, in 6-inch pots, showing three or four crowns. Crop at once certain. 35s. per 100. Special prices per truckload.

CATALOGUE post-free.

From Mr. Henry Peckham, *Thorpe, Chertsey, October, 1878.* "Dear Sir,—The Strawberry plants (24,000) have arrived in splendid condition."

H. CANNELL, Swanley, Kent.

RASPBERRIES.—The best Kentish kinds, strong, picked Canes, and if planted now will yield a crop this season. Price, &c., on application.

H. ORMSBY, Swanley, Kent.

STANDARD ROSES.—Clean, straight stems, with good heads and well rooted, of leading varieties only. List of sorts and prices on application to

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

To the Trade

ROLLISSON'S TELEGRAPH CUCUMBER (true).

J. GEO. HILL has a quantity of above, true stock, and offers it at a low rate considering the quality. Also **GOLDEN PERFECTION MELON**—no other varieties grown. Price on application to

J. GEO. HILL (late Scott), The Royal Seed Stores, Yoevil.

PELARGONIUM VOLUNT NATIONAL.—The most beautiful large-flowered Geranium ever introduced. Good Plants, 3s. 6d. each; free by post, 3s. 9d.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

"E D E L W E I S S."

GNAPHALUM LEONTOPODIUM (Jacq.).

LEONTOPODIUM ALPINUM (Cass.).



This lovely little alpine is yet scarcely known in our gardens, though its culture is a very easy one. Sown early in spring in flat pots, filled with sandy peat, mixed with some good loam, and kept moist, it will grow in about a fortnight; replanted and put in a cool frame, they will be fit for planting out-of-doors in about six weeks. Any good garden soil, not too stiff, will be sufficient, and a good tree-to-the-sun-exposed place will suit them.

Price 1s. 6d. per packet, post-free.

CARTERS,

The Queen's Seedsmen,

HIGH HOLBORN, LONDON, W.C.

Splendid New Camellias.

W. M. PAUL AND SON have to offer good sound Plants of the splendid New CAMELLIAS introduced by Messrs. Hovey & Co., of Boston, Mass., now flowering in England for the first time:—

C. M. HOVEY, Scarlet

C. H. HOVEY, Velvet Crimson.

Mrs. A. M. HOVEY, Pink.

Two of these varieties were exhibited before the Royal Horticultural Society on the 11th inst., and the third is now blooming in the Waltham Cross Nurseries, where also the finest of all White Camellias, both in flower and foliage,

NUIFA EGERIA, 1s. 6d. each.

One plant of each of the four varieties for £2, including packing and carriage to London.

The finest general collection of Camellias in the world now in full bloom.

PAUL'S NURSERIES, Waltham Cross, Herts, adjoining Waltham Station, G.E.R., half an hour from London.

To the Trade.

POTATOS.—Myatt's Prolific Early Kidney, £5 5s. per ton; Early Rose Kidney, £6 6s. per ton. Fine and good samples, to be sold for prompt cash. Free on rails. New 4 lb. 4 bushel sacks, 1s. 2d. each.

W. W. JOHNSON AND SON, Seed Growers and Merchants, Boston, Lincolnshire.

To Florists and the Trade.

SPIRÆA JAPONICA, 2s. 6d. per dozen sprays; CAMELLIAS, White, 3s. per dozen; GERANIUM, Scarlet, 6s. per dozen bunches; ROSES, 3s. per dozen; MAIDENHAIR FERN, 6s. per dozen bunches; SPIRÆA JAPONICA, 18s. and 24s. per dozen, in pots, unusually fine. Cash with orders.

C. WILSON, Nurseryman, Summerhow, Kendal.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers to the Trade Seedlings in store pots:—*Areca lutescens*, 40s. per 100; *Areca rubra*, 30s. per 100; *Chamaerops excelsa*, 8s. per 100; *Cocos Weddelliana*, 100s. per 100; *Corypha australis*, 20s. per 100; *Euterpe edulis*, 25s. per 100; *Lantana borbonica*, 8s. per 100; *Pandanus utilis*, 25s. per 100; *Phoenix reclinata*, 16s. per 100; *Phoenix tenuis*, 22s. per 100; *Scaevola elegans*, 25s. per 100; *Thrinax elegans*, 32s. per 100; *Aralia Sieboldii*, 6s. per 100; *Dracena indivisa*, 6s. per 100.

CALCEOLARIA, Golden Gem.—Strong healthy autumn-struck, 6s. per 100, 50s. per 1000.

GERANIUM, Vesuvius.—Strong, from stores, 8s. per 100. Package free, cash.

W. FIELD, Tarvin Road Nursery, Chester.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

POTATOS.—Myatt's Kidney, also Early Rose Potatoes (seed size), by the ton or cwt.

T. EVES, Gravesend Nurseries. Established 1810.

Pinus Laricio.

CORSICAN PINE.—For prices of this valuable Pine, which is seldom eaten by rabbits—never if they can get any other food—apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Choice Seed Potatoes Grown by Us.

COVENT GARDEN PERFECTION, and others, true and right in every respect. Prices moderate. Apply to

W. JACKSON AND CO., Nurseries, Bedale, Yorkshire.

THORN QUICKS.—Strong, transplanted, and seedlings. Prices on application to

R. B. MATTHEWS, Nurseryman, Belfast.

ASPARAGUS.—The noted Gravesend Giant variety. Strong 3-yr. old, 3s. per 100.

T. EVES, Gravesend Nurseries. Established 1810.

SEED POTATOS.—American Snowflake, £5 10s. per ton; Rivers' Royal Ashleaf, £5 10s. per ton; Myatt's Short-top Ashleaf, £5 per ton; Sutton's Improved Flourball, £4 per ton. All true and specially grown for seed, and free from frost. Address

RICHARD CRUST AND SON, Potato Growers, Spalding, Lincolnshire.

THUJOPSIS BOREALIS, fol. var.—One of the best and finest hardy Conifers, fine strong plants, about 3 feet high, 6s. each, 48s. per dozen. Apply to

JEAN N. VERSCHAFFELT, The Nurseries, Ghent, Belgium.

PINUS LARICIO, 25s. per 10,000, or 3s. 6d. per 1000.

CUPRESSUS LAWSONIANA, 3 to 5 inches, 15s. per 1000. A sample 100 of each, 5s. (stamps), all fibrous-rooted 1-yr. seedlings, in perfect condition.

JAS. HATHERELL, Brooklands, Weybridge, Surrey, S.E.

Taxus baccata.

YEWS, English.—Well-furnished, good roots, bushy, lately transplanted, 3½ to 4½ feet high, to be sold cheap for cash.

W. W. JOHNSON AND SON, Nurserymen, Boston, Lincolnshire.

Fine Standard Rose Trees,

9s. to 12s. per dozen.

W. JACKSON AND CO., Nurseries, Bedale, Yorkshire, had all their ROSES taken up in autumn and protected from frost; the wood is not damaged, all are fine as possible. Grand ORNAMENTAL TREES very cheap.

The best and cheapest Nursery for everything.

SEED POTATOS.—The Advertiser has for Sale several tons of each of the following varieties:—Rivers' Royal Ashleaf, Myatt's Ashleaf, Early Shaw, Snowflake, Porter's Excelsior, Red-skin Flourball, Fluke, Pater-son's Victoria, Regent, and Champion. Prices (low) on application to

JOSIAH H. BATH, 1, York Street, Borough Market, S.E.

CABBAGE PLANTS, SEEDS, ROOTS, &c.—Finest Selected Stock of all kinds, for the Farm or Garden. Largest and Best Stock in the Kingdom.

"Gee's superior Bedfordshire-grown plants and seeds have attained much celebrity."—"The soils of the district offer facilities enjoyed at few places for bringing away plants, seeds, roots, &c., and under the skill and perseverance of Mr. F. Gee they are turned to good account."—*Vide* Opinions of the Press.

Large Cash buyers treated with on the most liberal and advantageous terms. 1879 Select CATALOGUE, also Special Trade LIST, may be had on application to

FREDERICK GEE, Wholesale and Retail Seed and Plant Grower, Seed Merchant, and Nurseryman, Biggleswade, Beds.

CHOICE AND NEW PLANTS.—Zonals, White and Salmon Vesuvius, 8s. per dozen; 12 choicest named, including either of the above, 3s. 6d. Lobelias, St. Martin's Blue, 5s. 6d.; Brighton (blue), Omen (rose), Nevia (white), 4s.; *Pumila magnifica*, Blue Beauty, Compacta, Celestina, and Mazaire Gem, 3s. 6d. per 100, all true, from cuttings.

Ageratum Lady Jane, 1s. per dozen. *Petunia*, Double Crimson, 1s. per dozen. *Fuchsias*, choicest named, 1s. 6d. *Abutilon* (Boule de Neige), 6s. and 9s. *Cucumber* (Telegraph), strong and healthy, 9s. and 12s. Small parcels safe by post. Cash, with order, to GEO. GUMMOW, 114, Loughborough Road, Brixton, S.W.

To Large Buyers and the Trade.

THE FOLLOWING SURPLUS NURSERY STOCK can be supplied at cheap rates, and small quantities of any may be had as samples:—

| | |
|----------------------------------|-----------------------------------|
| Sycamores, 8 to 10 feet. | Beech, 5 to 6 feet. |
| Laburnums, 8 feet. | Common Laurel, very good, 4 feet. |
| Walnuts, 4 to 6 feet. | English Yew, bushy, 2 and 3 ft. |
| Poplars, all kinds and sizes. | Irish Yew, 4 feet. |
| English grafted Elm, 8 feet. | Box, green, bushy, 3 feet. |
| Cheshnuts, 10 to 20 feet. | Cupressus Lawsoni, 2 and 3 ft. |
| Common Privet, 2 and 4 feet. | Dwarf Roses, very fine. |
| Ligustrum ovalifolium, 2 & 3 ft. | |

GEORGE SWALES, The Nurseries, Beverley.

RICHARD LOCKE, Red Hill, Surrey, offers the following for cash only:—

50,000 Dwarf ROSES, finest in the Trade, 30s. per 100, £12 10s. per 1000

200,000 MANETTI STOCKS, 30s. per 1000, £12 10s. per 10,000.

50,000 SEAKALE, strong, 40s. per 1000; Planting Seakale, 25s. per 1000.

100,000 ASPARAGUS, 1-yr., 5s. per 1000; 2-yr., 11s. per 1000; 3-yr., 20s. per 1000.

100,000 1-yr. cultivated Seedling BRIERS, extra fine stuff, 20s. per 1000.

AERIDES CRASSIFOLIUM,

(described in the *Gardeners' Chronicle*, No. 176 and No. 199 as
"The King of all Aerides"),

CATTLEYA DOWIANA, and other CHOICE ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 17, at half-past 12 o'clock precisely, by order of Messrs. HUGH LOW & Co., upwards of 600 imported plants of AERIDES CRASSIFOLIUM in splendid condition, with healthy leaves, many of large size, and making young roots. This is probably, without exception, the most lovely known species of the genus, as well as the most rare in collections. Also imported plants of VANDA CÆRULESCENS, and upwards of 100 very fine plants of CATTLEYA DOWIANA, 200 ODONTOGLOSSUM SCHLEIPPERIANUM, just to hand by R.M. ss. *Don.* At the same time will be offered established plants of PHALÆNOPSIS SCHILLERIANA, P. AMABILIS, P. LUDDEMANNIANA, ODONTOGLOSSUM CIRRHOSUM, with flower-spikes; 100 O. ALEXANDRÆ, O. GLORIOSUM, O. ROEZLII, with flower-spikes; CYPRIPIEDUM BOXALLI, C. VILLOSUM, flowering plants; DENDROBIUM WARDIANUM, D. CHRYSOTOXUM, D. SUAVISSIMUM, CYMBIDIUM AFFINE, and other choice Orchids.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CYMBIDIUM LOWIANUM

(Reichenbach filis.)

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 17, by order of Messrs. HUGH LOW & Co., Thirty-one strong Established Plants of the above, which on flowering proves to be a new and beautiful species. Fifteen of the plants have strong spikes with flower-buds and one has twelve fully expanded flowers, which are of large size, on a spike 28 inches in length.

On view the morning of Sale and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

Important Sale of ODONTOGLOSSUM ALEXANDRÆ,
and other New Grenadian Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from Mr. B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 20, 1000 plants of the lovely

ODONTOGLOSSUM ALEXANDRÆ;

also a quantity of plants of O. GLORIOSUM PILUMNA NOBILIS, the Stock of a NEW MASDEVALLIA, &c.

The plants will be sold WITHOUT RESERVE, and are in the finest possible condition, just ready to start. In the consignment will be found some magnificent pieces, probably the largest ever imported to this country.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NEW and RARE ORCHIDS.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, March 21, at half-past 12 o'clock precisely, established and imported ORCHIDS, among which will be found the magnificent new ONCIDIUM KIENASTIANUM, quite new; MAXILLARIA RHOMBEA, believed to be offered for the first time; the white-flowering ONCIDIUM ORNITHORRHYNCHUM ALBUM, the magnificent PHALÆNOPSIS LOWII, large quantities of the beautiful ODONTOGLOSSUM NEBULOSUM, CATTLEYA CITRINA and HARTWEGIA PURPUREA, the rare HOULETIA BROCKLEHURSTIANA, and TRICHOPILIA WAGNERIANA; quantities of ODONTOGLOSSUM LÆVE, LÆLIA PURPUREA, ONCIDIUM UNGUICULATUM, ODONTOGLOSSUM REICHENHEIMI, ONCIDIUM INCURVUM, CATTLEYA MENDELLI, ONCIDIUM MACRANTHUM, ARPOPHYLLUM SPICATUM, ODONTOGLOSSUM PARDINUM, O. MACULATUM SUPERBUM, and a very large lot of O. ROSSI MAJUS, together with many other COOL ORCHIDS, the whole of which are in splendid condition, and which will be sold without reserve.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

VEGETABLE & FLOWER SEEDS
SEED POTATOS. TOOLS &c
BEST QUALITY - CARRIAGE FREE.
PRICED CATALOGUE - POST FREE.
JAMES DICKSON & SONS
SEED-GROWERS.
108 EASTGATE ST. CHESTER



SEED POTATOS.

SPECIAL OFFER.

| | In 1 Cwt. Bags. | Per Cwt - s. d. |
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| NAPOLEON, Rough Red | | 12 0 |
| CHAMPION OF THE WORLD | | 12 0 |
| MAGNUM BONUM (SUTTON'S) | | 15 0 |
| MYATT'S ASHLEAF | | 14 0 |
| TRUE OLD ASHLEAF | | 21 0 |
| FLUKE | | 12 0 |
| EARLY ROSE | | 11 0 |
| IMPROVED PEACHBLOW | | 21 0 |
| REDSKIN FLOURBALL | | 10 0 |
| PATERSON'S VICTORIA | | 14 0 |
| KING NOBLE | | 25 0 |

Five hundred of each kind in stock.

No charge for bags. Free on rail, Norwich, on receipt of Post-office Order or Cheque.

Much cheaper by the ton.

DANIELS BROS.



WM. PAUL & SON,

(Successors to the late A. Paul & Son,
Established 1806.)



ROSE GROWERS,

TREE, PLANT, BULB, AND
SEED MERCHANTS.

WALTHAM CROSS,
HERTS.

Adjoining the "Waltham" Station,
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Inspection of Stock invited.

Priced Descriptive Catalogues free by post.

FRANCIS & ARTHUR
DICKSON & SONS,
106 Eastgate St. & The Upton Nurseries CHESTER.
VEGETABLE & FLOWER SEEDS.
Seed Potatoes & Garden Requisites.
QUALITY UNSURPASSED, CARRIAGE FREE.
Illustrated Catalogues Post Free.



VINES.

*Splendid Fruiting Canes
of all the leading varieties.*

E. G. HENDERSON AND SON,
The Pine-apple Nursery,
MAIDA VALE, LONDON, W.

Awarded the
ONLY GOLD MEDAL



For GRASS SEEDS,
Paris, 1878.

CARTER'S PARIS LAWN GRASS SEED

Awarded the
ONLY GOLD MEDAL



For GRASS SEEDS,
Paris, 1878.

HAS BEATEN ALL OTHER COMPETITORS.

THE ONLY
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AWARDS
FOR
ENGLISH
GRASS
SEEDS
AT THE
PARIS
EXHIBITION
WERE
A SILVER
MEDAL
AND A
BRONZE
MEDAL.



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FIRST PRIZE
LAWNS
WERE
ADMIRER
BY
THOUSANDS
DURING
THE PARIS
EXHIBITION
AND
WERE
PRONOUNCED
BY THE
JURORS
TO BE
SUPERB
AND
SUPERIOR
TO ALL
OTHERS IN
THE
EXHIBITION

See following

Letter :



CARTER'S PARIS LAWN GRASS SEED.

Price, in sealed packets, 1s., 1s. 6d., and 2s. 6d. per packet. (1 1s. 6d. packet will sow 1 rod of ground.)

Price, per bushel, 25s.; per acre of 4 bushels, 90s. Ordinary Lawn Grass, per bushel, 20s.; per lb., 1s.

In Sealed Packets—Per Packet.

Per Bushel.

Carter's Grass Seeds for Renovating Old Lawns ... 1s., 1s. 6d., and 2s. 6d. 20s. to 25s.

Carter's Grass Seeds for Sowing under Trees or Lawns ... 1s., 1s. 6d., and 2s. 6d. 20s. to 25s.

IMPORTANT LETTER from M. DUCHARTRE, President of the Lawn Grass Jury.

[TRANSLATION.]

"PARIS, November 16, 1878.

"SIR,—In the sitting of October 4, which was specially devoted to the comparative examination of the Lawns on the Champ de Mars and Trocadero, the Jury of Class 86 have placed Messrs. James Carter (only) to the First Rank, and according to the large space of Lawn sown by them in the Trocadero Park, a GOLD MEDAL was awarded to them for the Complete Success they have obtained.

"Placed in the Second Rank were Messrs. Chouvet, Delahaye, Dudouy, Lecaron, Thiebaut aîné, Thiebaut, Legendre, and Vilmorin & Co. (equal), who have obtained a Silver Medal each.

"In the Third Rank were Messrs. Jacquan, Torcy, Varmier, and Webb, who have obtained a Bronze Medal each. So that Messrs. Carter are really the only ones who in Class 86 have been rewarded with a Gold Medal for Lawns; and I certify this in the title of President of this Class.

(Signed)

"DUCHARTRE, Member of the Institute; President of the Jury, Class 86."

From A. DASHWOOD, Esq., Farnham.

"Carter's Fine Lawn Grass Seed has proved a great success—in fact, a 'lawn by magic.'"

From F. FAUSSETT, Esq., Sutton Bridge.

"I am very pleased with Carter's Lawn Grass. The Seed was sown the last week in March and cut April 25. The trouble, labour, and expense of laying down Turf is quite superseded by your excellent Grass Seed."

From NEVILLE BEARD, Esq., Ashbourne.

"I was very much pleased with Carter's Lawn Grass at the Paris Exhibition, seeing it sown and also mown for the first time."

From Mr. D. McDONALD, Gr. to Sir C. NICHOLSON, Bart.

"Carter's Lawn Grass Seed has turned out admirably. The ground now presents a thick velvety appearance. This alone shows the confidence that may be placed in Carter's Seeds."

From Mrs. JARRETT, St. John's Grove.

"The Grass at the Paris Exhibition produced from Carter's Seeds looked so beautiful, it made all wish to have the same at home."

From R. METCALFE, Esq., 53, Leinster Square.

"We found Carter's Lawn Grass to be very good."

Directions for the Successful Formation of Lawns, as followed at Paris by Messrs. Carter, will be sent gratis and post-free on application.

THE QUEEN'S SEEDSMEN, *Carter's* HIGH HOLBORN, LONDON, W.C.

EXCELLENCE
COMBINED WITH
ECONOMY.

IMMEDIATE DESPATCH.

WEBBS'

**COMPLETE COLLECTIONS
OF CHOICE VEGETABLE SEEDS**

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PRODUCE A CONSTANT
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**THE BEST VEGETABLES
ALL THE YEAR ROUND**

5 PER CENT DISCOUNT FOR CASH
SEEDS OF 20/ VALUE CARRIAGE FREE

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WE SUPPLY OTHER COLLECTIONS
at 5s., 7s. 6d., 15s., 63s. and 105s. each.

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SUPERB FLOWER SEEDS.

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| WEBBS' New Petunia .. | 1 | 6 | and | 2 6 |
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| WEBBS' Choice Primula .. | 1 | 6 | .. | 2 6 |
| WEBBS' Superb Cineraria .. | 1 | 6 | .. | 2 6 |
| WEBBS' Selected Cyclamen | 1 | 6 | .. | 2 6 |
| WEBBS' Miniature Aster .. | 1 | 0 | .. | 2 0 |
| WEBBS' Choice Auricula .. | 1 | 0 | .. | 2 6 |
| WEBBS' Show Pansy .. | 1 | 6 | .. | 2 6 |
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WEBBS'
POPULAR COLLECTIONS
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FLOWER SEEDS.

*Specially selected for producing a brilliant and
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| No. 1. | No. 2. | No. 3. | No. 4. | No. 5. | No. 6. |
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| 5s. | 10s. 6d. | 15s. | 21s. | 31s. 6d. | 42s. |

Other Collections at 2s. 6d., 7s. 6d., and
63s. each.

All Flower Seeds Free by Post or Rail.

THE QUEEN'S SEEDSMEN,
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THE BEST POTATO.

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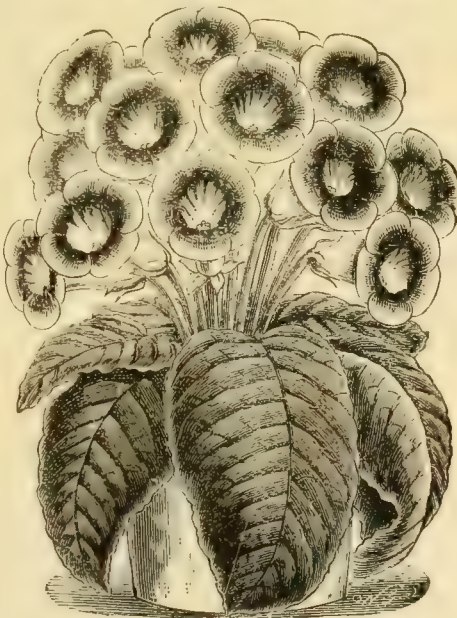
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SACKS "The Magnum Bonum Potatoes you sup-
plied me with this year produced a most ex-
traordinary crop, amounting to an average rate
of 210 sacks per acre, of 240 lb. per sack, and
there was not a single diseased one amongst
them."
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ACRE! "ROBT. PHILLOTT."

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THE FINEST STRAIN OF GLOXINIA.



Sutton's Gloxinia crassifolia gigantea.

| | Per packet—s. | d. | s. | d. |
|---------------------|---------------|-----|-----|----------------|
| Erect Flowered .. | 5 | 0 | and | 2 6 post-free. |
| Horizontal Flowered | 5 | 0 | .. | 2 6 " |
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| Mixed .. | 5s. | 2 6 | .. | 1 0 " |

From Mr. A. INGRAM, Gr. to the Duke of Northumberland:—
"Your Gloxinia is the finest strain I have ever seen; strong
robust habit, the leaves are so reflexed as to nearly cover the
pots. The flowers are very large and beautiful in colour. Some
of the drooping-flowered sorts have blooms over three inches in
diameter. They make quite a show of themselves in a house."

SUTTON & SONS,
THE QUEEN'S SEEDSMEN,
AND
By Special Warrant to H.R.H. The Prince of Wales,
READING, BERKS.



SATURDAY, MARCH 15, 1879.

BAMBOO FOR PAPER-MAKING.

THE question as to the practicability of
utilising the Bamboo for purposes of
paper-making has been raised on more than
one occasion by Mr. Routledge. Undeterred
by the unsuccessful results obtained by Dr.
King at Calcutta, he returns to the charge
again in a pamphlet entitled *Bamboo and its
Treatment*,* and which is well worthy the con-
sideration of residents in those of our depen-
dencies where the Bamboos grow. The question
as to the possibility of cutting over the Bamboos
so as to ensure a succession of Bamboo shoots
of the required age and substance, is of course
one which must be settled by those who are
familiar with the mode of growth and habits of
the plant, and by those who have the necessary
skill to devise and carry out the requisite ex-
perimental enquiries. Mr. Routledge has
done well, therefore, to collect and publish
information from competent botanists and
cultivators. From a perusal of these, the
causes of the failure of the experiments at
Calcutta are rendered evident, and at any
rate it must be admitted that the results of
those experiments do not by any means
render it undesirable to carry out experi-
ments in a different manner, and in view of the
great importance of the subject we trust this
may be done. We cite the following passages
from Mr. Routledge's paper, which may be read
with profit by our readers in the colonies.
General Munro, our highest authority on the
subject, writes:—

"I have never heard of the Bamboo being cultivated
for successive cropping, but I can see no reason why a
regular systematic cropping could not be carried out.

"*Bambusa vulgaris* would, in my opinion, be the best
species to cultivate, as it grows very readily from cut-
tings; so does *Dendrocalamus giganteus*, which thrives
remarkably well and grows fast in Trinidad, and would,
I think, produce the best fibre. *Bambusa tulda* would
be a good species in India; *Dendrocalamus strictus* also
grows fast and is easily propagated. The ordinary Bam-
boo very rarely seeds in the West Indies. I only saw it
once in Jamaica. It is always increased by cuttings. I
do not think these should be put in at a less distance
than 5 feet apart. A fair-sized Bamboo will produce from
ten to twenty shoots a year in moist countries.

"With reference to cutting and cropping, I should
think six or seven out of ten shoots might be cut yearly
without causing any serious harm to the parent stool;
the older stems might be cut down in their second year,
and serve as fuel. I should think the stools would con-
tinue to produce fresh stems for about thirty years, about
when the plants would be likely to come into flower, and
then die."

The late Mr. Kurz, who had a special know-
ledge of the Bamboo and its uses, replied as
follows to Mr. Routledge's questions:—

"Regular cropping can be made only in so far as the
shoots of every rainy season can be cut down. If all the
shoots be cut down the stock will be impoverished and
ultimately die off, hence a certain percentage, say one-
fourth, of the whole of the stool would have to be spared.
The most common way of planting Bamboo by natives is
by taking shoots, or the lower piece of the haulm, with a
part of the rhizome, and plant during the rains; the
intervals between the cuttings being regulated by the size
of the Bamboo. Twelve to 15 feet would be a dense
growth for the larger kinds, 80 feet and upwards in
height, which throw up from fifteen to twenty shoots,
while 8 to 10 feet is the minimum for the smaller kinds
above 30 feet; smaller kinds are not recommendable."

Shoots of the year are alone likely to be of
value, and some of the conservators of forests

* *Bamboo and its Treatment*. By Thomas Routledge,
Claxheugh, Sunderland.

express the opinion that such may be had in abundance by a judicious system of cutting. The abundance of material, if only it could be rendered available, is shown by an extract from a report of Dr. Schlich, Conservator of Forests in Bengal :—

"It will interest you to learn that there are about 1800 square miles of almost pure Bamboo forest in the Arrakan division of British Burmah, within a moderate distance from the coast, and all accessible by navigable streams. * * * * *

"The Bamboo forest covers by far the greater portion of the area of Arrakan, extending over thousands of square miles. It is composed of *Bambusa longispatha*, and *Bambusa tulda*. All these Bamboos have flowered several years ago, and the ground is now covered with seedlings, which makes the forest impenetrable. The writer of this report had to travel in it for days, at the rate of half a mile an hour, having four men (alternately two-and-two) in front employed in cutting a passage just wide enough for a man to pass through. In many places this Bamboo forest contains no trees at all, but, as a rule, there are isolated trees scattered over it. The trees met with were those of the green forest, as well as those of the dry forest, the former, however, being far more numerous. This forest is green throughout the year, and jungle fires do not visit it except at the time when Bamboos have died."

Some remarks of Mr. Thomson, late Superintendent Botanic Gardens, Jamaica, are so much to the point that we regret that our space does not allow us to do more than make certain extracts from them. Cutting the Bamboo stems *en masse*, says Mr. Thomson :—

"Would undoubtedly destroy the plants, but, with great deference, I would remark that this destruction of the plants can be effectually prevented by the adoption of a different process of cropping. Thus, instead of cutting all the stems simultaneously, a given proportion of matured stems should be retained, and this need only be a small proportion, sufficient to maintain the vigorous action of the roots. The stems thus retained for the preservation of the functions of the roots may even be moderate in size. Indeed, they may be lopped so as to superinduce the sprouting of branches and foliage near the ground. Another point to be observed consists in the manner in which the young, succulent stems are cut. They should be cut—that is, the crop for making paper—not close to the ground, but a few nodes above the ground should be left. This plan ensures the sprouting of branches and foliage from some thus left, and maintains the unimpaired action of the roots."

"The continuity of supply of the Bamboo by the adoption of this plan aggregates to a very considerable quantity each year; and, as has been seen, a Bamboo plantation may be kept up indefinitely in regard to time. "I have seen three tons of full-grown stems obtained from a Bamboo clump covering only a few square yards. This would be an enormous quantity per acre. By the system of cropping which I propose, each succulent stem, in that condition in which a penknife is easily passed through it, when dried, averages only about 3 lb. in weight. As many thousands of these are obtainable per acre annually, I feel sure that some ten tons of paper stock could be procured from each acre annually; putting it even at the half of this the cultivation would prove highly remunerative."

Mr. Thomson further shows that abundant moisture is an essential requisite for the growth of the Bamboo, and suggests that by means of irrigation and judicious cutting a continuous succession of suitable shoots could be obtained at a small cost of production, for after the first establishment it would require little or no cultivation.

Mr. Thomson considers that a much larger proportion of fibre can be produced per acre from Bamboo than from any other plant. The quantity realised per acre (Mr. Thomson is speaking of Jamaica) is so large that it will revolutionise the paper trade.

Speaking from the point of view of the cultivator and the botanist we should certainly be disposed to consider the Bamboo as the most promising plant yet tried to furnish the paper-maker with the raw material for which the demand, already vast, is always increasing. There are scores of plants, such as the Restios of the Cape, which might be made locally available, but for exportation to this country no plant that we know of seems so likely to yield a sufficient supply, provided the cultivation can

be properly carried out—a matter concerning which we have little doubt, and provided the manufacture into suitable "stock" for the paper-maker can be conducted at a remunerative rate—a subject upon which we are not in a position to offer an opinion.

New Garden Plants.

CYMBIDIUM LOWIANUM, n. sp.*

This is a beautiful novelty, according to my taste. It ranks near *Cymbidium giganteum*, Wall., and *C. longifolium*, Don; the two short abrupt calli in the disk of the lip, the cordate not wavy anterior lacinia of the lip, and the straight short divaricate tails of the caudicula give it the strongest claim to be considered an excellent, well-marked species, as I said it might be when I had to describe it from rather unsatisfactory materials (see *Gardeners' Chronicle*, 1877, vii., p. 685, June 2: *Cymbidium giganteum* Lowianum). It is, no doubt, one of Mr. Boxall's best Burmese discoveries. There are no ciliae to the lip, no hairy running lines from the disk to the anterior part, no wavy middle lacinia. The large flowers have sepals and petals green, with a few faint sepia-brown lines over the strongest nerves. Those organs get more pallid by-and-by, changing to a yellowish green. The lip is whitish yellow, disk of anterior lacinia in the beginning purple, later maroon brownish purple, with a very narrow pallid border, and there are some purple spots at the base of the lip. Calli washed on their anterior parts with purple. The anterior part of the base of the column has a few spots. I have to thank Messrs. Low for this beauty just now (beginning of March). I am informed it takes a very long time to expand its flowers: this is also the case in *C. Hookerianum*, as is well known. *H. G. Rehb. f.* [This plant was shown at the Royal Horticultural Society on the 11th inst.]

DENDROBIUM MICANS, n. hybr.†

"A cross between *Dendrobium Wardianum* (the old Assam plant) and *D. lituiflorum*. It is quite a young and small plant, blooming now for the first time, and this is the only flower. The plant is only three years old, and the bulb which flowered only 4 inches high, therefore quite in its infancy, and I imagine we shall some day see it much larger and finer. It seems to me quite a beauty. The bulb is slightly knotted, as in the old *Wardianum*." These were the remarks given by Mr. Harry Veitch, on February 20, 1879, when sending a beautiful flower of a fresh cross, a new *Sedenian* work. The flower is of warmest colours, the ground colour of the sepals and petals a most pallid purple-white, very deep towards their tips, and washed from there to the more pallid base. Lip nearly hastate at base, oblong acute, with nice undulation; ground colour white. Two darkish "Indian-purple" (on the authority of Messrs. Winsor & Newton, of Rathbone Place) blotches on each side of the white cruriform middle part, with little short line branches radiating outside. The top of lip is pallid purple. The column is green, with purple streaks on anterior side under stigma. Anther white with two small purple spots. There is no vestige of the orange colour that paints so neatly the lip of *Dendrobium Wardianum*, but the colours are so very clear that the novelty is very promising. It has already been stated that I have to thank Messrs. Veitch for it. *H. G. Rehb. f.*

SPRING.

"SPRING, Spring, beautiful Spring,
Say what shall my offering be?
Shall I rifle the caves of the Ocean King,
And a chaplet of pearls weave for thee?"

Such are the words of an old song which I heard the other evening, and their utter incongruity struck me so forcibly that I could not help smiling at the idea of seeking for the products of diseased mollusca wherewith to adorn "beautiful Spring" when she has her

* *Cymbidium Lowianum*, n. sp. — *Racemo* Cymbidii gigantei, Wall., labeo tamen trifido, lacinia lateralibus angulatis, lacinia antica cordato triangula expansa, non undulata; calli in ipso disco ante basin laciniae anticae crassius triangulatis; caudiculae cruribus divaricatis aristaeformibus. Flores viridulis brunneo striati. Labellum albidum flavidulum, disco laciniae anticae purpureo, margine angustissimo flavidulum. Calli anticae purpureo lavati. Maculae quaedam purpureae in labelli basin. Columna ima basi purpureo maculata. — Burmah. Detexit felix collector Lowianus Boxall. *H. G. Rehb. f.*

† *Dendrobium micans* (*Wardianum* = *lituiflorum*). — "Caule gracili tenuiter nodoso; . . . floribus . . . (semper solitariis? vix?) mento breve obtusangulo conico dorso gibboso; sepalis ligulatis obtuse acutis; tepalis oblongis obtuse acutis undulatis bene latoribus; labello brevissime unguiculato hastato oblongo acuto, ubique velutino; columna apice trifida; anthera conica retusa emarginata. — Sepala et tepala albidum purpurea apicibus pulchre purpureis. Labellum maculis duabus purpureis nigris retrorsum radiantibus infundis; ceterum album, anticae purpureum. Columna viridula. Proles hybrida *Sedeniana*. Com. ill. hort. Veitch. *H. G. Rehb. f.*

own pearly Snowdrops and fragrant Primroses to make garlands of. Now, although we have had a considerable share of snow this winter, I have never seen the spring flowers in greater force or better form. The hedgerows look green, Fern fronds are peeping out in all directions, catkins, "little sheep" as the village youngsters call them, are very abundant; Violets and tufts of creamy Primroses vie with the Snowdrops, whilst in cultivated soil the ground is golden with the blossoms of the Crocus. The birds, too, seem to expect that, as we have had an old-fashioned winter we shall get an old-fashioned spring, for I have already seen several nests in the course of erection, and the blackbirds are singing from every green shrub or tree in the garden—"a sad prospect for the fruit," said the master of the house, and I feel dreadfully guilty, for I fed the birds during the winter. I had a regular *levée* every morning, and one young lady, a friend of mine, used to go about the fields near the house scattering rice to the poor little starving creatures, so I hope they will repay us by eating up the grubs, and be merciful to the Cherries. *Helen E. Watney.*

MORINDA CITRIFOLIA.

SOME time since, when visiting Mr. Bull's nursery, we were greatly struck with a stove shrub with bold Laurel-like foliage and globose fruits of a creamy white colour. So distinct and striking were they that we requested our artist to make a sketch of them for us, and the result is now before our readers (fig. 46). *Morinda citrifolia* is a Rubiaceae shrub, commonly cultivated in India, the wild plant probably being that known as *M. tinctoria*. The latter name recalls the fact that the roots and bark of this species furnish a red dye (see Hunter's *Asiatic Researches*, iv., pp. 35–44). The flowers are something like those of an *Ixora*, but pure white; the foliage bold, light green; and the fruit unlike that of any other plant we call to mind.

THE CULTIVATION OF CELERY AT CLAYWORTH.

SEVERAL growers have requested me to give the mode of cultivation adopted in this district, and the following remarks will, I hope, not be without interest to the private grower as well as to the grower for market. We sow from the middle of February to the middle of March in pits or frames with a south-east aspect. The beds are prepared about a week previous to sowing, and consist of about 1½ foot thick of littersy stable manure, which is well trodden down and then covered with about 3 inches of good loamy soil, the surface of the bed when finished being about 6 inches from the glass. The beds are watered before sowing, and the seeds, sown thinly, are lightly covered with fine soil. The lights are kept close until the plants are well up, when plenty of air and water is given in fine weather, water being withheld in dull weather but air given freely.

We commence pricking out as soon as the plants will handle nicely, which is generally about the first week in April, on beds in the open ground which is dug in winter and lies in a rough state until a week or so before the plants are ready for pricking out, when a good dressing of rotten manure is lightly dug in, the ground is then raked over and the beds prepared as required about 4 feet wide. The plants are pricked out about 3 inches apart, the best plants are carefully thinned out from the seed beds, the smaller ones forming a succession. They are kept well-watered as they are pricked out: it is a good plan to just dip the roots in water as they are drawn from the seed bed, especially in dry weather. When the plants have taken fresh root a good dressing of soot is given, and if the weather is dry it is watered in. This greatly assists the growth of the plants. They are then kept on growing by watering in dry weather, weeding, &c., until ready for planting in the permanent row.

The trenches are dug or ploughed out about 12 or 15 inches wide, varying in depth according to the nature of the soil; on wet soil the trenches should be made so that they are nearly level when they are manured and ready for planting, on drier soil they require to be deeper; they are about 5 feet from centre to centre. Half-decomposed horse, cow, and pig manure mixed seems to answer best. This is carted on in dry weather, the horse walking on the

top and the wheels running in the trenches. It is manured at the rate of about 1 ton to a row 80 or 100 yards long; it is covered with about 4 inches of soil taken from the sides of the trenches in a sloping direction, after which a row of Myatt's Prolific Potatoes are planted between the rows of the general crop, and sometimes two or three rows of Nantes Carrot is sown between late Celery.

We commence planting in the trenches when the plants are from 4 to 6 inches long, which is generally about the last week in May. The trenches are watered before planting if required. The plants are taken up carefully and the roots dipped in water in dry weather; they are planted in single rows from 6 to 7 inches apart in the row; they are kept moist at the root until they are well rooted, when artificial watering is discontinued. When they have commenced to

RUBUS ROSÆFOLIUS.

At the last meeting of the Royal Horticultural Society, Mr. Green, gr. to Sir G. Macleay, exhibited a bushy little plant of the double-flowering form of this species, which under the name of *R. rosæfolius* var. *coronarius* was figured in the *Gardeners' Chronicle* for January 18, 1879, p. 77, and which was further alluded to as having been long introduced to our gardens, having been figured in the *Botanical Magazine* (t. 1763). The plant is also mentioned in Hooker's *Flora of British India*, vol. ii., p. 341.

At South Kensington considerable interest was evinced in the plant and its single-flowered or normal prototype, and it is to this more particularly that I wish to allude. About 1874 or 1875 I remember M. Louis Van Houtte offered the single-flowered form,

Here around the upland or hill villages it is evergreen, flowering and fruiting the whole year round, but most plentiful during the dry season, when the bushes are loaded with the large bright red fruits and white-petalled flowers. Its stems rarely exceed a yard in height, and in light rich soil are produced freely from the roots, as in the case of our native Raspberry. The individual ripe fruits are about an inch in diameter, formed of an enormous number of small carpels, and are very fresh and juicy when newly gathered, having a refreshing acidity with but little flavour.

The following extract from St. John's *Forests of the Far East*, vol. ii., p. 102, may be quoted as showing how freely its fruits are produced near the villages beside the Limbang River—the italics are mine:—
"We picked a great many wild Raspberries, which

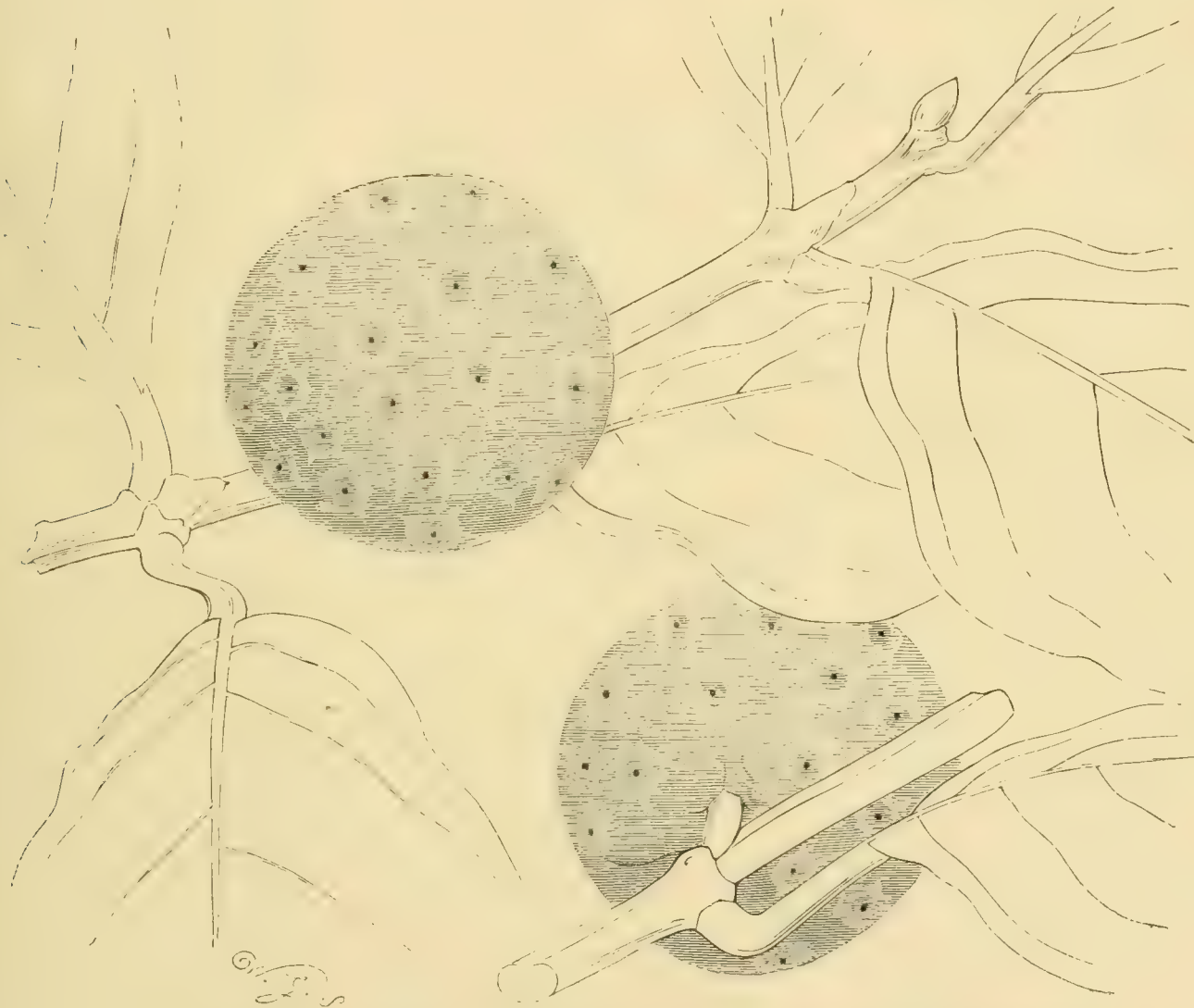


FIG. 46.—FRUITS OF MORINDA CITRIFOLIA, NAT. SIZE: COLOUR CREAMY WHITE. (SEE P. 332.)

grow freely a good dressing of soot is given and a few inches of soil hoed over it; they are then allowed to grow unmolested for a few weeks, when as much soil is hoed to as can be had without injury to the crops between. When the Potatoes or whatever is planted between are taken up, the ground between the rows is well worked up with a horse cultivator to a fine mould; a furrow is ploughed on each side of the row, the soil dropping short of the Celery is afterwards pushed to. Old brooms with the bristles cut off and a shaft about 5 feet long are used for this purpose; a man on each side of the row with one of these can push the soil to nearly as fast as he can walk, and it answers well. About a fortnight after the first ploughing, the space between the rows is worked up again and a second furrow ploughed; this is to form the foot for the bank. The soil is pushed to a second time, and then finished off with the spade. *R. Ogley, Clayworth, near Bawtry.*

a reduced but characteristic woodcut figure being given in his catalogue, as being suitable for decorative purposes by flowering during the winter months, the blossoms being eventually succeeded by Raspberry-like edible fruits. I have some recollection of having seen a very tempting coloured figure of the plant in fruit also, but I cannot lay hands on it just now.

I think M. Van Houtte gave the habitat as being in the Moluccas. I frequently met with the plant when travelling in Borneo, especially on the hills in the interior, and I am inclined to think it is native there, yet as the aborigines cultivate many introduced plants, such as Tobacco, Pine-apples, Oranges, Cotton, and Maize, it is just possible that this plant may also be an introduction. From the fact that its fruit is never eaten by the natives, however, I fail to see why it should have been imported, and yet its growing almost invariably near houses or on the site of deserted villages is a suspicious circumstance.

have not very much flavour, but they were refreshing, and in several places the shrubs grew so very thickly as to prevent any other vegetation springing up, and *looked like a deserted garden*. The plants have a very similar appearance to those which grow in England, and are pleasant to look at, as reminding one of home. The boys of the village for a few beads collected them *by the peck*, till we were completely surfeited." Like most other species of Rubi, it may be readily propagated by cuttings of the roots inserted in light soil on a genial bottom-heat. *F. W. B.*

THE HORTICULTURAL SOCIETY OF HAMBURG propose to hold an exhibition from April 10 to 14. The programme shows that the exhibition is likely to be an extensive one, and it will be rendered the more remarkable in that it is proposed to light it in the evening by means of the electric light,

EFFECTS OF THE LATE WINTER.

THE backwardness of leafage which might naturally be expected after the recent severe winter is so noticeable, after the remarkably early commencement of foliage last year, following on a mild and moist winter, that possibly a note of the exact amount of difference in development, taken from a few of the commonest trees and bushes, observed on March 7, 1878, and again on March 7 this year, may be of some interest. The observations are taken from the same set of trees, chiefly in my own garden, near Isleworth, otherwise in the immediate neighbourhood.

On March 7 in last year the leaves of black and red Currant and Gooseberry bushes were from $\frac{1}{2}$ inch to $\frac{3}{4}$ inch long, and the black Currant shoots were well clothed with the young leafage; this year on March 7 the leaves on the same bushes were not expanded at all beyond just the tips of a few leaves showing from some of the most advanced buds on some shoots of black Currant.

Apple buds were only about half the length of those of the same date last year, and looking thin, dry, and unpromising. Plum and Pear buds healthy, but only from about half to three-quarters the size of last year.

Lilac buds of half-opening leaves which were over $\frac{3}{4}$ inch long last year, were this year under $\frac{1}{2}$ inch long.

Hawthorn leaves, last year frequently occurring through the district $\frac{1}{2}$ inch long, were this year not to be found at all, and the buds were only $\frac{1}{16}$ inch in length. Elder leaves, last year to be found plentifully on the 7th, had also not expanded; and leaves which had for some years appeared much earlier than March 7 on some Weeping Willows, were totally absent this year.

The buds on Horse Chestnut and Elm appear almost in the same state as last year, taking trees in ordinary circumstances; and the Oak bud is also in a very average state—in this differing from last year, when it was in this district remarkably large and luxuriant, preceding a splendid leafage.

The wild flowers of the district have also been much more absent during the winter, and are much later in appearance this spring than was the case in 1878. The flora is of course not so well represented in this enormously populous neighbourhood as where more unoccupied space is left for plant growth, but still there will be a fair average between the various years.

In 1878, on January 1, there were 42 species of wild plants in flower; on February 1, 25; on March 1, 33. This year (1879), on January 1 there were only four species in flower—*Senecio vulgaris* (Groundsel), *Veronica Buxbaumii*, and *Lamium purpureum*, and *L. album* (purple and white Dead Nettle); on February 1 not one species; on March 1 six species. Many of the common spring flowers have still not appeared. *Draba verna*, *Ranunculus Ficaria*, *Narcissus Pseudo-Narcissus*, and many others which were in blossom in this district last year at this time, do not show a sign yet of opening their buds. Those that have appeared are variably late—*Taxus baccata*, and *Tussilago Farfara*, about a fortnight; *Corylus Avellana*, about three weeks; and *Daphne Laureola* (as far as can be judged from plants with flood-water standing up their stems to just below the expanding blossoms), about five weeks later than last year.

It will be of great interest to see how far the retarding of the commencement of vegetation acts on its continuance. The unusual severity of the weather does not appear in any case I have had opportunity to examine to have injured any of the larvæ, whether above ground or beneath; and on March 8, in turning over a piece of garden ground, we found no less than forty-one specimens of the snail-slug (*Testacella Haliotide*) of various sizes, and in the most perfect health, a few inches below the surface.

The temperature of the immediate district does not appear to differ from that of the neighbourhood, excepting in the minima generally reading rather lower, possibly from the great quantity of moisture from springs, and also undrained surface-water flooding the fields. During part of December and the greater part of January and beginning of February the earth thermometer 1 foot below the surface read down to 32° and a fraction, the 2 foot one by its side to 35° and a fraction for most of the same time. O.

THE AMERICAN SPRUCES.

[The following arrangement is from the pen of Dr. Engelmann, and has been kindly contributed by Sir Joseph Hooker. In British gardens the plants in question are usually ranged under *Abies*.]

PICEA, Link, not Don.

A. Leaves more or less square; stomata on all sides.

A. North-eastern and Northern species.

1. *Picea alba*, with slenderer leaves on the glabrous branchlets; cylinder cones with smooth-edged flexible scales, deciduous after maturity.

2. *Picea nigra*, with stouter leaves on the pubescent branchlets; ovate cones with rigid denticulate scales, more or less persistent.

Var. *rubra*, with larger, darker leaves; larger bright red brown cones, more readily deciduous after maturity.

B. Rocky Mountain species.

3. *Picea Engelmanni* (*Pinus commutata*, Parlat.) with stouter leaves on the pubescent branchlets; sub-cylindrical cones with flexible, erose or emarginate scales; deciduous.

4. *Picea pungens* (*Abies Menziesii* of the Rocky Mountain flora), with glabrous branchlets; very rigid, strongly pointed and pungent leaves, in young trees compressed, in old ones often flattened; large cylindrical cones, with very pale, elongated, emarginate, very flexible, squarrose scales; seeds larger, with a broad obovate wing, and 5–8 cotyledons.*

B. Leaves flattened; stomata only on the upper side.

Pacific Coast species.

5. *Picea sitchensis* (*Abies Menziesii* of the Pacific coasts).—Leaves thin, blunt or short-pointed; cones much shorter than in last; scales similar; seeds small, with a very narrow wing, and only four cotyledons. Seems to include several East Asiatic nominal species.†

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

(Continued from p. 268.)

ELLEANTHUS, Presl, Reliq. Hænk. i., p. 97. About forty-five species, generally dispersed in tropical America, including the West Indies, but most numerous in Columbia and Peru.

E. capitatus, Rchb. f.; *Evelyna capitata*, Poepp. and Endl., Nov. Gen. et Sp. ii., p. 32, t. 56. Guatemala to Peru.

E. hymenophorus, Rchb. f., Walp. Ann. vi., p. 480; *Evelyna hymenophora*, Rchb. f. Veragua, Costa Rica, 6000–7000 feet.

EPIDENDRUM, Linn. Gen. Pl., n. 1377. This genus contains probably 350 species, all New World, dispersed from Mexico to Bolivia and South Brazil, ascending to 13,000 feet in Peru; abundant in the West Indies. Two species inhabit Florida, one of which extends to South Carolina, and one is a native of the Galapagos.

E. aciculare, Batem., Bot. Reg. 1841, Misc., 19. E. esculentum, Hort. Kew. E. linearifolium, Hook. Bot. Mag., t. 4572. Mexico, Bahamas.

E. adenocarpum, Llave et Lex., Nov. Veg. Descr. ii., p. 24. (2) E. crispatum, Knowles and Weste. E. papillosum, Batem., Bot. Mag., t. 3631. Mexico, Guatemala.

E. adenocaulon, Llave et Lex., Nov. Veg. Descr. ii., p. 22. Mexico.

E. affine, Rchb. f., Bonpl. 1856, p. 327. Guatemala. E. alatum, Batem., Orch. Mex. and Guat., t. 18. E. longipetalum, Lindl., Paxt. Fl. Gard. i., p. 149, t. 30. E. farinosum, Kl. E. calocheilum, Hook., Bot. Mag., t. 3898. Guatemala, Guiana.

E. altissimum, Batem., Bot. Reg. 1838, Misc., 61. E. Grahami, t. 3885. Mexico.

E. amabile, Lindl. et Rchb. f., Bonpl. iii., p. 219. Mexico.

E. ambiguum, Lindl., Fol. 56. E. alatum, Lindl., Bot. Reg. 1847, t. 53, not of Batem. Guatemala.

E. anisatum, Llave et Lex., Nov. Veg. Descr. ii., p. 27. E. gladiatum, Lindl. Mexico.

E. antenniferum, Lindl., Paxt. Fl. Gard., Gleanings, 234, fig. 113; Ref. Bot. ii., t. 91. E. longipetalum, Rich. et Gal. Mexico, 6000–7000 feet.

E. arbusculum, Lindl., Benth. Pl. Hartw., p. 93; Gard. Chron. 1843, 523. Mexico.

E. aromaticum, Batem., Orch. Mex. and Guat., t. 10; Ref. Bot. ii., t. 89. E. incumbens, Lindl. Guatemala.

E. asperum, Lindl., Hooker's Journ. Bot. i., p. 6. Panama, Columbia, Ecuador.

E. atropurpureum, Willd., Sp. Pl. 115; Rchb. f., Walp. Ann. vi., p. 344. E. macrochilum, Hook., Bot. Mag., t. 3534. Costa Rica to New Grenada.

* A very blue form of this has lately been cultivated in English nurseries under the name of *Abies Parryana*.

† *Abies sitchensis* is the oldest specific name, and must be substituted for the more generally adapted *Menziesii*. *A. jezoensis* (in part), *A. microperma*, and perhaps others, seem to belong here; and the lately discovered Serbian *A. Omorika* apparently stands very near it.

E. aurantiacum, Batem., Bot. Reg. 1838, Misc. ii., Orch. Mex. and Guat., t. 12. Mexico, Guatemala.

E. aureum, Lindl., Fol. n. 5. Broughtonia aurea, Lindl. Mexico.

E. Barbe, Rchb. f., Beitr. Orch. Centr. Am., p. 83. Costa Rica, 10,000 feet.

E. belizense, Rchb. f., Linnæa, xli., p. 78. Honduras.

E. bicameratum, Rchb. f., Gard. Chron. 1871, p. 1194.

E. Karwinskii, Rchb. f., Gard. Chron. 1869, p. 710.

E. squalidum, Lindl., not of Llave et Lex. Mexico.

E. bidentatum, Lindl., Gen. and Sp. Orch., p. 98. Mexico.

E. bigibberosum, Rchb. f., Walp. Ann. vi., p. 349. Guatemala.

E. bilamellatum, Rchb. f., Walp. Ann. vi., p. 345. Panama, Venezuela.

E. Boothianum, Lindl., Bot. Reg. 1838, Misc., 7. Mexico or Guatemala (Bateman's list), Cuba.

E. Brassavola, Rchb. f., Bot. Zeit. 1852, p. 729; Bot. Mag., t. 5664; Gard. Chron. 1867, p. 682, 1239. Guatemala, Veragua, 8000 feet.

E. caligarium, Rchb. f., Gard. Chron. 1869, p. 1110. Mexico.

E. campylostolix, Rchb. f., Bot. Zeit. 1852, p. 70; Ref. Bot. ii., t. 86. Guatemala to Veragua.

E. Candollei, Lindl., Bot. Reg. 1839, Misc., 77. E. cepiforme, Hook., Bot. Mag., t. 3765. Mexico.

E. carinatum, Lindl., Fol. 191. Mexico.

E. centropetalum, Rchb. f., Bot. Zeit. 1852, p. 736. Gerstedella centropetala et centradenia, Rchb. f., Xenia, i., t. 17. Veragua, Costa Rica, 7000 feet.

E. chiriquense, Rchb. f., Bot. Zeit. 1852, p. 730. Veragua, Costa Rica.

E. Chloe, Rchb. f., Bonpl. 1856, p. 327. Guatemala.

E. chondylobolbon, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 20. Mexico.

E. ciliare, Linn., Sp. Pl. 1349; Bot. Reg., t. 784; Jacq. Amer., t. 179, f. 89. —Var. β cuspidatum. E. cuspidatum, Lodd., Bot. Cat., t. 10; Bot. Reg., t. 783. E. ciliare, Bot. Mag., t. 463. —Var. γ viscidum, Lindl. Widely dispersed, and common.

E. clavatum, Lindl., Bot. Reg., t. 1870. Costa Rica to Guiana.

E. Clowessii, Batem., Bot. Reg. 1844, Misc., 16. Guatemala.

E. cnemidophorum, Lindl., Fol. 168; Bot. Mag., t. 5656; Gard. Chron. 1864, pp. 292, 364; 1867, p. 1142. Guatemala, 7000 feet.

E. cochleatum, Linn., Jacq. Ic. Rar. iii., t. 605; Bot. Mag., t. 572. Common throughout.

E. collare, Lindl., Bot. Reg. 1843, Misc., 85. Guatemala.

E. concolor, Llave et Lex., Nov. Veg. Descr. ii., p. 25. Mexico.

E. coriifolium, Lindl., Journ. Hort. Soc. Lond. vi., 218, with a figure. Central America.

E. costatum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21. Mexico.

E. costaricense, Rchb. f., Bot. Zeit. 1852, p. 937. Costa Rica, 5000 feet.

E. criniferum, Rchb. f., Gard. Chron. 1871, p. 1291; 1874, ii., p. 419. Costa Rica.

E. delicatissimum, Rchb. f., Linnæa, xli., p. 36. Central America.

E. densiflorum, Hook., Bot. Mag., t. 3791. E. agathosmicum, Rchb. f. Mexico, Venezuela.

E. difforme, Jacq. Amer., p. 223, t. 136. E. umbellatum, Sw., Bot. Mag., t. 2030. Mexico to Brazil.

E. diffusum, Sw., Fl. Ind. Occ. iii., p. 1503; Bot. Mag., t. 3565. Mexico, West Indies, Guiana.

E. diotum, Lindl., Bot. Reg. 1843, Misc., 97. Guatemala.

E. distantiflorum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 19. Mexico.

E. eburneum, Rchb. f., Gard. Chron. 1867, pp. 404, 544; Bot. Mag., t. 5643. Central America?

E. elongatum, Jacq., Ic. Rar. iii., t. 604. Mexico, West Indies, Venezuela.

E. ensatum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 22. Mexico.

E. equitans, Lindl., Bot. Reg. 1838, Misc., 76. Mexico, Nicaragua.

E. erubescens, Lindl., Hooker's Journ. Bot. iii., p. 87; Batem. Orch. Mex. and Guat., t. 32. Mexico, 7500–8500 feet.

E. exasperatum, Rchb. f., Beitr. Orch. Centr. Am., p. 87. Costa Rica.

E. falcatum, Lindl., Ann. Nat. Hist. 1840. E. lactiflorum, Rich. et Gal. E. Parkinsonianum, Hook., Bot. Mag., t. 3778. E. aloifolium, Batem., Orch. Mex. and Guat., t. 25. Mexico, Guatemala.

E. favoris, Rchb. f., Gard. Chron. 1874, ii., p. 98. Mexico.

E. firmum, Rchb. f., Beitr. Orch. Centr. Am., p. 87. Nicaragua.

E. fimbriatum, Lindl., Fol. 15. Mexico.

E. flavovirens, Rchb. f., Beitr. Orch. Centr. Am., p. 85. Guatemala.

E. floribundum, H.B.K., Nov. Gen. et Sp. i., p. 353. t. 86. E. ornatum, Lem. Mexico to Columbia and Guiana.

E. fragrans, Sw., Fl. Ind. Occ. iii., p. 1847; Bot. Mag., t. 1069. E. amulum, Lindl., Bot. Reg., t. 1839.

E. lineatum, Salisb. Widely dispersed.

E. fruticosum, Pav., Lindl. Gen. and Sp. Orch., p. 101. Mexico.

E. Funckianum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21. Mexico.

E. fuscatum, Sw., Nov. Act. Ups. vi., p. 69; Bot. Reg., t. 67; Bot. Mag., t. 2844. E. anceps, Jacq., Amer., t. 138. —Var. β virescens, Lodd. (species), Bot. Cat., t. 1867. E. musciferum, Lindl. —Var. γ viridipurpureum, Hook. (species), Bot. Mag., t. 3666. Common, and widely dispersed.

To be continued.)

ROYAL BOTANIC GARDEN OF EDINBURGH.

THE following extracts are taken from the Report of the Regius Keeper for the year 1878 :—

Since last report, the fencing of the arboretum ground (extending to 27 acres) has been completed by means of a stone wall, surmounted by an iron railing. The fence will not be very effective against the entrance of interlopers until a good hedge has been established inside. Nothing has yet been done in the way of laying out the grounds. A plan for walks has been submitted to Government. When these are finally arranged, and the ground is levelled, the plan for grouping the trees can be determined, and planting can be commenced. There is every reason to anticipate the formation of a useful and effective arboretum.

We have to lament the death of Mr. James McNab, who for the period of thirty years acted as curator of the garden, and who did much to improve it, and to add to its value as a school of gardening and botany. The excellent rock-garden is a wonderful monument of his ability and taste in the cultivation of alpine and other plants. To the collection of Conifers made by him, the garden owes much of its interest and beauty. None could excel him in his mode of selecting specimens for the advancement of botanical instruction. Under his able management the garden became an excellent school both for gardeners and for students of botany. His loss will long be deeply felt, but he has left behind him a monument of gardening and artistic skill which will long continue to keep up his reputation and the fame of the Edinburgh Royal Botanic Garden.

His place has been supplied by the appointment of Mr. John Sadler, who has long been connected with the garden, and who possesses qualifications which fit him for keeping up its horticultural and botanical reputation.

The quantity of plants required for instruction in the garden is very large. The Regius Keeper supplies the largest botanical school in Britain. The annual Government allowance of £1400 is not adequate for the purpose. The number of men and boys is not sufficient to keep the garden in a thoroughly efficient condition, and under proper surveillance. The annual sum for garden purposes should be raised to £1700 or £1800. This sum, of course, is quite independent of the allowance which must ere long be granted for the arboretum.

One of the most important points for consideration on the part of the Office of Works is the building of a new class-room, capable of containing an audience of not less than 400. The want of accommodation has been complained of for four years. Two largely signed petitions on the subject have been submitted to Government.

Some of the houses in the garden are in a state of decay and require renewal. The plants and seeds contributed this year are very numerous, and are sent from all quarters of the globe. Exchanges are made as far as possible with gardens. The funds of the garden are not sufficient for the purchase of plants. A new arrangement of the plants in the open grounds of the garden is absolutely necessary, so as to render them more accessible for study. A propagating house and hotbeds are also required, as well as an aquarium and a Fern-house.

Specimens of plants are largely supplied to students at the lectures. Plants are also supplied to the Government School of Design. The Pharmaceutical Society and the Royal Veterinary College also receive specimens for special examinations. Students have free access to the garden from morning till evening.

The Arboricultural Society and the Botanical Society are also allowed to hold meetings in the class-room at the garden. During last October the Cryptogamic Society of Scotland held its meetings along with its unrivalled exhibition of fungi in the garden.

The observations made in the garden as to the flowering of plants and temperatures were carried on by the late curator most assiduously; they will be recorded in the *Transactions of the Edinburgh Botanical Society*. I have no doubt that his successor will be able to continue the observations.

The garden is open to the public daily from 6 A.M. till 6 P.M. in summer, and from daylight till dusk in winter. On Saturdays during the summer months it is open for the working classes till 8 P.M. A Guide,

with a plan of the garden, has been published, and can be had from the gate-keeper.

The number of visitors during the year 1878 amounted to 88,667.

The amount of instruction given at the garden will be seen by the following table :—

1. Lectures are given every Monday, Tuesday, Wednesday, Thursday, and Friday, at 8 A.M., from the beginning of May till the end of July.
2. Competitive examinations for honours are also conducted.
3. Besides the lectures, demonstrations are given in the garden on Fridays, from 9 to 10 A.M.
4. Classes for vegetable histology and practical botany meet on Mondays, Tuesdays, Wednesdays, and Thursdays, at 9 A.M. The classes are conducted by the Professor and assistants.
5. Saturdays are occupied with excursions and demonstrations in the fields.
6. The museum and herbarium-room at the garden are open to pupils for the examination of specimens.
7. Prizes are given for competitive examinations, herbaria, essays, dissections, models, and microscopical preparations.

The lectures in the garden in the summer of 1878 were attended by 365 pupils, including students of medicine, science, and pharmacy, as well as general students; and the pupils of the class of vegetable histology and practical botany numbered forty-seven, thus making in all 412. The rooms for practical instruction were open during the whole day from May to July, and pupils had an opportunity of studying in the garden from 6 A.M. till 6 P.M. During the summer of 1878 there was also a special class, attended by twenty veterinary students. Besides lectures, demonstrations were given in the conservatories and hothouses. In carrying on the practical work of the class, more especially demonstrations in the microscopical room and in the fields, the Regius Keeper employs several assistants, for whom there is no provision in the estimates.

The number of fresh specimens of plants used for lectures and demonstrations during the session was 47,280.



A WRITER in the *Nation* (New York), alluding to the INFLUENCE OF FORESTS ON CLIMATE, makes a powerful appeal for the conservation of the American forests, especially those of California.

"The annual precipitation of moisture over any great region is not, so far as is now known, either increased or diminished by the presence or absence of forests. Forests, however, play the most important part in retaining and distributing the rain and snow which falls; and it is observed that as a country becomes clear of its forests its springs disappear and its rivers flow more irregularly, producing disastrous floods at some seasons of the year, which are followed at others by corresponding periods of unnaturally low water.

"West of the Rocky Mountains the country is cut up by high mountain chains overlooking narrow valleys. The rainfall is in parts of this region exceedingly small, and everywhere very unequally distributed throughout the year; so that once destroyed it would be difficult, or, indeed, impossible to restore any forests of this region beyond the immediate influence of the Pacific Ocean; while its peculiar topography demands that the mountain ranges remain forest-covered that the valleys may be habitable. Large portions of this Western territory are still in the hands of the general Government, and before it is too late steps should be taken to set aside and scrupulously preserve at least such portions of forest-covered mountain ranges as give rise to important streams. It is probably already too late to preserve any considerable part of the scanty forests of the 'Great Basin.' They are everywhere fast melting away to supply the enormous and often unnecessary demands of the mining enterprises of that region. These forests, which are of immense age, once destroyed will never reappear, and the streams which now make agriculture possible in the valleys through irrigation will at no distant day flow only during a short period of the year. If any portion of this interior region is worth saving for agriculture, immediate steps must be taken to preserve the remnants of its forests, or it will not long support even its present small agricultural population.

"More important still is the necessity for Government or State preservation of some part of the noble coniferous forest which graces the western slopes of the Sierra

Nevada. The future of California depends on the existence of this forest. All along the western slope of the Sierras numerous rivers head, which, flowing westward through the rich foot-hills and great plains of California, fall into the Sacramento and the San Joaquin, the one flowing south and the other north, and at length emptying into the Bay of San Francisco. Through these rivers must pass all the moisture, not absorbed by the soil, which the Sierras attract from the ocean lying almost at their feet. The annual precipitation of moisture in these mountains, although almost exclusively confined to the winter months, is still very large, a fall of 60 feet of snow during an exceptionally severe winter having been reported in the high Sierras. It results that during the early summer months, when the snow is melting, these mountain streams become large and rapid rivers, carrying off immense volumes of water, and then almost entirely disappearing with the snow. As they are not replenished by summer rains, the length of their annual duration must depend on the slowness with which the snow at their sources melts. It is a well-established fact that snow melts much less rapidly, and that much more of it is absorbed in the forest than in the open ground; while the forests on a mountain side offer great mechanical resistance, especially by their undergrowth and coating of fallen leaves, to the rapid running off of water or melting snow. If the forests of the Sierras are destroyed, their annual snowfall will probably not be materially diminished. The length of time, however, required to melt it will be much shorter; and the absorbing power of the forest being gone, the volume of water passing through the rivers will be greatly increased. It is not difficult to foretell the results. Every season, earlier at the South, later at the North, torrents, more terrible and more destructive than the history of the world records, will carry during a few weeks death and desolation from the mountain-sides down over the foot-hills, covering the plains with *débris* and holding the cities lying along the low banks of the larger rivers at their mercy. And then, when this terrible rush of a few days is over, it will be found that the whole supply of water for the summer is exhausted. The foot-hills and the plain will no longer produce fruits or vegetables, or any summer crop for which irrigation is essential, for no water to irrigate with will come down from the mountains. 'Placer' mining will be a thing of the past, and even the navigation of the great rivers will be either interrupted or abandoned. During the last fifty years more than one country in Europe has been visited by calamities similar in origin and extent to those which now threaten California, but in none of them were the physical reasons for the danger so great. The mountains from which the destructive torrents of Europe have sprung are lower than the Sierras, less heavily forest-clad, and enjoying a more regular precipitation of moisture with a much smaller snow-fall, and so less able to produce sudden and disastrous torrents.

"There is but one remedy for the dangers we foretell, and on its adoption depends the future of California. A strip or strips of forest must be set aside along the western slope of the Sierras extensive enough to secure the natural flow of the rivers, and these reservations must be strictly guarded from fire, the axe, and especially from all browsing animals. It is in her boasted millions of sheep that California's greatest danger now lies. These, with countless herds of other browsing animals, are driven up every summer from the plains into the mountains to feed during the dry season. The damage they are inflicting in the Sierra forests is terrible and indescribable. One can ride for days at a certain elevation through the mountains along the sheep-track without seeing outside of the rare ranch enclosures a single uninjured shrub or a seedling tree of any sort. Everything the sheep can reach is eaten clean. This means that there is nothing left of the forest but its older trees, and that it has lost or is fast losing its best element for holding back melted snow; and it means, too, that there are no new trees coming on to take the place in their turn of their parents. As the number of animals driven to the mountains increases, forest fires increase also, set by the shepherds either accidentally or purposely to increase the next year's feed. A forest annually wasted by fire, on which the axe is always making terrible inroads, and in which no young trees are allowed to spring up, is clearly doomed. When that of the Sierras, the noblest of our continent, has gone, nothing will stand between California and the dangers which threaten her. To preserve California is the first and greatest duty of American forestry. The task is a difficult one, but it can be accomplished if her people desire it."

HOW TO MAKE PLANTS AND TREES OF ALL SORTS GROW TO A LARGE SIZE.—To give an idea of the practical gardening of 200 years ago, we extract the following from the *Journal des Savans*:—"The whole secret consists in sowing all sorts of grains and kernels in beds of earth, at the very time when the sun enters the vernal equinox, and to take them up when they are strong enough to be transplanted, at the time of the full moon; which time is always to be observed, if you would take them up and plant them again."

Apiary.

SPRING WORK.—Winter being almost gone, we are apt to imagine the stocks still left alive require no more care or attention. A greater fallacy cannot well be conceived. Now our work must begin in right good earnest. "How many stocks have you still living and doing well?" we inquired to-day of a neighbour. "Why," he exclaimed, "I have lost at least three hives, and have about four left, which I fancy will now do well."

First, let us persuade all our beekeeping friends in earnest to lose no time in overhauling their stocks. Having blown a little smoke amongst them, lift the hive bodily away from the bottom board, and brush off all the dead bees, in fact, carefully clean it from all dirt, &c., which might impede them or hinder their work. They are just now enlivened with every gleam of sunlight, and wishful to be abroad, therefore remove every obstacle.

This month above all others is rife with disease. By removing the bottom board, dysentery, &c., is easily detected, and by timely warning the stock may be saved. If the hive appears at all damp lift it up above the bottom board, supporting it about a quarter of an inch all round by thin wedges, from about 10 A.M. to 3 P.M. By no means leave the stock thus exposed to night air. If any more snow should fall, especially now, after the bees have commenced their spring flight, close up the entrance for a few hours until the glare has passed away.

Remember more stocks die from sheer want of food, after March has come than at any other period; therefore begin to feed every stock in the apiary, very cautiously. This will have a twofold advantage: by feeding them during any warm or dry day the queen will commence depositing brood, thus your stocks will probably throw off very early swarms. We have tested this: we fed three small stocks, commencing the last week in February, and gave each stock about 2½ lb. of syrup each fortnight on to the second week in April; these stocks threw off three fine swarms the following summer, but two other hives left unfed only swarmed once the second week in July, thus my feeding proved most profitable. We make a syrup by boiling for a few minutes 3 lb. of lump sugar with 2 lb. of rain-water. We give the syrup from a wide-mouthed pickle bottle, with coarse muslin tied over the mouth, and invert it on the top of the hive; this is gradually taken in by the bees; sometimes in the spring it is well to dissolve a ¼ lb. of honey with the above whilst hot, it causes our bees to take it up more quickly. Again, we place a tin a little distance from the hives filled with coarse barley-flour. We find the bees take a considerable quantity into the hives during mild sunny days. This will be another strong inducement for the queen to commence laying her eggs, for doubtless it is used instead of pollen to feed the young brood. R.

Notices of Books.

Flower-Lore: the Teachings of Flowers, Historical, Legendary, Poetical and Symbolical. Belfast: McCaw, Stevenson & Co. 8vo, pp. 233.

What a wealth of poetic fancy and imagery pertains to flowers! How often are they made to point a moral and adorn a tale. The playful fancy of a child invests them with a strange significance, the heart of the toiler is refreshed by their beauty, the Saviour drew from them a lesson of faith. It is well then that Mrs. Paterson, who we believe is the author of this work, though the fact is not so stated, should have gathered together a collection of the quaint legends attaching to flowers. The general character of the contents of this book may be judged by the headings to the chapters, which are as follows:—Sacred Plants of the Monks, Architectural Models, Superstitions Connected with various Trees, Plants and Flowers, Heraldic Badges, Floral Games of Toulouse, Plants Frequented by Bees, Sensibility of Plants, Sleep of Plants, The Order in which Flowers and Trees come into Leaf and Bloom, Sacred Trees and Plants, Garlands, Perfumes, Emblems of Time, The Language of Flowers, Funeral Flowers, and Flower Clocks.

Of course the context is of the most miscellaneous character, and not unfrequently it is difficult to see the connection between the legend and the day assigned to it. Why, for instance, should Midsummer Day be considered as the appropriate day to introduce the statement that "the Balcagic Islanders

object to prune trees, for surely God knows best how they ought to grow," or that "in the Canaries the Banana is never cut across with a knife because it then exhibits a representation of the Crucifixion." How diligent a collector the authoress is may be seen from her reference to that fair Avalon, the island of Apples—

"Where falls not hail or rain, or any snow,
Nor ever wind blows loudly—but lies
Deep meadowed, happy, fair with orchard lawns
And bowery hollows, crowned with summer sea."

"The Gaelic legend changes the mystical fruit into the berries of the *Pyrus cordata*, a species of wild Pear, found both in the island of Loch Awe and in Aiguilon." Had the authoress read more carefully the statements made in these columns by Dr. Phené, she would not have fallen into the error of supposing *Pyrus cordata* to be a native of Argyleshire.

It seems singular that the Heath or Heather, which is a pre-eminently social plant, occupying acres upon acres, should be taken as the emblem of solitude, but doubtless the allusion is to the solitary Rambler "o'er the muir, among the heather." In connection with this plant we have another illustration of the author's far-reaching powers of culling what may suit her purpose, for in alluding to the circumstance that "on a Scot in America the Heather used to produce the effect that the Ranz des Vaches did on the exiled Swiss;" she adds that a few years ago it was supposed that no native Heaths grew in the New World, except on the island of Newfoundland, a notion which subsequent investigation has proved to be erroneous, as several localities are cited by the author.

The work rather sadly ends with a chapter on funeral trees, wherein, among other things, the Weeping Willow is alluded to as the tree on which the captive children of Judah hung their harps by the banks of the Euphrates. Unfortunately for this supposition, the Weeping Willow is of Chinese origin (see the Willow-pattern plate), and the Willow of the Euphrates is probably a Poplar.

The book is printed in antique type, and is disfigured rather than illustrated by some woodcuts of flowers which would have been better omitted. It is, however, so full of varied interest, so well suited to take down from the shelf to while away unoccupied moments with quaint fancies, beautiful imagery, and lofty thoughts, that we have no hesitation in recommending it to the notice of our readers.

Bulbs and Bulb Culture. By D. T. Fish.
The Bazaar Office.

Thanks to a small type, a close page, and especially to fulness of knowledge, Mr. Fish has managed to convey in these pages a very large amount of information concerning the natural history of certain bulbous plants and their cultivation. We use the qualification "certain" because the present volume is devoted to hardy bulbs, such as Tulips, Hyacinths, Crocuses, Lilies, and a few plants classed with bulbous plants for convenience sake only, while *Amaryllis*, *Crinum*, *Nerine*, and many similar bulbous plants are entirely omitted, being destined perhaps to be treated of in a second volume, as the expression, "vol. i.," on the cover leads us to anticipate. We have but one fault to find with Mr. Fish's book. He gives us too much. The type is so small and the pages so "solid," to use a printer's term, that the reader runs some risk of mental indigestion in perusing it, but if he partake of the feast before him gradually and slowly, assimilating one course before he proceeds to another, he will find this one of the best and most trustworthy books on bulb culture that have ever been put before the public.

Ornithologie du Salon. Par Raoul A. Boulart.
Paris: 1878. Rothschild.

This is a work designed on the model of Bechstein's *History of Cage Birds*, and designed to give the owners of pet birds an account of their conformation, manners, and customs, necessary food, and other particulars. It is a handsomely got up book, without any pretensions to scientific treatment; but what information is given is given in an attractive as well as useful shape. It is copiously illustrated with excellent woodcuts and with chromo-lithographic plates.

Les Insectes. Paris: Rothschild. 4to, pp. 418,
460 woodcuts, 24 coloured plates.

This is the third volume of the series, and is devoted to a popular history of orthopterous, neurop-

terous, and, in fact, of most of the groups of insects other than the beetles and the lepidoptera. The information given is of a popular nature, but accurate. The typography and woodcuts are excellent, so that those who require a popular introduction to entomology and a handsome book to boot may safely add this to their shelves.

— The publisher of the *Country* has issued a convenient little pocket-book, comprising, in addition to the usual calendarial matter, space for the record of various sporting matters, such as fishing, shooting, cricketing, athletics, football, bicycling, an exhibitor's diary, and so forth. There is a great deal of information condensed within a very small compass.

— The two plants figured in the last part of *Familiar Wild Flowers* (Cassell & Co.) are the Nodding Thistle, *Carduus nutans*, and the Meadow Vetchling, *Lathyrus pratensis*, the latter one of the best, if not the best, illustration yet given in this publication.

Garden Operations.

KITCHEN GARDEN.

There are certain operations in this department, as the sowing of various kinds of seeds and the planting of certain subjects, which, as a matter of prudence and necessity, can only be accomplished under favourable conditions, no matter what may be the nature or condition of the soil. This unmistakably shows the necessity for the vigorous enforcement of the practice which we consistently and repeatedly advocate in the columns of this Calendar with reference to the importance of having all antecedent groundwork, such as digging, trenching, ridging, &c., well advanced beforehand because of the variable and uncertain nature of our climate, being so precarious as frequently to preclude the possibility of performing such operations in a satisfactory manner, unless under exceptional cases of a duration of fine weather. Owing to these prior arrangements being complete here, we have been enabled to finish offhand the sowing of the main crops of winter roots, such as Onions, Carrots, Parsnips, Beet, Salsify, Scorzonera, &c., and have likewise so far succeeded in getting the Onions planted for seed purposes and for Scallions also, likewise Shallots and Garlic. After these matters are fully completed we shall commence with the earliest sorts of Potatoes on upland ground, and then proceed with the Cauliflower plants which have been matured in frames through the winter months; these plants will be carefully lifted with balls of earth and planted in their allotted places out-of-doors—the most forward plants and kinds unsheltered on warm parts, and others in open quarters, and some for late use on northern borders. This estimable vegetable requires the richest soil to bring it to the highest state of perfection, and in addition to the ordinary supply of manure, which is trenched in the ground for the crop, we invariably mulch the surface about the plant with well-decomposed manure also. The planting of Asparagus, Seakale, and Rhubarb, which are required to replace those roots which have not been destroyed entirely, or otherwise so far exhausted as to need substitution, should soon be proceeded with for ordinary purposes of cultivation, and for maintaining the annual demand for roots for any purposes. We either plant in single rows, about 18 inches apart every way, or otherwise put two rows into 4 feet 6 inch beds with 18 inch alleys between them; the main point, under any circumstances, is to secure strong and well-developed roots, and this cannot be accomplished without the plants have ample space. It is customary, as the Kale is cut and the roots are removed, to cut the best of them up into pieces 5 or 6 inches long, and lay them into sand or soil until the tops are callused over, after which they should be firmly dibbled into well enriched ground about 18 inches asunder all ways. Rhubarb is increased by division: we keep up our supply of roots by parting those which have been forced, selecting the most suitable pieces and plant these early sorts about 5 feet square, giving the larger kinds an additional foot. According to the time that has elapsed since prior sowings were made, so let successional ones be made, in order to keep up the supply of such things as Peas, Beans, Turnips, Radishes, Lettuce, &c. Sow also for the main crop of Celery in boxes or a frame, and out-of-doors also, and as soon as the seedling plants of a former sowing of autumn Broccoli, Brussels Sprouts, &c., are large enough to be handled, these plants should be pricked out, when a little protection can be applied to them if necessary. The advancement of the season, with its cheering prospects, should be a sufficient stimulus to encourage every effort to add to the general effect in this department by keeping everything neat and orderly.

Forcing.—As light, heat, and sunshine increase, ventilate accordingly. Pits and frames which have been occupied with Asparagus, early Potatoes, &c., will be available for French Beans, &c. If these plants are put out into suitable structures, much time, attention, and risk, arising from that dreadful pest red-spider, will be avoided. Where Mushrooms are required until an advanced period of the summer it will be advisable to make up beds for the purpose in places which are naturally cool at that period. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

THE CHERRY-HOUSE.—The superb weather which we have had during the past few days has been supremely beneficial to the trees in this compartment, inasmuch as its influence has afforded opportunities of admitting of a full and free course of air through the house at a time when it is most desirable. Its effects have also further been advantageous in bringing into a state of activity those busy workers the bees, whose presence and operations at the time of fructification is always acceptable to fruit growers. The advantage which will naturally arise from the advance of the season will now cause a corresponding rapid development in the subjects in forcing-houses; see, therefore, that every requirement is attended to regularly and promptly. A keen look-out should be enforced to discover those minute pests the grubs. These will be found on the leaves shortly after they begin to unfold, and a series of searchings and handpickings is the only safe means to exterminate them effectually. At about this time either black or green fly may appear; these can readily be despatched if taken to in time by means of an application of quassia-water or otherwise by fumigation. Trees in pots will as growth proceeds need to be more frequently watered; this very important matter should have the strictest attention, and so also should the ventilation. When the air is calm and sunshine powerful keep a constant flow of fresh air passing through the house, commencing this practice at 55° slightly and ranging it accordingly, so that the internal temperature does not fall below that degree, and 45° to 50° at night should still be the rule. *G. T. Miles, Wycombe Abbey.*

STRAWBERRIES IN POTS.—The demand for these fruits will shortly be on the increase. I see by last week's *Gardeners' Chronicle* that the first dish of Strawberries was offered for sale in Covent Garden some days ago, which is later than usual. I have gathered Black Prince on February 16 in Lancashire, but the present season has not been a very propitious one for early produce. Constant supplies of plants will need to be kept in readiness to take the place of forward crops. All the later kinds will be the better for being top-dressed and arranged in pits close to the light, as with increasing warmth they will soon be on the move, and their leaf-stalks become drawn and sometimes receive injury by coming in too close contact with the glass. From the end of March fine fruits are expected, therefore fertilisation should be carefully attended to notwithstanding increased light and sun. All the upper flowers should be picked off the flower-scape, leaving from ten to a dozen of the finest formed fruits, and as the latter progress a further reduction might be made in the case of large-growing varieties. I have found Gould's chemical compound an invaluable fertiliser for Strawberries. The powder (for such it is like) is scattered over the surface of the pot and watered in with a fine rose when the soil in the pots is neither too wet nor too dry. Cow manure laid up for a time and fresh liquid made from it occasionally in tanks is also a safe invigorator. Overwatering should be avoided in dull weather; handle the pots and note the weight of the soil in them. Close the house where fruits are swelling off so that the temperature will rise to 90°, and syringe the plants overhead whenever the days are clear. Fruits that are developing towards maturity should not be checked by lowering the temperature too abruptly, but moisture should be gradually withheld in order to insure flavour. *W. Hinds.*

ORCHARD HOUSE.—In the earliest house the usual routine of operations must be attended to daily. Syringe early in the morning. I do this the first thing with water rather warmer than the atmosphere of the house; the trees require to be thoroughly syringed, wetting the leaves well underneath: after doing this, if the house has been shut up close, admit a little air. Except admitting a little more air as it is required no more attention will be necessary until about 3 P.M., when the trees should be watered, syringing them afterwards, and then shutting up the house. Let the night temperature range from 55° to 60°. The fruit should be thinned out as soon as it is the size of large Peas. If it has set well each tree will have six times as many fruit on it as it should be allowed to carry. It is best to thin out a large portion of them: say from a tree that would ripen six dozen, I would boldly take off all but ten or twelve dozen, and gradually remove the others up to the stoning period. Many persons have an idea that a certain portion of the fruit drops off during the time of stoning. Healthy well developed fruit will not drop off at that

time, but imperfectly set fruit will; it makes, as it were, a desperate effort to grow up to that time, but when the time comes to develop the kernel, owing to this imperfection the effort fails and the fruit falls off. An experienced cultivator can tell such fruits in an early stage and removes them, but of several scores of trees in pots I have not had six fruits drop during the stoning period. The trees in the late house are later this year than I have ever seen them, but the favourable change in the weather will speedily cause the blossoms to open; still it is best not to hurry them by shutting up at night. Pear and Apple trees are still out-of-doors, they take no harm until the blossoms open. Many persons would not think it worth while to grow Apple trees in pots, nor is it worth while to do so where the garden soil is suitable. Our kitchen garden is about the worst in England for fruit culture, and the contrast between Apples from pot trees and those from the open border is the more marked. Calville Blanche, Kerry Pippin, Early Strawberry, Melon Apple, and a few others produce very fine fruit. Little attention is required at present in the house. If the trees have been placed close together for convenience they should be removed into positions where the blossoms can be fully exposed to the sun, and should be placed as close to the glass as possible. We grow Strawberries in pots on the shelves, and these always carry us on to the time when there are plenty of fruit out-of-doors. Our plan is to place two rows of pots all round the house, quite close together; and from this reserve the forcing-houses are supplied all the season; every alternate pot is taken out. I never use saucers or turf under the pots; it was tried years ago and proved a failure. It saves watering certainly, but at the expense of quality in the fruit. The foliage was not nearly so good when saucers were used. *J. Douglas.*

ORANGE TREES IN POTS.—There is not much to add to what has been previously stated. We had some trees on which the fruit was perfectly ripe, and they have been removed to a cool house, some trees that were in blossom being put into their places immediately. There is no denying that Orange trees are very much subject to insect pests, scale, bug, &c. Removing them to a cool place holds these in check. I do not find any better plan to remove scale and bug than using soapy water and washing the pest off by hand with a sponge. *J. Douglas.*

FIGS.—The earliest pot Figs, now passing through the most critical stage of their culture, will repay careful attention to detailed management. The acceptable change to bright sunny weather will admit of liberal ventilation and copious syringings—two important items—but great care must be observed in the admission of cold currents, particularly when the tender young leaves remain wet after the morning syringing. With increased daylight a slight rise in the night temperature will do no harm, but 65° to 68° when mild and 5° lower when cold will be found safer than following the hard-and-fast line through all weathers at this changeable season of the year. On the other hand considerable licence may be allowed at closing time with plenty of sun-heat and moisture, when a rise of from 10° to 15° will help to make up for lost time without producing watery leaves and weak elongated growths. Another important point is the supply of water, as Figs when in full growth like enormous quantities; but it must not remain stagnant about the roots. Hence the importance of placing the pots on dry brick piers, well above the floor of the pit, where they can stand firm, and the necessary turnings and additions of Oak leaves can be made without fear of derangement. For pot trees good tepid liquid manure may be used at every watering; the paths, walls, and surface of the bed may also be syringed with it daily. Pay attention to disbudding and thinning in succession-houses, and stop at the fourth or fifth leaf, where it is thought desirable to form spurs; but free kinds, like Brown Turkey, which cannot be surpassed for forcing, produce more and finer fruit than can be matured when grown on the semi-extension principle. Let the trees be well syringed twice a day. Keep the mulching materials on the surface of the borders constantly moist, and water freely with diluted tepid liquid from the farm-yard. *W. Coleman, Eastnor.*

PLANT HOUSES.

ORCHIDS.—It is impossible to look through a collection of these plants during the present month without noticing how quickly they have responded to an increase of light and heat. Those flowers which a few weeks back progressed at a painfully slow rate are now in full beauty, whilst roots and breaks on all sides show by their animated appearance that the resting season is over, and the growing one has commenced. The grower, while admiring the bewildering beauty of such plants as *Dendrobium Wardianum* when in flower, always has an eye to those green shoots at the base of the bulbs, upon the good behaviour of which alone depends his ever reproducing the picture. Plants of the *Dendrobium* mentioned, and also of the following—*D. crassinode*,

D. Boxallii, *D. Pierardi*, *D. nobile*, *D. heterocarpum*, and *D. Ainsworthii*—should, as they go out of flower, be either neatly top-dressed, or, if they require it, be rebasketed or repotted. In either operation a good share of the old compost should be carefully picked out. *Dendrobiums* will root very freely in fibry peat and sphagnum, but they never care for any great depth of it, and prefer loose rather than firm potting. A sufficient number of bulbs should be fastened to stakes or to the wires of the basket until the young breaks have made root enough to steady the plant. *D. nobile* is never more at home than in a vinery; here it will grow, rest, and flower profusely. The others mentioned above all grow freely suspended from the roof of the East Indian-house. *D. Falconeri* may now be placed in the house. It should be syringed three times a day until its flowers are well advanced, when it is best to water it from a fine rose pot, as the force of water from a syringe displaces and excites the sexual organs, causing the flowers to fade prematurely. *Dendrobium Bensoniae*, *nodatum*, *Parishii*, *pulchellum*, and *Findleyanum*, must still be kept on the dry side until their flowers appear. *D. Findleyanum* is at present but little known, and owing to its obtaining only a Second-class Certificate when first exhibited it has since been somewhat slighted; but a well-bloomed mass of it is about as neat and charming a subject as could be wished for.

The *Thunias* must also now be shaken out and be repotted. The general way of growing several bulbs planted 3 inches apart in a good-sized pot is a very convenient one. The pots should be half full of drainage, secured by a thin layer of turfy loam, the rest of the pot being filled with peat and sphagnum; every bulb will require a stake, and the base of the young breaks should just rest on the surface of the compost. Give these *Thunias* the very lightest position in the East India-house. The deciduous section of *Calanthes* must also be shaken out and repotted; drain their pots the same as for *Thunias*; no compost will grow them better than two-thirds fibry loam (free from wireworm), one-third fine peat, with a dash of river or drift sand. They may either be grown singly in small pots, or several bulbs planted in larger ones. To grow these plants well in Orchid-houses they must occupy what growers term the best positions in the East Indian-house; consequently, no more should be grown than can be accommodated without having to displace other valuable plants. Many gardeners grow these *Calanthes* to great perfection in Pine-stoves and Cucumber-houses. The lovely rose colour which *C. Veitchii* sometimes puts on can only be obtained under the influence of clear light and a pure air. For those who have to grow this plant in or near large towns I feel very sorry, for through no want of skill on their part their houses are during winter minus of one of the most charming colours possible to imagine. *Eulophia guineensis* may be treated exactly as the *Calanthes* as regards potting, watering, and resting, but it does not while growing require such a light situation. The *Eulophia* is a very beautiful plant, throwing during August strong spikes of large rose-lipped flowers, which last long in perfection. The present is a good time to repot *Laelia anceps*, *L. albidia*, and *L. autumnalis*. The ordinary Cattleya compost—two-thirds fibry peat and one-third of sphagnum—will suit them; the former will grow well in the Cattleya-house, while the other two prefer the Mexican-house. Neither of the three require frequent watering, but prefer a good soaking at long intervals. All the plants mentioned for repotting must after the operation be sparingly watered until they show by the emission of new roots that they are capable of using up more.

Insects of all descriptions will now be getting as active as the plants they feed upon. In the cool houses greenfly is sure to be troublesome. These houses must never be filled with tobacco-smoke sufficient to kill this pest right off; such treatment would be certain to cause a number of old leaves to fall off. The proper thing is to give three or four light fumigations, which will so upset the insects as to check or stop reproduction; this done the finger and thumb will soon settle those present. In the Cattleya-house woodlice do an awful amount of injury by eating young roots both in and out of the compost. The more frequent waterings which the inmates of this house now require will slightly discommode this pest, and they will readily leave the wet compost for a Potato-trap. In the East Indian-house the first thrives attack must be checked by brush and sponge. Give cockroaches a good feast of beetle-poison. Maintain the following temperatures:—Cool-house, 50° to 60°; Cattleya and intermediate houses, 60° to 70°; East Indian-house, 65° to 75°. The lowest temperatures are for night and the highest for noon. The Mexican-house should be about 55° at night, rising in the day by sun-heat to 80°, with plenty of air. The cool-house must have plenty of air, and the next two houses a moderate quantity all day long. Give a little air to the East Indian-house during the hottest hours of the day, and shut it up with plenty of sun-heat. Every house must now be damped down morning and evening. *F. C. Spyers, Burford Lodge, Dorking.*

THE

Gardeners' Chronicle.

SATURDAY, MARCH 15, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, March 17 | { Sale of Orchids, at Stevens' Rooms. Sale of Lilies, Plants, &c., by Protheroe & Morris. Manchester Botanical and Horticultural Society's Show. East London Amateur Floricultural Society's Show (three days). Greenock Spring Flower Show (two days). Clearance Sale at The Keyfield Nursery, St. Alban's, by Protheroe & Morris. Sale at The Hale Farm Nurseries, Tottenham, by Protheroe & Morris. Sale of Plants, Bulbs, Trees, &c., at Stevens' Rooms. |
| TUESDAY, March 18 | { Final Sale at The Nurseries, Tooting, by Protheroe & Morris. Meeting of the Lonsan Society, at 8 P.M. Torquay Horticultural Society's Spring Show. |
| WEDNESDAY, Mar. 19 | { Flower Show at the Winter Gardens, Southport (two days). Sale of Orchids from New Grenada, at Stevens' Rooms. |
| THURSDAY, March 20 | { Sale of Orchids, at Stevens' Rooms. Paisley Horticultural Society's Show. |
| FRIDAY, March 21 | { Sale of Trees, Shrubs, Roses, Bulbs, &c., at Stevens' Rooms. |
| SATURDAY, March 22 | { |

SIR TREVOR LAWRENCE'S motion for the EARLIER OPENING OF KEW GARDENS met with a very decided negative at the hands of the House of Commons on the 6th inst. Sir TREVOR'S proposals were moderately confined to the admission of the public to those portions only of the grounds where comparatively little inconvenience would, as it was assumed, be experienced by the entrance of visitors before 1 o'clock. The debate evinced little or no practical knowledge on the part of the speakers of the actual working and requirements of the gardens, much nonsense and irrelevant matter being introduced on either side. To compare other gardens, such as those at Edinburgh, Paris, or Berlin, is simply to show ignorance of those gardens, and of the very different conditions which exist in those cities from those which obtain at Kew. Very little appeared to be known as to what is actually done at Kew, though the annual reports might have given some inkling of this to our legislators. Still, it was satisfactory to have it distinctly reiterated that the primary purpose of Kew is practical and scientific, and that to this main end the recreative element should be decidedly subordinated. Parks and pleasure grounds are not wanting in the immediate vicinity of Kew, so that after all there is no great hardship in excluding the public for a few hours in the morning while watering is going on in the houses and the gardens are being swept and made ready.

On the other hand, if, consistently with the furtherance of the main purpose of Kew, the proper maintenance of its rich collections and the convenience of students, any further concessions can be made to the general public, beyond those now in force, it would be doing an injury to horticulture and botany not to make them.

The facilities now offered to all those who visit the gardens for purposes of study or business are so valuable that we are surprised to find that comparatively few avail themselves of them. It would be interesting to know how many of those who have been most active in this agitation have applied for the necessary permission to enter before 1 o'clock, or have gone through the simple formality of signing their names; but it would be still more satisfactory to see a larger number of *bonâ fide* students and gardeners using their privileges. We certainly think their claims of far greater weight than those of Richmond nursemaids and their charges, but if they ignore or undervalue them they must not complain if the nursemaids assert their rights somewhat loudly in the future. Past experience of the excellent administration of the gardens affords the best guarantee that, come what may, so long as the direction remains in its present hands, the pre-eminence of Kew as a botanic garden will be jealously maintained.

— THE SYDNEY BOTANIC GARDEN.—It is scarcely polite now to speak of Botany Bay, but nevertheless there is a certain fitness of things in retaining the name for a locality memorable in the annals of botany. The Sydney Botanic Garden is hardly less memorable, for it was the scene of the labours of the two CUNNINGHAMS, ALLAN and RICHARD, of FRASER, and others; and it now enjoys a well merited reputation under the superintendence of Mr. CHARLES MOORE. We purpose shortly publishing some details of this garden from the pen of Dr. GEORGE BENNETT, the veteran naturalist and eminent physician, whom we were so glad to see among us recently. In the meantime we give an illustration (fig. 47) of a scene in the garden, the principal feature in which is constituted by the noble *Doryanthes excelsa*, whose stately habit and brilliant scarlet flowers render it one of the most noticeable of all plants. The stems of this plant attain some 20 feet or more in height, the leaves being not unlike those of some *Agave*.

— COTIS ORIENTALIS.—Just now there is in bloom in the herbaceous ground at Kew a plant of this little known Japanese species. Flowering at this time of the year it is worthy of special notice. The individual flowers are small, but are borne in a group of 4–6 on a short stalk. They are a whitish colour, not unlike those of a *Thalictrum*. The leaves are elegantly divided in a ternate manner, the ultimate segments being roundish ovate and sharply toothed. We have also received flowers from Rev. H. N. ELLACOMBE. As the plant is little known, and has not found its way into the catalogues, we may state that the plant in question was originally described by MAXIMOWICZ in his *Mélanges biologiques*, vi., decas iv., 1867, p. 259.

— PROFESSOR CHURCH.—It is a matter for extreme regret that the connection of this eminent chemist with the Royal Agricultural College at Cirencester should be severed by reason of some high-handed proceeding on the part of the Principal, yet such appears to be the case. We are so miserably provided with colleges and professors devoted to the advancement of the science of cultivation, that we cannot afford to lose the services in this department of a Professor who has cast lustre upon the College to which he is attached, and who, outside its walls at any rate, holds a much higher position than the reverend Principal. Let us hope the matter may still be adjusted satisfactorily.

— DISEASE IN BOUVARDIAS.—We have just received samples selected from about 5000 plants of *Bouvardia* grown in one of the principal London nurseries, from which they are sent out in thousands yearly. A serious disease made its appearance last spring in the tips of the shoots, curling and stunting the leaves, and ultimately stopping the growth. The whole batch was then cut down, the surface soil loosened, and the plants set in a house to start. Not a leaf was left on the plants likely to be a lurking place for any enemy, but the disease in the fresh shoots was as powerful as before. Strange to say, however, the smooth-leaved varieties escaped; but the rough-leaved kinds, such as *Laura*, *Vrelandii*, and *Hogarth*, were all attacked, as in the specimens transmitted. One of the suggestions was that the plants had been treated with bad water, and from what we have observed it is not impossible that there may be some justice in the observation. The only indication of the disease which we could find was a green tint at the lower part of the plants, beneath which the wood was dead, and it was quite clear that whatever the exact disease might be, it arose from some defect below. Though all was dead or dying above there was clearly an attempt to make a new growth, but in each case the young shoots had died at a very early stage. On submitting the diseased portion to the microscope we found a species of *Alga* belonging to the genus *Anabaina* mixed with a few threads of *Oscillatoria*, and it is probable that these may have been the cause of mischief. *Alga* on the surface of the soil are notoriously injurious when abundant, and it is very possible that they may be deleterious when incrusting the lower part of the stem. The hint is at least worthy of attention. M. J. B.

— SPRING FLOWERS.—The white *Narcissus monophyllus* is now flowering quite freely in a frame in Mr. BARR'S grounds at Tooting. Only the first

few flowers are fully expanded, but there are at the least fifty or more buds peeping through the soil. Some beds of the old-fashioned but ever welcome *Hepaticas* are also in perfection, mauve, pink, and blue being the colours most distinctly represented. *Iris reticulata* and its claret-coloured variety, known as *Krelagei*, are also blooming; and during the week we noticed a tuft of *Narcissus minor* producing its golden flowers just above the soil in Mr. PARKER'S nursery, where also the snow-white and deliciously perfumed *Aponogeton* bears dozens of its twin-spiked flowers. *Scillas* are peeping here and there, and a tuft of the soft golden lilac-blossomed *Aubrietia deltoidea aurea* had a distinct and pretty effect. *Hellebores* and the *Winter Aconite* have lingered thus long in beauty, and *Snowdrops* are alike nearly two months behindhand. Hardy *Cyclamens* are pushing up their bright-tinted flowers more freely from the grass, and we noticed some in pots protected by a cold frame blooming most profusely. These were of the *C. Coum*, *C. ibericum*, and *C. Atkinsii* breed. The idea has been suggested to us that good results might follow the intelligent hybridisation of these hardy species with *C. persicum*, a plant few can grow to perfection, and which likes heat, although it will exist even in an ordinary sitting-room window. The advantages which might possibly be obtained are two-fold—increased hardness of constitution might be infused into *C. persicum* with advantage, while larger flowers would increase the attractions of the hardy varieties. These last few sunny days have brought out the *Crocuses* in all their glory of purple and gold everywhere.

— ON THE CHANGE OF COLOUR IN GRAPES.—Here is an extract from the *Philosophical Transactions*, 1720, p. 102, of an article on the change of colour of Grapes by Mr. HENRY CAVE:—"About six years since I planted against a wall a cutting from a *Muscadine* Vine, on an eastern aspect, where it has the sun from its rise till half an hour after 12. The soil is a stiff clay, but to make it work the better, I meliorated it by mixing some rubbish of the foundation of an old brick wall, where it now grows. Two years since it shot out at both ends, about 22 inches of a side, before it came to a joint. That on the right was a very luxuriant, exuberant branch, as large as the body of the tree, the other side not half so thick, and the leaves on the right were as large again as those on the left, and I fancy the largest that ever were seen. The right hand bears a very large and good black Grape, and large bunches; the left hand very good white Grapes, and I had last year more bunches of the white than of the black; and whereas in all Vines bearing black and blue Grapes the leaves die red, these died white on the black side as well as the other. Last January I pruned the tree again, but tacked up more of the right hand (being black) than I did on the left, for which reason I had this year a great many more of the black than I had of the white, and they ripened for the season of the year very well. I gathered the last about eight days since (October 23), and the leaves die white this year also, being the second year of bearing." The same writer describes an instance of the influence of scion on stock. He grafted a variegated *Jessamine* on a green one, and the graft at first grew, but afterwards sickened; he cut it off, stock and all, close to the ground. The stock afterwards produced shoots with variegated leaves, both from the stem and roots, as in BRADLEY'S well-known case.

— LACHENALIA PENDULA.—At Hall Place, Tonbridge, Kent, the residence of SAMUEL MORLEY, Esq., this useful plant is largely grown in hanging baskets for conservatory decoration. The baskets are about 3 feet in diameter, and from these the foliage and flowers hang in great profusion, forming objects of great beauty. Mr. BERRY, who ably presides over the garden at Hall Place, states that the baskets had not been disturbed for two years.

— THE DUKE OF CONNAUGHT'S MARRIAGE.—Amongst the presents made to the Duke of CONNAUGHT on the occasion of his marriage with the Princess LOUISE MARGARET OF PRUSSIA, was a fine oil painting by the Crown Princess of GERMANY, and signed "Victoria, 1878." It is a large canvas, representing fruit and flowers, a cut Melon and Pine-apple such as the QUEEN'S gardener sends for competition at the fruit shows, luscious Grapes and wall-fruit laid on a light blue cloth, with autumn flowers bound up behind the tempting-looking fruit.

— PECULIAR DISTRIBUTION OF A GRASS.— There are many peculiarities in the distribution of plants which are hard to explain. The common Lady's-mantle, *Alchemilla vulgaris*, is abundant and widely dispersed in Europe, N. Asia, and the mountains of India; but, what is most singular, it also

— FREEZING RAIN.— This most destructive phenomenon is fortunately of rare occurrence. We remember an instance about the year 1854. It happened towards morning, and when the sun rose, no more brilliant sight could be imagined. Everything was encased in ice, which glittered in the bright

mind by reading an account of a similar, though far more destructive freezing rain, which fell in the West of England early in December, 1671. A contributor to the *Philosophical Transactions* of that date gives some particulars, from which it appears that the mutilation and total destruction of



FIG. 47.—*DORYANTHES EXCELSA*, IN THE SYDNEY BOTANIC GARDEN. (SEE P. 338.)

occurs in the Australian Alps. With one exception, the species of *Deutzia* are Asiatic, inhabiting China and Japan and the mountains of Northern India. The exceptional species is a native of Orizaba, in Mexico. *Abelia* has a similar distribution. But to return to our grass, the little *Coleanthus subtilis*. This is an exceedingly rare grass, which has been found in the very distant localities of Bohemia, Norway, and Oregon, in North-west America.

sunshine in a most dazzling manner. The rain froze immediately on coming in contact with the earth, trees, and other objects, so that in early morning it was almost impossible to walk in the streets, as the ice was of the clearest and smoothest. On this occasion the quantity of rain that fell was not so great as to overweight and break down trees on a large scale, nevertheless it caused considerable damage in some districts. This event was recalled to our

trees was very great in the neighbourhood of Bristol, Bath, Wells, &c. He states that he "weighed the sprig of an Ash tree of just three quarters of a pound which was brought to his table, and the ice on it weighed sixteen pounds, besides what was melted off by the hands of those who brought it." He continues: "A very small bent at the same time was produced which had an icicle encompassing it of 5 inches round by measure, yet all this while, when trees and hedges

were laden with ice, there was no ice to be seen on our rivers, nor so much as on our standing pools." "All the trees, young and old, on the highway from Bristol to Shepton were so torn and thrown down on both sides the way that they were impassable. By the like obstructions the carriers of Bruton were forced to return back." It is recorded, too, that the orchards suffered very severely, especially those exposed to the north-east. From the evidence of another writer it appears that this freezing rain extended eastwards to Oxford, and was succeeded by extraordinarily mild weather, inasmuch that Apple trees were forced into blossom by Christmas.

— **PLANTING SEEDS IN MOSS.**—This is now known to be an excellent plan for raising Pitcher-plants and other delicate seeds; but it appears that Mr. CHARLES BONNET, of Geneva, practised the same thing as early as 1747. An account of his experiments was published in the *Philosophical Transactions* for that year. He raised plants both from seeds and cuttings in this way, and he also grew Pinks, Gilliflowers, Daisies, Tuberoses, Tulips, Hyacinths, Jonquils, and Narcissus; and all these plants succeeded as well as others which he planted in mould. Vine cuttings grew into larger plants than others raised in the ground.

— **THE LETTER OF THE LAW.**—The *Wiener Landwirtschaftliche Zeitung* reports, as quoted in the *Hamburger Gartenzeitung*, a curious instance of official despotism in Austria. Tobacco cultivation is a Government monopoly, consequently the committee of a certain school, wishing to teach the scholars, among other things, something of economic botany, applied to the authorities for permission to grow six Tobacco-plants in the garden attached to the school. The reply to this very reasonable request was severely majestic, pointing out that by such and such an ordinance it was illegal, and concluding to the effect that if they had commenced growing these six Tobacco-plants, steps should forthwith be taken to destroy them. As the Vienna paper in question observes, this was indeed rather too strong Tobacco; why not prohibit the cultivation of the Tobacco-plant in the University gardens, as they are also school gardens!

— **CYCLAMENS AT EALING DEAN.**—The display of this beautiful flower at Mr. H. B. SMITH'S nursery at Ealing Dean, surpasses in extent and in beauty of development in the flowers anything seen there previously. There are plants of all sizes, from superb specimens in 24-sized pots, averaging 100 small blooms each, to quite small plants in small 60's, with from five to eight and nine blooms each. The past winter, owing to its cold and sunless character, proved more than usually trying to the plants, but unrelaxing attention and intelligent oversight did wonders as mitigating agencies. Out of the many plants grown, to be numbered by the thousand, the absence of narrow-petalled varieties is something remarkable; the converse holds good—finely formed stout flowers in plenty, and with that happy balance between foliage and flowers that makes a perfect specimen Cyclamen of whatever size such an attractive plant. The Cyclamen is unrivalled for beauty and usefulness as a winter and spring flowering plant; and what a great demand there is for it is seen when it is stated that Mr. SMITH sends a big load to London three times a week and generally every day. The durability of its flowers is another great feature—the flowers are yet to be seen on some plants that were there when shown in London in November last. In a cut state they will remain fresh three weeks, a month, and even longer. A large number of plants are now sent to the great industrial centres, as Birmingham, Liverpool, Manchester, Newcastle-on-Tyne, &c. In regard to variation in colour, some of the pink-tinted flowers are both new and beautiful, with a delicacy of floral expression exaltingly refined and most winsome. They are as a glowing prophecy of something yet more beautiful.

— **OIL OF PERILLA OCIMOIDES.**—A sample of this important oil was exhibited at a recent meeting of the Horticultural Society of Berlin. It is a Japanese product, and is obtained from the seeds. This oil, on the authority of the Comte DE CASTILLON in the *Revue Horticole*, 1878, as quoted in the *Monatschrift des Vereines zur Beforderung des Gartenbaues*, is the Ye Goma, which is employed in

various ways. It is employed, in the proportion of ten per cent., to facilitate the extraction of the wax of *Rhus vernicifera* and *R. succedanea*, also to render coats and umbrellas water-tight, and in the manufacture of the celebrated Japanese leather paper.

— **AZARA MICROPHYLLA.**—It is satisfactory to note that this most beautiful species is hardier than two others with which it is planted in the pleasure grounds at Kew. Although injured, it will evidently grow again, while *A. Gilliesii* and *A. dentata* are quite killed. These are in the dell by the flag-staff. *Nandina domestica*, so beautiful last summer, in an adjoining bed, is unscathed beyond the loss of its leaves. *Berberidopsis corallina*, though safe against a wall of the T range, and on another wall in a colder position, is here quite killed. The *Cistus* collection, as might be expected, has suffered much; the hardiest appear to be *C. ladaniferus*, *C. laurifolius*, *C. monspeliensis*, and *C. corborensis*, of which the first three are quite without injury. The majority of the species are quite dead. *Plagianthus betulinus*, of New Zealand, *Aristotelia Macqui*, of Chili, *Cneorum tricocum*, of the South of Europe, which survive the milder winters, have this season been killed.

— **ORCHIDS AT KEW.**—Among the Orchids at Kew, a very fine specimen of *Dendrochilum glumaecum* has recently come into bloom. It has thirty-five spikes, each drooping in the most elegant manner; the flowers are deliciously scented. *Odontoglossum triumphans* has just opened, it is exceedingly beautiful, and much superior to *O. luteo-purpureum* in the brightness of its colour. Several fine additions occur among the *Dendrobiums*; the most beautiful is *D. Devonianum*, and among others are the true *D. barbatulum*, *D. mutabile*, and *D. Findleyanum*. A fine specimen of *Lælia superbiens* must be mentioned, and also the distinct and pretty *Cypripedium Lowii*.

— **PROSPECTS OF FIJI.**—Mr. HORNE, the Director of the Botanical Gardens at Mauritius, who has visited the Fiji Islands with a view to investigate their capabilities, speaks in the highest terms of the suitableness of the islands to grow all kinds of tropical produce. The varieties of Sugar-cane grown excite his special admiration, as the islands are specially adapted for their culture. There is also a large extent of land better adapted for growing Coffee than any other tropical product. Several of the islands contain large areas of almost incomparably fine Coffee land, and enjoy a climate which is at once healthy and well adapted for the growth of the Coffee shrub, Cocoa-nut Palms, and Cocoa (*Theobroma*) might profitably be grown to a greater extent than at present. Cotton-growing is scarcely remunerative. Tea, Cinchona, and Tobacco, together with Rice, Maize, Cloves, Nutmegs, Pepper, and many tropical fruits, &c., might be grown here, and Mr. HORNE points out the desirability of varying the products raised. "The more varied these are," says he, "the less will be the distress which a season of failure or low prices would certainly cause if the welfare of the community depended on one kind of crop. Geographically speaking, Fiji occupies a most enviable position. Situated within the tropics, she is about from six to eight days' steaming from Australia and New Zealand, where the demands for her produce are extensive and increasing. From the bountiful nature of the soil, and the favourable climate, she will successfully compete in these markets with all rivals, not excepting the tropical parts of Australia."

— **CARPET BEDDING TWO CENTURIES AGO.**—A contributor to *Der Deutsche Garten* says, probably most garden owners and lovers of flowers think that carpet-bedding is quite a modern idea; but this is a great error, as is proved by a work in which this subject is treated, at least two hundred years old. The full title of this work is given, and it is an exceedingly copious and comprehensive one, including *allerhand parteerren von broderies als mosaïque*, &c. The book contains nearly a hundred finely engraved copper-plates from correct drawings. We, however, do not gather from the title, or the legends of the plates quoted in *Der Deutsche Garten*, that carpet-bedding, as we understand it now-a-days, was practised in these days. We may be wrong, but we think *parteerren von broderies*, &c., were designs in clipped Box, &c., representing regular patterns or grotesque forms. It would be interesting to have more fully explained

what the writer regards as carpet-bedding, especially what part of the title, text, or plates refers to this style of planting flower-beds and borders. Perhaps if this should come under Mr. O. HÜTTIG'S notice, he will furnish *Der Deutsche Garten*, or this journal, with a few more details.

— **ECONOMICAL GARDENS FOR LONDONERS.**—On Wednesday evening, the 19th inst., a paper on "Economic Gardens for Londoners" will be read before the Society of Arts, by Mr. W. MATTIEU WILLIAMS, F.R.A.S.

— **PLANTS AND BIRDS FROM NEW GUINEA.**—Mr. B. S. WILLIAMS has recently received a large consignment of plants, &c., from Mr. GOLDIE, his collector in New Guinea; also a large collection of birds, numbering about 1500 skins, in splendid order. It must be highly gratifying to Mr. WILLIAMS to find his collector so fortunate in procuring collections of such magnitude, and more especially when new species are obtained, as is the case in this collection. Ornithologists and botanists will now have an opportunity of becoming acquainted with the beauties which this hitherto unknown region contains. We understand that the whole collection of birds will be sold at Stevens' Rooms at an early date.

— **BOTTLING GRAPES.**—Mr. W. THOMSON, of Clovenfords, in the current number of the *Florist*, throws doubt on the wholesomeness of Grapes kept in this way. It is, of course, possible that changes may occur in the fruit from the continued absorption of the water, but before coming to such a conclusion further experience is required. Mr. THOMSON, whose opinion on such a subject is worthy the greatest respect, deems it to be far better, except for the sake of appearance, to keep Grapes without water than with it.

— **HOTBED FRAMES.**—If gardeners and others will give a trial to the following plan they will find it less than one-fourth the expense of glass frames, and much more useful:—Take white calico of a close texture, stretch it, and nail it on frames of any size you wish; mix 2 oz. of lime water, 4 oz. of linseed oil, 1 oz. of white of eggs separately, 2 oz. of yolk of eggs; mix the lime and oil with a very gentle heat; beat the eggs separately and mix with the former. Spread the mixture with a paint-brush on the cloth, allowing each coat to dry before applying another, until they become waterproof. The following are some of the advantages these shades possess over glass:—1. The cost being hardly one-fourth. 2. Repairs are cheaply and easily made. 3. They are light; they do not require watering; no matter how intense the heat of the sun, the plants are never struck down, faded, or checked in growth; neither do they grow up long, sickly, and weakly, as they do under glass, and still there is abundance of light. The heat entirely arises from below, and is equable and temperate, which is a great object. The vapour arises from the manure and earth, and is condensed by the cool air passing under the surface of the shade, and hangs in drops upon the inside, therefore the plants do not require so frequent watering. If the frames or stretchers are made large, they should be intersected with cross-bars about 1 foot square to support the cloth. These frames are also well adapted for bringing forward flowers in season. For forcing Melons, Tomatoes, vegetables, &c., this prepared cloth is especially adapted, as it can be attached to boxes of any size, and cut to fit them. Little, though square, boxes of the proper size and height, covered with this prepared cloth, can be placed over the beds in which roots and seeds are planted, and the plants allowed to stand without transplanting until all danger of frost is over, when the boxes may be taken off, and placed carefully away for another season. *Irish Farmers' Gazette*.

— **SEDUMS FOR WINTER CARPETING OF BEDS.**—The sad havoc worked by the hard winter among spring bedding plants—Wallflowers, Silenes, Forget-me-nots, Pansies, Violas, Nemophila, Daisies, &c.—has served to give point to the value of the hardy Sedums as winter plants, and especially *S. acre aureum* and *S. lydiun*. These are now most charmingly effective, and the rich bright deep green of the one serves to bring out into marked contrast the clear golden tips of the other. Many a naked patch of soil might be most appropriately clothed with these

during the summer, and with nothing else employed in combination the beds would yet have a pleasantly furnished appearance right up to the time when they would be required for the summer bedding plants. It would not be necessary to lift the plants, as a few clumps put out by themselves in spring would produce a large number of plants by autumn. They could be dug in, taking care to bury them deep enough to rot. These Sedums make an excellent carpet for beds of bulbs; and bulbs such as Crocuses, Tulips, Hyacinths, and Narcissi, are about the cheapest and most effective subjects that can be put into the flower-beds during the winter for the spring display.

— **MORE ABOUT SNOWDROPS.**—Since our note on this subject at p. 237 we have received from Mr. MELVILLE additional specimens of his fine variety of Snowdrop, and we have further been asked how we distinguish it from *G. Imperati*. The difference consists in the flowers (of both varieties of which we have specimens before us), in the broader flower-segments of MELVILLE'S variety, and especially in the inner flower-segments, or petals, which are shorter, broader, and more nearly circular in outline than is the case in *G. nivalis* var. *Imperati*. The sepals or outer flower segments of *Imperati* are linear-oblong, more gradually tapering to the base, as in ordinary *nivalis*; and the petals or inner flower-segments are also more elongated and less rounded in outline than in *Imperati* or other forms of *nivalis*. Some of our correspondents have found fault with us, and for exaggerating the size especially of *G. Imperati*; but their animadversions are more than neutralised by the opposite protests that we have not done justice to it! More especially is this true of *G. Elwesii*, of which we have since seen much finer specimens than those illustrated. We refer to our correspondence columns for some further remarks on this subject.

— **ANEMONE PULSATILLA** (THE PASQUE-FLOWER), though one of the oldest denizens of old-fashioned borders, even now needs more extended knowledge, as it is not nearly so well known as it deservedly merits. Flowering in company with Squills, Hepaticas, and other hardy spring flowers, it is a great ornament at this dull season. It grows about a foot high, with finely cut foliage, and produces numerous large flowers of a violet-purple colour, relieved by the central golden tuft of stamens. The whole plant is, moreover, covered with silky hairs. It thrives best in rather stiff loamy soil, for if it be too light the plants are subject to injury during summer. It is scarcely necessary to add that this handsome plant is one of our native wild flowers, and though somewhat local in distribution is found in several counties growing in chalky pastures.

— **GARDENING AT SAIGON.**—The following notes on gardening and cultivation at Saigon appear in a recent report of the British Consul resident there. The only gardeners available, it seems, are Chinese, who manage by constant labour to produce Lettuces, Beans, Radishes, Turnips, Tomatos, Cabbages, and a variety of other edibles not generally in vogue with Europeans. Potatos, we are told, do not flourish, nor does Asparagus.

"The blossoming of plants and the maturing of fruits cannot be predicted with certainty; the rainy and dry seasons exercise much influence, and of late years they themselves have been somewhat irregular, the incessant action of heat which is nearly always excessive renders the determination of such matters still more difficult. Generally speaking, tropical plants flourish at the opening of the wet, and those of temperate climates during the early part of the dry season. Not that there is any great quantity or variety during either period. Of fruits, Bananas, Plantains, and Oranges are nearly always in season; Mangos and Mangosteens are confined to the months of April, May, and June, earlier or later as the season favours them. A very inferior kind of Pine appears in June and July. The introduction of the Litchi and Durian is being attempted. Melons, Custard-apples, and Guavas are produced in small quantities."

— **THE SOUTHAMPTON HORTICULTURAL SOCIETY.**—His Royal Highness PRINCE LEOPOLD having consented to become the President of this Society, in succession to the late Hon. ELIOT C. YORKE, the committee applied to the proper quarter to be allowed to use the prefix of "Royal," and Her Majesty the QUEEN has been graciously pleased to accede to their request. Thus in the future the Society will be known as "The Royal Southampton

Horticultural Society." It has, as we learn from a local paper, made rapid strides in the past; it has attained now a good position, and if it is only aided by those who have it in their power, it must tend to become one of the most powerful and successful societies of the kind in the South of England.

— **FLOWER SHOWS AT THE CRYSTAL PALACE.**—We have received a copy of the schedule of prizes offered for competition at the Summer Exhibition to be held on May 24. There are thirty-two classes altogether, and only first and second prizes are offered. In conjunction with this is a list of the prizes offered by the National Rose Society for competition on June 28. The management of these shows is very properly entrusted to Mr. THOMSON, the Superintendent of the Palace Gardens.

— **NORFOLK AND NORWICH HORTICULTURAL SOCIETY.**—The spring show of this Society will be held on May 10; and to commemorate the fiftieth anniversary of the Society a grand Rose show will be held on June 25 and 26. The autumn exhibition is fixed for September 11.

— **ORCHIDS FROM NEW GRENADA.**—Mr. B. S. WILLIAMS has just received a fine lot of the beautiful *Odontoglossum Alexandræ* from his collector in New Grenada; also a new species of *Masdevallia*, with yellow flowers, which has fortunately arrived in good condition. *Masdevallias* and *Odontoglossums* are very difficult things to import, and we are glad to see that Mr. WILLIAMS has been fortunate enough to secure a good quantity of this popular Orchid. We believe they are to be sold at Stevens' Rooms on the 20th inst.

— **ROMAN HYACINTHS.**—Mr. KRELAGE asks us to state, with reference to his remarks on the exportation of Roman Hyacinths from Holland, at p. 277, that since writing that letter he has been informed that the number of bulbs exported last year was about two millions.

— **FUNGUS ON MAPLES.**—Every resident in the country, with an eye for plants, must be familiar with the circular black spots on leaves of the Sycamore and Maple. According to M. MAX CORNU, as quoted in the last number of *Grevillea*, these spots are the work of a parasitic fungus sometimes called *Xyloma acerinum*. This *Xyloma* is, however, only a transitory form of the fungus, for when the leaves fall to the ground in the autumn a new growth appears in these spots, the plant produces asci, and becomes *Rhytisma acerinum*. The parasite is annual in its duration, and is altogether confined to the deciduous foliaceous organs; it is only fully developed on the organs when they are in a young state. In order to destroy the fungus, it is enough to remove all the spotted leaves which fall in autumn.

— **CROCUS SATIVUS.**—In the last number of the *Journal of the Central Horticultural Society of France* M. DUCHARTRE makes mention of a specimen of *Crocus sativus* grown by M. CHAPPELLIER and in which the three outer flower segments or sepals had assumed the colour and form of the stigmas. Apart from the morphological interest of the specimen it is of value for economic reasons, inasmuch as it is for the sake of the stigmas, which constitute the saffron of commerce, that the plant is grown. This variety, therefore, if perpetuated, would have a double value.

— **SUGAR IN CUBA.**—The sugar trade of Cuba appears to be in a very flourishing state. We learn that a considerable improvement has lately taken place in the percentage of sugar extracted from the cane, which improvement is said to result from the planters having at last opened their eyes to the necessity of giving the canes more air by planting them farther apart, as well as by the use of improved machinery for extracting the saccharine matter. "They have not as yet introduced the 'macerating' process of steaming and reducing the cane to pulp which has given such satisfactory results in Demerara and elsewhere, though the attempt has been made to attain the same result by means of hot water, which, though it has hitherto proved inefficacious, shows that the attention of the planters has been called to the new system." In spite of the poor crops that have prevailed during the last two years, and the enormous imposts the planters have to undergo, the

vitality of this branch of the industry of the island is remarkable. While in the south and western departments of the island many of the estates have been abandoned in consequence of the insurgents, in the north as many as twenty new sets of machinery, involving an outlay of at least £150,000, have been erected during the past year. It is also stated as a highly satisfactory fact that the "island has hitherto been spared from the ravages of the 'changa,' a species of worm which eats into and utterly destroys the cane, and which has committed such devastation lately in the neighbouring island of Porto Rico."

— **INSTITUTION OF SURVEYORS.**—The next meeting will be held on Monday evening, March 17, when a paper will be read by Mr. H. J. CASTLE, Sen., on "Contributive Value." The chair will be taken at 8 o'clock.

— **TREE OR PERPETUAL CARNATIONS.**—The popularity enjoyed by this useful class of plants, and the growing demand for them for the sake of the flowers they produce in winter and spring, is shown from the fact that Messrs. E. G. HENDERSON & Son, Pine-apple Place Nursery, Maida Vale, find it necessary to propagate something like six thousand plants annually. The cuttings are struck during January, and up to the end of February, in a little heat; they are put into a cool-house as soon as rooted, then potted off, ready to put into cold frames when mild weather sets in. By summer the plants are in 48-sized pots; they are then plunged in cocoa-nut fibre, or spent hops from a brewery, in the open ground, and care is taken that the plants do not suffer for want of water. Old plants that have become thick with shoots are cut back after blooming, then allowed to break into growth, and when the weather suits are planted out in the open ground, reducing the ball somewhat when this is done. In the autumn the plants are taken up and put into a cold frame, and they come in very handy as stock plants. A great many new varieties are being produced annually, and the old type of habit, lean and lanky, has given place to free and bushy growers, and a greater freedom of bloom, as well as being much more continuous. That delicious fragrance which characterises the summer Carnation is present to a large degree in many of the new perpetual-flowered varieties.

— **THE WEATHER.**—From the report issued by the Meteorological Office we learn that the weather at the commencement of the week ending March 10 was cloudy and unsettled generally, but an improvement commenced in the south-east on the 5th, and gradually spread, first to our western and afterwards to our northern stations. On the 6th, 7th, and 8th brilliant weather was prevalent, with fogs at some places in the early mornings; but on the 9th cloud appeared in the north and west, extending to the south and east on the following day. The temperature was a little below the mean in the south-west of England, but above it in all other districts, the excess being greatest in the east of Scotland and the north-east of England. A steady rise occurred in most places until the 9th, by which time the midday readings at the English stations were very high, 62° being reported as the maximum at Audley End and Strathfield Turgiss, 63° in London, and 64° at Cambridge. Several sharp night frosts occurred at the same time, the thermometer falling to 27° in many parts of England, to 26° at Audley End, and to 25° at Shrewsbury; the gross temperatures were of course still lower. The weather during the daytime became decidedly colder on the 10th, but owing to the prevalence of cloud the night minima reported were higher than those previously experienced. The rainfall was a little in excess of the mean in Scotland and the north of Ireland, but less in other districts. In most places the falls occurred either at the beginning or end of the period, there being an almost entire absence of rain on the 7th, 8th, and 9th. The wind blowed strong to a gale from the south-westward at all but the south-eastern stations on the 4th and 5th, veering to west and falling moderate on the 6th. Calm or variable airs were reported from many places on the 7th, but on the 8th and 9th southerly breezes began to re-appear in the west and north; while on the 10th westerly winds were reported generally.

— **GARDENING APPOINTMENT.**—Mr. GEORGE RATCLIFFE, late gardener at Biddulph Grange, has been appointed gardener and bailiff to ROBERT LEAKE, Esq., The Dales, near Manchester,

Home Correspondence.

Odontoglossum Londesboroughianum.—We regret being unable to give more information respecting the locality and habits of this fine Orchid than you have already published. Our collector has, so far, merely informed us that it grows on shelving rocks fully exposed to the sun, where the temperature rises to 120° in the daytime, and falls to 55° (or lower?) at night. We have received *O. citrosimum* from the same region in Mexico, if not from the identical district. As we have developed larger and finer bulbs of the latter than we ever remember to have imported, there seems no solid ground for assuming that *O. Londesboroughianum* will be difficult to manage. If cultivators were less afraid of cooling Mexican Orchids to death, and more afraid of cooking them to death, by high night temperature, they would, in not a few cases, we feel sure, be more successful in getting vigorous growth and more abundant bloom. With the exception of a very few plants of this *Odontoglossum*, which we sold many years ago (Lord Londesborough's being one of them), we have never imported this species till the present time. We have little, indeed no sympathy with the idea that this or that Orchid, or any plant, has a bad constitution, or is unmanageable, when there is often nothing wrong but our own ignorance and want of perseverance. In all probability where failure occurs, some simple law or requirement is deviated from, and it should be the aim of each cultivator, in noticed cases of difficulty, to try various positions, untrammelled by the apparent success or failure of other growers, till personal experience carries the day, otherwise gems innumerable may be thrown aside as incorrigible or hopeless, which otherwise might be found as docile as could be desired. Orchid cultivators too often forget that though in this northern latitude we have less powerful solar rays than in tropical regions, we have in our summers nearly one half longer duration of daylight in each twenty-four hours than the plants would get in their native land. *Jas. Backhouse & Son, York Nurseries, March 8.*

Lilium tigrinum flore-pleno.—This is, I consider, a first-class hardy Lily, and the most useful of the whole batch of Lilies. It grows strongly and stoutly from 5 to 6 feet high, and when laden with a dozen or two of fine large double flowers it forms a very striking object. Like all double flowers it lasts in flower longer than the other Lilies, and after being cut it carries well and lasts well in water, which is a great matter in the Lily way. Most people like it, and most people are anxious to obtain it when they see it. I cannot recommend it too strongly as being in every way and in reality a noble flower amidst a noble family, and any one adding it to his collection will not regret doing so. It forms an excellent pot-plant also, and flowering as it does, late, in late gardens it would come in valuable for the conservatory for late cutting. I have several of mine planted around the base of my house where it is warm, and where it does exceedingly well. Others again are in a Rose-bed, and others again at the foot of a Rose conservative wall. Under all these conditions they are objects of interest. *Henry Knight, Floors.*

Odontoglossum madrense, Rehb. f.—Messrs. Veitch have kindly sent me a wonderful inflorescence of this nice thing. It is just two spans high, and the whole of the upper part is occupied by a splendid raceme of eight well developed flowers, quite equal to the best flowers of the common small inflorescences one is accustomed to see. Hence, I guess, that by-and-bye also our specimens will get such a lovely development, which will be regarded as a very agreeable prospect by those who grow this much esteemed species. I began to think the two shrivelled wild flowers, which I obtained by Mr. Ortgies, of Zurich, belonged to *Odontoglossum maxillare*. In consequence of this it came in the trade as *maxillare*, and was well figured under this name in the *Botanical Magazine*. If I remember well, it was discovered by Mr. Roezl himself on his last Mexican excursion, when teaching collecting to his good nephew, Mr. Franz Klaboch. It is a very great pity that this young and yet very experienced and successful collector has fallen a victim to his zeal. He did not earn the finish of his work, as is the usual fate of many collectors. This glorious inflorescence was sent to Messrs. Veitch by W. Warner, Esq., Camden Wood, Chislehurst. *H. G. Rehb. f.*

Requests to Gardeners.—"T. O'G." asks as to gardeners claiming under a bequest to "servants." He may like to know that a case involving a heavy amount (from the number of persons employed) has very recently been decided before one of the Vice-Chancellors. It related to the will of the late Mr. Thornton, of Knowle, Sidmouth, Devon. I saw it

reported in the *Standard* within the last month or so. Exact particulars could no doubt be obtained by a line to Knowle—to the head gardener. I think it was decided that every one "in the receipt of wages" could claim the bequest. Gardeners were not specially mentioned in the brief summary I saw, but clearly would come into the above description. *F. S.*

Snowdrops.—A fortnight ago the *Gardeners' Chronicle* published two nice illustrations of *Galanthi*, but I was sorry to see that the plate did not do justice to *G. Elwesii*, which in every respect is the best of all. Not only are the flowers more full and substantial, but they are larger and of a purer white than those of *Imperati*. The colour is heightened by the broad, very glaucous foliage; moreover, it produces two flowers from the same sheath, which is generally not the case with *G. Imperati*. The only advantage which the latter has over all others is that the blooms appear ten to fourteen days earlier. To the *G. nivalis* section another form must be added, viz., *G. nivalis forma virescens*, which on the outer perianth segments has a greenish blotch, but which is nevertheless a very nice plant. *Max Leichtlin, Baden-Baden.*

—I send per same post a box containing a few blooms of *Galanthus*. First, the large variety, to which you have kindly attached my name, and which I send as illustrative of one of the largest forms of *G. nivalis*. As showing the other extreme, I send a pretty, dwarf, small-flowering variety of *G. nivalis*,

Snowdrops.—I was glad to read my friend Mr. Ellacombe's remarks on *Galanthus nivalis* var. *Shaylockii*. He sent me, a few days ago, a bloom of this very remarkable Snowdrop (fig. 48). It is quite as distinct as *G. Elwesii*, and far more so than *G. Imperati*. The prolonged bifurcated spathe fixes the eye at once, and the large green blotch on the outer tip of each perianth petal reminds me more of a *Leucojum* than a *Galanthus*. Has it any *Leucojum* blood? I hope the authorities of the Berlin Gardens will tell us something of its origin. The etiolated variety of *G. nivalis*, with yellow ovary and blotches on the petals, is also very remarkable. It was found by Mr. Sanders, of Newnham, near Cambridge, in an old-fashioned farmhouse garden in a remote part of Northumberland, and sent to me for identification. By my request Mr. Sanders forwarded bulbs to Kew. Mr. Baker thought that in general character it agreed with the description of *G. reflexus*, Haw., but the petals are not reflexed. It is a very delicate variety, and with me has never yet got strong enough to bloom. It should be called *G. nivalis* var. *Sandersii*. This variety and *Shaylockii* would make a very interesting plate for the *Botanical Magazine*. *G. Redoutei*, for bulbs of which I am indebted to the kindness of Dr. Regel, appears to be a very late species. It is now barely above ground, though planted in a glazed pit. I have as yet never seen it in bloom. Mr. Melville's *Dunrobin* Seedling is now in bloom. It is, I am now disposed to think, a true



FIG. 48.—*GALANTHUS NIVALIS* VAR. *SHAYLOCKII*, FROM KEW.

while the common one usually occupies a place in point of size between the two. The variations of *G. nivalis* between the large and small forms are almost endless, varying in length, width, and thickness of petal, size and length or depth of cup and in form of flower, some retaining a bell form, others almost starry, and others partially reflexed. Some forms are very dwarf, and others may be termed giants; others bloom two to three weeks earlier than the ordinary type, others as much later—all, however, having the distinctive markings of *nivalis* on the cup. These variations are not so much observed where the plants are increased solely by division as where they are *en masse* in natural positions, propagating themselves freely by seed. *D. Melville, Dunrobin Gardens, Sutherland.*

—With regard to single or double Snowdrops tastes differ very much. I know that the individual flowers of the single variety are much more perfect and beautiful than those of the double one; but this morning, as I looked from my bedroom window on sundry clumps of both sorts, I was convinced of the great superiority of the double variety for garden decoration. The large pure white blossom of the double form is very conspicuous, whilst the more perfect flower of the single variety is to a great extent lost amidst the foliage. I have also noticed that the double variety is a week or ten days earlier than its single brother—or rather sister, for it might well be called the virgin flower. The old adage is, Never look a gift horse in the mouth. Those who adopt this plan may prefer the double Snowdrop; but he who wishes to kiss the lips of the dove of spring will make love to the single one. *Jay Aye.*

Galanthus, and free from any *Leucojum* strain; but it is a very fine variety, very nearly, if not quite, equal to *G. Imperati*. I have another variety quite as large as *Imperati*, but with longer perianth petals—so long that they at once catch the eye—which was collected for me by Lord Walsingham in Albania. It might well be called "longiflorus." *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring, March 1.*

Preserving Stakes from Decay.—It strikes me that a more effectual plan of pickling the bottom-ends than tarring them with a brush would be to get a smith to stop the bottom end of a piece of large sized cast-iron gas-pipe (say 6 inch diameter or larger); prop it upright with a few bricks or two iron wire stays; make a fire against one side of it, and fill it nearly full of gas-tar and pitch in right proportions—putting a few stakes in at a time, and letting them boil for a little while in the mixture. It will not only boil into the wood more, in such a way, but the compound will contain more pitch than can be well put on with a brush—as pitch so soon cools and becomes difficult to spread. *F. S.*

Gardenias in Small Pots.—I propagated a quantity of these last April; I put, say a dozen cuttings in a pot and placed them in my cutting-case, and soon as rooted potted them singly in small thumbs, returned them to the cutting-case, and soon as pots were full of root, I shifted them on until I got them to the required size in 4½ inch pots. Now I have them with from seven to thirteen bloom-buds just ready to expand, but I do not require them before April or I might have them in bloom now. This

year I intend to grow a much larger quantity. *John Clews, Headfort Gardens, Kells, Co. Meath.*

Cuttings of *Gardenia florida*, if put in any time within the next month and grown steadily on, will make grand plants for house decoration by next year. Plants so treated with us during the past year are now dwarf compact specimens in 6-inch pots, with from twelve to sixteen flower-buds on each—no mean objects for many purposes. *G. S. S.*

Orchids for Decoration.—As I require a large quantity of plants in small pots for decoration, I thought I would try what *Cœlogyne cristata* and *Lælia anceps* would do in small pots, so I pulled them to pieces and potted them in 4½-inch pots, and I am very pleased with the results, especially with the *Cœlogyne*. I have some now with seven spikes and six blooms on a spike. The *Lælia anceps* I only had two spikes on a pot. I am also growing the *Anthurium Scherzerianum* in small pots, and they are now throwing up finely, though some have been in bloom all the winter. *John Clews.*

The Camellias at Dalkeith.—That these plants are in great beauty at this time I believe as fully as the writer in last week's *Gardeners' Chronicle* who describes them, but he makes a mistake when he says they are grown in pure loam. I was with Mr. Thomson when he made up the border and planted them, two years before he left Dalkeith, and there were ground bones and leaf-mould mixed with the loam. After he planted them some pure loam was spread over the surface of the border. *An Old Dalkeithite.*

Forced Strawberries.—In last week's issue of the *Gardeners' Chronicle* I see it stated (p. 299) that the first sample of this season's forced Strawberries appeared in Mr. Lewis Solomon's window in the Centre Avenue, Covent Garden, on Wednesday, the 5th inst., and also that Mr. Baker, of Coombe Cottage, Kingston-on-Thames, gathered his first dish on the 2d inst., which, moreover, you state is the earliest gathering you have heard of this season. Permit me to say that we made our first picking on the 24th ult., the variety being *Garibaldi*, the fruit of which, notwithstanding the unfavourable nature of the weather for setting, swelling, and ripening the fruit during the months of January and February, have been better than with ordinary kinds could have been expected. The fruit was large, of a good colour, and finely flavoured; moreover, this variety is a very free setter. Our first batch of plants—*Garibaldi* and *Keens'* Seedling—were put in to force on December 4 last—well, we know what kind of weather followed for the next ten or twelve weeks—and in due course came into flower. The former throw up well, and, I believe, set every flower, whereas the latter—*Keens'* Seedling—threw up very sparingly, and scarcely set half-a-dozen fruit, thus demonstrating very forcibly the superiority of *Garibaldi*, as an early forcer, over other well tried and by no means nonprolific varieties. The old *Black Prince* is without doubt an excellent variety for early work, but the smallness of its berries is against it. *Keens'* Seedling, Sir Charles Napier, Sir Joseph Paxton, President, and British Queen make a very good succession to *Garibaldi*, and follow in the order named. In conclusion, I may add that we picked our second dish on the 26th ult., since which time we have been picking two and three dishes a week; but from this date we shall be able to gather a dish daily. In ordinary seasons we commence picking Strawberries the middle of February. *H. W. Ward, Longford Castle.*

I gathered my first dish on February 25, the second on March 2, the third on March 6, and the fourth this day (March 8); those gathered to-day, 2 lb. in weight, were of *Vicomtesse Héricart de Thury*. These plants were put into gentle heat on December 2, plunged in leaves until fairly started, when they were shifted into our early pot vinery until in flower. The foliage of the Vines was beginning to shade them, I thereupon shifted them into the Cucumber and Melon houses, where they have set and ripened. I may add that 100 plants is the entire batch. For thirty years and more have I forced these delicate fruits, but never have I seen such an early crop before. This is my first year of forcing the Countess, but, if I am spared, it won't be the last. *R. Gilbert, Burghley Gardens.*

Strawberries have been ripe here since February 12, and we have since gathered several good dishes of fine and well-coloured fruit, particularly of that grand variety, *La Grosse Sucrée*. *Eclipse* was ripe at the same time, but the fruit was not so fine as the former; successions, however, are swelling a heavy crop of fine fruit. Strawberries are extensively forced here, from 3000 to 4000 annually. This year half of them are *Eclipse*, a very fine Strawberry, and of good flavour. *G. T., Sandbeck Park.*

Garrya Fremonti, &c.—I herewith enclose some flower-spikes of *Garrya Fremontiana* and *G. elliptica* for your inspection. The former variety was had from Messrs. Lawson & Sons, Edinburgh, some years ago,

and is the first time it has flowered with us. This variety seems quite as hardy here as the old one, both having withstood the severe winter uninjured. The lowest temperature was on the night and morning of December 13 and 14, when the thermometer registered 15°, or 17° of frost. *J. Webster, Gordon Castle Gardens.* [This variety seems to differ chiefly in the larger leaves, which are flat, not undulated, at the margins. *Eds.*]

Hardiness of Broccoli.—I may mention that out of seven kinds, namely, *Adams' Early*, *Snow's*, *Leamington*, *Osborn's*, *Backhouse's*, *Cattell's Eclipse*, and *Dickson's Late May*, all have suffered to a very great extent with the exception of the last-named, which I firmly believe to be the hardiest kind, as now the foliage is as green as it was before the severe weather set in. I attribute this to its compact, sturdy habit, some of the stems measuring 10 inches in circumference and not more than 15 inches high. As a late kind it cannot be praised too highly. Next in point of hardiness I find *Backhouse's*, and third *Adams' Early*, while *Cattell's Eclipse* is completely cut up, being of rather more straggling habit. Mr. Sheppard is quite right in saying that all kinds are improved by being pricked out as soon as large enough to handle, as they can be safely removed to their intended quarters without the slightest check. *A. J. Oxford, Rushton Park, Battle.*

Anemone (Hepatica) angulosa (fig. 49).—Among choice spring flowering plants this is deservedly much



FIG. 49.—ANEMONE ANGULOSA.

prized, as it has all the beauty of the common little *Hepatica*, in addition to being fully twice its size. The flowers are nearly 1 inch in diameter and of a pleasing pale tint. Though it succeeds in a fully exposed border it most delights in a partially shaded position, where it soon forms large compact tufts nearly 1 foot high. It is a native of Hungary and Transylvania, hence the origin of its synonym—*Hepatica transylvanica*. *G.*

Peach Tree Dressing and Peach Setting.—Peach tree dressing is a refined term for what was thirty years since more appropriately called smudging—a practice as filthy as it is useless, and one which cannot be too strongly condemned. I have seen trees whose flower-buds have been so severely injured by the application of these nostrums that every one fell off. I do not say that such is necessarily the case, but why a risk without gain? I have seen Peach-trees painted, lime-washed, and every part made spotlessly clean, and the first time these dressed trees were syringed those nauseous particles were splashed in all directions, destroying at once all further appearance of cleanliness. Those who are unfortunate enough to have infested trees undoubtedly would do wrong to give even an hour's leniency more than is necessary, but in my experience there is not usually more than one period of the year when a healthy tree is attacked by insects of any kind, from the fruit's first swelling to its near-approaching maturity, during which time, as a dry atmosphere is indispensable to high flavouring, red-spider at this period will take liberties; but the day the last fruit is gathered from the trees, instead, as is too often the case, of the trees being left to

take care of themselves, if every branch were loosened and smartly syringed with cold water—repeated every evening as long as the leaves remain on—I will venture to say at pruning time no wasting of accumulated dirt or dressing to destroy insects will be found necessary. For Peach setting we have many advised means to that end, such as the use of the feather, the syringe, the bees—undoubtedly Nature's appointed fertilisers, and now the Pampas-grass plumes; but the most extraordinary of all other agencies is that of the dung-heap, which is as nauseous and useless as the dressing process, and liable to similar pernicious effects. I have seen trees to all appearance well set with fruit, and suddenly nine-tenths of them dropped off from the effects either of the ascending gases or from the roots being unduly stimulated by heat from the dung-heap causing a sudden rush of sap into the trees, which vents itself in the leaf-buds rather than nourishing the fruit. My only assistance (if such it be) at the setting period is a daily slight shake or tap of the branches with the hand just sufficient to distribute the pollen, and I have enclosed you specimens as proof of my success. Undoubtedly healthy root-action is the primary object always to be aimed at, and with judicious treatment all will go well, but when the reverse is the case no dressing nor any of the paraphernalia already referred to can compensate for the absence of health. I have for many years past practised this simple rule of treatment, and my reward has been the enjoyment of having always a clean house, a sweet and wholesome atmosphere, and trees always willing to carry three times more fruit than I allow them to. *R. Westcott, Raby Castle Gardens, Darlington, March 10.* [Two shoots were received, one of the Dr. Hogg Peach, having seventeen fruits in a length of 12 inches; and the other of *Victoria Nectarine* with six fruits on the same length of wood. *Eds.*]

Damage Done to Conservatories by Snow.—Perhaps some of your readers may like to hear how such mishaps may be prevented at a very small cost. I have a greenhouse attached to my house, and have not lost a pane of glass during the last ten winters. My plan is this: I have had a galvanised wire netting, 9 inches wide, with an inch mesh, fixed to the eaves of the house above the shut by upright irons attached to the weather-board. The net is scarcely seen, but stops all the snow from slipping off the roof upon the greenhouse; and it gradually melts into the shut. The netting should be fixed close to the edge of the slates, and lean a trifle inwards towards them. The irons should be 3 feet or 4 feet apart; and if a stout galvanised wire be run thus to the top of the netting and fixed firmly to the upright iron at each end of the netting, its strength would be much increased. Care should be taken to have the iron shut immediately below the net, or icicles may form from the melting snow and fall on the glass. *John Bere, Skilgate Rectory, Wiveliscombe.*

In your issue for March 1 some one wrote about the frozen snow slipping off his eaves and breaking the roof of his conservatory, and blames the builders for the occurrence. Builders have sins enough to answer for, goodness knows; but this charge recalls that against the Tories in the "Rejected Addresses"—"Who fills the butchers' shops with large blue flies?" Parapet roofs are productive of far worse evils than an avalanche, which occurs perhaps once in five years. In default of any better scheme of precaution against this damage, I suggest inserting in the house wall below the eaves a series of iron staples (in pairs, one above the other), say 3 or 4 feet interval between each pair. Into each pair of staples, at the approach of winter, drop a light rough iron rod or stanchion, crooked just enough to clear the eaves' gutter, and running up, say, 9 or 10 inches higher. Then, when the rows of stanchions are in their places, running as far as the length of the conservatory below requires, slip over them a length of small-meshed narrow wire netting, such as is used to stop croquet balls at the edge of lawns. It may either be tied to the stanchions, or (more easily and securely) fixed by "darning" it over the points of the rods—slipping the point behind one wire and before the next, like a darning-needle in the threads of a stocking. A very small matter will hold the frozen snow till it has time to melt. Such a protection as this of wire would be very little seen from below. *F. S.*

The Orchids at Arnot Hill, Notts.—Walking lately through the houses at Arnot Hill, Notts, the residence of C. G. Hill, Esq., I was very much struck with the quantity of Orchids in bloom. In the corridor there are some thirty fine spikes of *O. crispum*, some of which are branched, while a good many have from eleven to fifteen flowers each; *O. Andersoni* is also fine—one plant has two spikes from one growth, with about seventy flowers. *O. cirrhosum*, *O. gloriosum*, and *O. Pescatorei* are well represented with fine branched spikes. These are nicely relieved with about a dozen pots of *Calanthe Veitchii*. In the Indian-house there is a quan-

tity of *Dendrobium Wardianum*, *D. crassinode*, some of the growths on both sorts have seventeen and eighteen flowers just opening; *Angraecum sesquipedale*, with seven buds. In the Mexican-house, *O. Karwinski*, *O. sarcodes*, and *O. Weltoni* had many branched spikes. The show-house was gay with *D. speciosum Hillii*, with eight fine spikes; *D. Wardianum*, many; *D. crassinode*, *Cattleya Trianae*; a noble plant of *Coeogyne cristata*, which Mr. German, the gardener, tells me had seventy-six spikes; *O. serratum*, a long rambling spike with fourteen flowers; a nice mass of *O. cheiroporum*, *C. Sedeni*, *C. Harrisianum*, *C. villosum*, *C. barbatum*, *C. Roezlii*, *O. pulvinatum*, and *O. Uro-Skinneri*, &c., the whole forming a very excellent display. *C. J.*

Orchids in Flower at Sunbury House, Tunbridge Wells.—In the collection of R. Kinleside Esq., is to be seen one of the grandest displays of *Phalenopsis* it has ever been my pleasure to behold. Imagine over a hundred plants in flower, beautifully arranged, with the foliage a picture of health, fine spikes of flowers and superb varieties, many of the grandifloras and amabilis measuring $3\frac{3}{4}$ inches across. These are arranged in a small span-roofed house with a stage on each side, and intermixed with Palms and Ferns, *Panicum variegatum* and smaller Ferns forming the edging. Here and there, peeping amongst the *Phalenopsis*, a flower or two of *Oncidium Kramerii* was very attractive. In addition to this grand display the following are in flower:—

| | |
|--------------------------------------|--|
| <i>Calanthe Turneri</i> , very fine. | <i>Leptotes bicolor</i> , over 1 foot across, one mass of flowers—a perfect gem. |
| <i>Cattleya Trianae</i> . | <i>Masdevallia Veitchii</i> . |
| <i>Cypripedium Sedeni</i> . | „ several vars., showing. |
| <i>Dendrobium Wardianum</i> . | <i>Odontoglossum Roezlii</i> . |
| „ <i>luteolum</i> . | „ „ album. |
| „ <i>moniliforme</i> . | „ <i>pulchellum najus</i> . |
| „ <i>Findlayianum</i> . | „ <i>cirrosum</i> (several). |
| „ <i>crassinode</i> . | „ <i>Pescatorei</i> . |
| <i>Lycaste Skinneri</i> (several). | „ <i>Alexandrae</i> (fine). |
| „ „ <i>alba</i> . | |
| <i>Laelia anceps</i> . | |

This collection also contains some extraordinary specimens of *Odontoglossum vexillarium*, which for fine vigorous growth cannot be surpassed. The whole of this collection has very much improved under the charge of Mr. F. Newman, and the condition of the plants stamps him as being a good practical Orchid grower. *A. O.*

Primulas.—I beg to enclose some *Primula* flowers (Mr. B. S. Williams' strain), and you will see that some of them measure 2 inches across (I have had some 2½). They are taken from plants with eight to eleven spikes of flowers, and measuring 2 feet through.—*Reuben Hardisty, gr. to W. H. Rawson, Esq., Mill House, Halifax.*

The Comparative Hardiness of Filmy Ferns, &c.—It is probably not generally known, as would appear from Mr. P. Neill Fraser's communication in your issue of the 1st inst., p. 276, that some of the Filmy Ferns which he has enumerated are commonly exposed in their native habitat to even a lower temperature than 40°. Having resided many years in Jamaica (in charge of the Government *Cinchona* plantations), at a height of 5000 feet above the sea-level, I venture to indicate the average temperature of the Filmy Fern region at a height of from 5000 feet to 6000 feet. These Ferns abound in the dense primeval forest, which at this height presents a peculiarly weird aspect. Myriads of fascicles of long moss, dripping with excessive moisture, depend from the countless trunks and branches constituting the forest. The temperature never exceeds 70° or 72°, and rarely rises above 66°. The average range during the summer may be put down at from 56° to 66°. The winter range is somewhat less equable, averaging about 10° lower than summer, with occasional falls to 38° and 40°, and to 34° on the grass on cleared land adjacent to the forest. On approaching the loftiest peak in the island, namely, the Blue Mountain peak, 7325 feet above the sea, Filmy Ferns become less numerous in consequence of the lower temperature. At this peak in 1877 I observed the destructive effect of frost on nearly all the herbaceous vegetation on the cleared summit. It will, therefore, be perceived that Filmy Ferns and various other genera, including most of the indigenous Tree Ferns, find their most congenial home in a comparatively cold climate. I may add that the greatest depression of the thermometer is experienced at and immediately preceding daybreak. *R. Thomson, Millerslee, Helensburgh, N.B.*

Quickset Hedges.—As the making of good hedges is a matter of some importance will you allow me, in reply to your correspondent "J. S.," whose contributions to your valuable paper I have often read with both pleasure and profit, to say that I also have had some experience of the hedges described by him, and it is just this experience which makes me prefer those I recommended last week, and the planting and getting up of which were then so well and clearly explained by Mr. Thomson,

of the Crystal Palace. "J. S." says it stands to reason that a hedge bound together with branches interlaced and running in a horizontal direction must be stronger and safer than one having them vertical; but as most people know it stands both to reason and experience that a hedge, though planted vertically, if properly trimmed each side, will throw out horizontal branches of its own accord that will lace and interlace in a far more effectual manner than can be done artificially. If your correspondent will kindly read my note again he will see that he has strained my meaning in the matter of the poor sparrow, but I forgive him. "J. S." says, "I might as well call in question the system of road-making pursued by our forefathers; I should certainly consider it a perfectly legitimate thing to do even that, for while I cherish the most profound respect for those ancients, our forefathers, I venture to hazard the assertion that Macadam, who flourished not so very long ago, introduced a far better system of road-making than anything known to our forefathers. It is true that those grand old fellows, the Romans, did some wonderful things in the way of making roads more than 2000 years ago; but I am afraid that my claims to rank these celebrated paviors amongst my forefathers are very slender. *J. Jeffrey.*"

Foreign Correspondence.

MELBOURNE: The Maria Palm.—Mr. John Forrest, the renowned explorer, while recently engaged in triangulations through the country inland of Nichol Bay, secured at my request the seeds of a Palm, which prove to be those of a *Livistona* and identical with *L. Mariae* of the Macdonnell Ranges in Central Australia. This noble Palm was dedicated to H. R. H. the Duchess of Edinburgh, and we shall soon be able to place it along with *L. australe* and the *Alexandra Palm* in European conservatories. It attains a height of 65 feet, the leaves being as much as 6 feet long. It is remarkable that no Fan-Palms are known from the north coast of Australia, all being confined to the eastern coast regions of this continent, except the *Maria Palm*, which seems quite restricted to a solitary locality in Central and in West Australia. The Palm in question is fully described in the last (eighty-ninth) number of my *Fragmenta*, wherein also *Ptychosperma Normanbyana* is described, the examination of its flowers showing it to belong to this genus, and not to *Areca*, as was supposed when the fruit only was known. It is the same as the *Saguerus australasicus* of Wendland and Drude. *F. von Mueller.*

Reports of Societies.

Royal Horticultural: March 11.—Lord Alfred S. Churchill in the chair. For the convenience of Fellows attending the spring show, the usual afternoon meeting was held in the large conservatory, the audience sitting, as Colonel Trevor Clarke observed, in the shade of one of the grandest specimens of the Himalayan *Rhododendron arboreum* to be found in Europe—a noble and well-formed tree, which is flowering, as it has done annually for many years past, with the greatest profusion. The business transacted was of the usual routine character, concluding with a few remarks from the Assistant-Secretary and Colonel Trevor Clarke on some of the more notable subjects exhibited.

SCIENTIFIC COMMITTEE.—Sir Joseph Hooker in the chair.

Androgynous Mistletoe.—Rev. George Henslow reported on a monœcious specimen of Mistletoe, received from Mr. Corderoy, of Didcot, and bearing long, whip-like branches with female flowers, and other shorter branches with male flowers, thus exactly reversing the condition of things observed in a similar specimen sent to the committee in 1869, and adverted to in *Vegetable Teratology*, p. 509.

Excrecence from Passiflora.—The Rev. M. J. Berkeley reported on a curious excrecence on the stem of *Passiflora quadrangularis*, which was sent to the committee on February 11. It consisted of a very rough tuberculated mass, 6 inches in diameter, and about 5 inches long, occupying three-fourths of the stem, evidently bursting through the bark and pushing it on one side. Delicate thread-like rootlets were here and there developed for the tubercles, and two decided roots, one of which was affected exactly in the same way as the stem. Above the mass was an elliptical disc about 1½ inch long, swelling out from the stem, and clearly the origin of a new mass. On an examination, first, of one of the minute tubercles on the above-mentioned root, and afterwards of one of the larger tubercles, they were found to consist of large irregular cells mixed with scattered or fascicled tubes with very thick walls, consisting of concentric layers

and pierced with narrow passages, the larger cells filled with starch granules, which become very dark in colour when treated with a solution of iodine. On examination of the younger portions of the bark the same structure was observed, and the same abundance of starch granules. A section through the disc showed a similar mass, mixed with deep red spots, in which either the cells themselves or the intercellular passages were gorged with coloured matter, which, however, did not wear exactly the appearance which is so common in diseased tissues when change has been produced by the presence of fungoid threads. The wood itself consists of a mass of large tubes with intermediate cellular tissues, but the tubes have not the same structure as the young bark, or it may be the alburnum, so far as can be judged from the specimen before us. It is, however, so continuous with the bark, that it seems rather to belong to it than the wood. Whichever it may belong to, the mass is beyond doubt an overdevelopment or hypertrophy of this part of the stem, and is certainly one of the most curious instances we have met with. It calls to mind the excrescences which are not uncommon at the base of the stem of *Pelargoniums*; but we do not mean to assert that their nature is precisely the same.

Gumming in Orange Trees.—Dr. M. C. Cooke exhibited twigs of Orange trees from Florida covered with a resinous exudation, which it was supposed might be analogous to the gumming of fruit trees.

Vegetable Remains from Ancient River Gravels.—Mr. Worthington G. Smith returned to this subject. He stated that he had obtained results from the valley of the Lark, near Bury St. Edmunds, similar to the remains previously found by him in the gravels of the Lea and Axe; they consisted of leaf fragments, seeds, rootlets, hairs and fragments of bone. Exactly similar results had followed his minute examination of breccia from the bone-cave near the village of Les Eyzies, in the valley of Vézère, Dordogne. This breccia afforded fragments of plant-stems (grasses), minute splinters of wood and bone, and numerous hairs. Mr. Smith exhibited the wood, bone and hairs under the microscope; the cells and vessels were distinct in the wood, and the lacunæ with their canaliculi in the bone. Some of the hairs belonged to rodents, others were unknown. From the same breccia Mr. Smith exhibited a broken fossil lateral-incisor human milk-tooth, belonging to a subject of about seven years of age.

Excrecence from Root of Taxodium sempervirens.—Dr. Masters showed from Mr. Sim, of Fooks' Cray, some huge woody dilatations of the lower part of the stem of this plant. The plants in question had been grown from cuttings made in 1867. Some further remarks will be made on this subject on another occasion.

Fruit of Fischeria.—Dr. Masters also showed a large four-winged downy follicle containing numerous seeds surmounted by a tuft of silky hairs. The fruit was collected in New Grenada, and was sent to Mr. Alfred Borwick. The fruit was evidently that of an *Asclepiad* allied to *Fischeria*, but in the absence of further evidence the exact genus could not with certainty be determined.

Pods of the Ironwood of Brazil.—The President showed legumes of *Caesalpinia ferrea*, the tree said to produce the Ironwood of Brazil.

Plants &c., Exhibited.—Rev. Harpur-Crewe showed flowers of *Muscari ligulata*, *Scilla sibirica*, *Crocus Imperati*, *coriscus*, *minimus*. Mr. Elwes sent *Hyacinthus Elwesii* (?), *Galanthus Elwesii*, *Imperati*, *plicatus* and *nivalis*. From Mr. Ware came some new forms of Himalayan Primrose allied to *denticulata*, in allusion to which the President stated that when in India he had observed that nearly every alpine valley had its own distinct form. A singular Japanese *Azalea* was shown, remarkable for its calyx lobes nearly equalling its corolla, and for its white flowers with pink stamens; *Anomatheca cruenta*, *Sarcocochilus*, sp.; *Dendrobium*, sp., and other plants were shown, and were directed to be forwarded to Kew for identification.

Disease in Stem of Robinia.—Mr. Wilson Saunders sent some beautiful drawings and a manuscript description of a peculiar disease in the stem of *Robinia pseudacacia*, which will be more fully reported on at another occasion.

Vanda suavis.—Mr. Jennings called attention to a plant of this species shown in the conservatory, and in which the inflorescence was terminal, instead of axillary, as usual.

Action of Frost on Clay.—Mr. Jennings made some remarks on the peculiar cleavage shown by clay when subjected to frost, the clay breaking up into more or less cubical masses, to the great detriment of the roots of the plants growing in it.—The President remarked that the action of frost on different soils was a complicated matter, and that on it depended to a large extent the amount of injury inflicted on plants by frost. Thus in some parts of the garden at Kew in 1865 the ground at some distance beneath the surface continued frozen up to June, so that the plants had their roots in frozen earth while their tops were

burnt with the sun, to the great destruction of the plants. At Sion, where the soil was different, the effects of the same frost were very different, mainly owing to the different character of the soil.

Photographs of Victorian Scenery.—Mr. Jennings exhibited some beautiful photographs representing scenes in the forests of Victoria, and showing the immense size to which not only the Eucalypti grow but also the Tree Ferns.

SPRING SHOW.—Cyclamens and Orchids shared the honours between them to-day, magnificent groups of both contributing immensely to the brightness of the display, which was again held in the large conservatory. The principal contributor of Cyclamens was Mr. H. B. Smith, of Ealing Dean, to whom a large Gold Banksian Medal was awarded for as grand a lot of plants, both as regards numbers and quality, as has ever been seen at any time or place. There were about 300 in all, a third of them consisting of the pure white-flowered variety, which for its neatness of habit and extreme floriferousness, coupled with its remarkably chaste white blossoms, cannot be otherwise regarded than as a gem of the highest order. The remainder of the group consisted of varieties, with white flowers, purple at the base; purple and rose, rosy purple, and rosy lilac, crimson and pink tinted flowers, some of the ordinary size, others belonging to the giganteum type—all remarkably well-flowered, wonderfully fresh and sparkling, and as may be expected, singularly attractive. Next to Mr. Smith's group was a smaller one from Messrs. Edmonds & Gohm, Hayes Nursery, Middlesex, which contained a few plants remarkable for their high cultivation, being little more than 1 foot across, yet carrying a head of blooms which, if counted, would run easily into three figures; and other plants again, which, if not so large, added materially to the charm of the collection by reason of the novelty of their colours. One of the varieties of the giganteum type had lovely rose-coloured blossoms, another of the ordinary size had rich purple flowers, margined with silvery grey, very distinct; whilst a third named *Delicata* was a pure white, with smooth petals, more than usually round at the apex. Besides these there were a great many other shades of colour noticeable in the smaller plants, but which cannot be more fully alluded to now. The award made to this firm was a Silver-gilt Banksian Medal. Mr. Clarke, of Twickenham, also sent a group of plants hardly showing such good cultivation as his Cyclamens usually exhibit, but including a batch of nicely-flowered examples of a high-coloured rosy purple variety. A Silver Banksian Medal was awarded.

The magnificent group of Orchids previously alluded to was a contribution from Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, which reflected the highest credit upon their cultivator, Mr. Spyers, every plant being in perfect health, profusely flowered, and without a spot or blemish of any kind. Perhaps the most attractive plants in the group were three or four grandly-flowered specimens of that lovely *Dendrobium*, *D. Wardianum*, but to the Orchid connoisseur there were more remarkable objects than these to claim his admiration. The first of these was a remarkably healthy plant of *Cymbidium eburneum*, with eight of its noble looking, waxy white flowers; the second being a plant of the handsome and rare Brazilian *Laelia harpophylla* with five spikes of brilliant orange-scarlet blossoms. The three largest plants of *Dendrobium Wardianum* bore seven, eight, and eleven spikes respectively, some of them being over 2 feet in length, and splendidly bloomed. *D. luteolum*, a primrose-yellow flowered species introduced from Moulmein by the Rev. Mr. Parish, some fifteen or sixteen years ago, was represented by a well-flowered plant growing on a Teak block. *D. nobile cœrulescens* had ten fine spikes of its bluish violet-tinted flowers; and *D. crassinode Barberianum*, and *D. crassinode grandiflorum* were also represented by freely flowered varieties of great excellence. *Odontoglossum crispum* (Alexandree) came next under notice in several varieties, one spike bearing fourteen and another thirteen flowers; and yet another, the variety named *roseum*, with seven of its lovely rosy lilac flowers. *O. nebulosum pardinum* had six flowers on a spike; and *Maxillaria lepidota* had five of its spurred-like flowers. *Phalenopsis Schilleriana* had a beautiful spike of two dozen flowers; and *Masdevallia polysticta* seven spikes of white crimson-spotted blossoms. *Cœlogyne conferta*, white, with a yellow blotch on the lip, was represented by a small plant; a fine plant of *Cypripedium Boxallii* bore eighteen grand blooms; and *C. villosum* was equally well shown. The late-flowering variety of *Cœlogyne cristata*, known as *C. Lemoini*, was shown in fine form, as also *Odontoglossum triumphans*, the pretty little *O. roseum*, with three spikes, one of which had fourteen flowers; *O. Cervantesii*, the lemon-yellow *Spathoglottis Lobbii*, and *Odontoglossum Lindleyanum speciosum*, &c. A small Gold Banksian Medal was awarded. From Mr. H. Benham, gr. to the Earl of Stradbroke, Henham Hall, Wangford, came four exceedingly well-grown and

well-flowered specimens of *Phalenopsis Schilleriana*. Two of them bore two branched spikes, on one of which were over one hundred flowers, not large, but remarkably showy. The leaves of the plants were very fine, and a credit to their late custodian, Mr. Groom. Mr. Bull contributed a handsome group of fine-foliaged plants, principally Palms and Cycads accompanied by a few Orchids, such as *Vanda suavis*, with a strong spike of fifteen or sixteen flowers springing apparently from the centre of the growing point instead of, as usual, the axils of the leaves; *Ada aurantiaca*, *Cypripedium Harrisianum*, *Odontoglossum odoratum*, *Phalenopsis*, *crispum*, *triumphans*, *gloriosum*, and *cirrhosum*, the latter with eleven spikes on a plant; *Lycaste Skinneri*, *Dendrobium Wardianum*, *D. nobile*, *D. luteolum*, *Cattleya Trianae*, &c. The award made to this group was a Silver-gilt Banksian Medal. Mr. B. S. Williams received a Silver Banksian Medal for a fine group of plants which included a good batch each of *Primula sinensis alba* and *P. sinensis rubra*; a dwarf and well berried variety of *Aucuba himalaica* named *nana*; *Æchmea Mariæ Reginæ*, in fine form; a few Orchids, and several very fine *Amaryllis*, including the named varieties, *regium*, *bicolor*, *Magnificent*, *Ackermannii pulcherrima*, *Cruentum*, *Firefly*, and *hemanthus*—the latter an immense flower with nine petals, not particularly good in other points, but promising to be of great service as a breeder. *Azalea Princess Maude*, a variety of the *amœna* type, with rich rose-coloured flowers; a new *Primula* from Kashmir; and *P. denticulata* were also shown in the same group. Messrs. Osborn & Sons, Fulham, also took a Silver Banksian Medal for a fine group of forced *Rhododendrons*, *Spiræas*, and other plants; and Messrs. William Paul & Son, Waltham Cross, received a Silver Flora Medal for a large collection of cut blooms of *Camellias*, some sixteen boxes in all; and including varieties varying greatly in form and colour. The Messrs. Paul have a large collection of these charming flowers, which must be well worth a journey to Waltham to see at the present time. Messrs. James Veitch & Sons also contributed a small group consisting of *Primulas*, white and red, a good strain; some nice *Cyclamens*, *Aucubas*, standards and dwarfs, and well berried; some fine *Amaryllis*, including *A. purpurea*, *A. Leopoldii*, *Dante*, and others; the new *× Laelia Veitchii*, with one spike of richly coloured flowers; and *Odontoglossum elegans*, an interesting novelty, inasmuch as it was imported in a batch of *O. cirrosium*, and is supposed to be a natural hybrid between that species and *O. cristatum*. The flowers, which somewhat resemble those of *O. cirrosium*, are larger, with heavier spots, and borne on a long spike. The same firm also showed a striking new variegated *Dracena*, named *Princess Margaret*.

FLORAL COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. At this meeting, held in the Council-room, First-class Certificates were awarded to Messrs. James Veitch & Sons for *Amaryllis Virgil*, a magnificently formed flower of the *Leopoldii* type, measuring 7 inches across, with smooth and well-rounded petals of a creamy white colour, barred and shaded towards the centre with crimson; and for *Davallia Mariesii*, an evergreen Fern, which is hardy in a cold frame. To Mr. H. Heims, gr. to F. A. Philbrick, Esq., Q.C., Avenue Road, Regent's Park, for *Ipea speciosa*, a terrestrial Orchid introduced from Ceylon some forty years ago, with lemon-yellow coloured flowers, borne on an erect scape, about 2 feet high. To Messrs. Hugh Low & Co., Clapton, for a new *Cymbidium*, named *Lowianum*, with a spike of twelve flowers, and which is described on p. 332 by Prof. Reichenbach. To Mr. Auguste Van Geert, of Ghent, for *Azalea indica* Empress of India, semi-double, white shaded with pink, and crimson blotched. To Mr. H. B. Smith, Ealing Dean, for *Cyclamen persicum* *Crimson King*, a dark lustrous crimson flower, which marks an advance on Mr. Little's Ruby; and for *C. persicum* *picturatum*, a large flower of the giganteum type, pink, shaded with rose, a novelty in colour, and a fine one to boot. Votes of thanks were accorded to Mr. Green, gr. to Sir George Macleay, for cut flowers of *Stiffia chrysantha*, an interesting Composite stove shrub, with showy orange-coloured flowers springing from amongst long coloured pappus-hairs, introduced from Brazil nearly forty years ago, but little known; *Odontoglossum crispum* var. *Macleayi*, and a fine bloom of the singular *Vanda Cathartii*, which had been cut three weeks and promised to keep in good condition for three weeks more. To Mr. Heims for *Odontoglossum Andersonianum*, a well-marked variety with eight flowers on a spike. To H. J. Buchan, Esq., Wilton House, Southampton, for *Bifrenaria Harrisoniæ Buchaniana*, a new form, which will shortly be described; and for cut blooms of *Miltonia cuneata*, and *Odontoglossum Alexandree*. To Mr. James, Isleworth, for cut blooms of *Cinerarias* of very fine quality. To Mr. W. Tidy, for a well-grown example of *Primula sinensis* Mrs. Halford, one of the dark coloured

fern-leaved reds. To Mr. Cannell for a fine stand of cut blooms of *Zonal Pelargoniums*, and flowering plants of his dwarf *Ageratum* and *Fuchsia cordifolia* splendens. Messrs. Hovey & Co., Boston, U.S.A., showed some cut blooms of *Camellia* Mrs. Hovey, a peach-coloured flower of fine substance, and minus the notch in the petal which is so great a blemish in most other varieties. The Messrs. Hovey & Co. also showed a rosy lilac flowered Japanese *Azalea* named *Hoveyi*, which owing to its having lost its leaves through frost was not in condition. Mr. William Bull contributed *Æchmea Leopoldii*, the topmost leaves of which are beautifully coloured; a well developed plant of the fine *Adiantum bellum*, figured and described in a recent number; also a highly coloured form of *Cattleya Trianae* named *splendida*; and a free growing and very ornamental Fern, *Pteris umbrosa cristata*.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. The principal contribution brought under the notice of this body was a remarkably well kept collection of Apples, consisting of forty-nine dishes, and two of Pears—Easter Beurré and Beurré Diel. The Apples, fine highly-coloured samples, included all the best known late-keeping sorts, and a number of others only known under local names. A Silver Knightian Medal was deservedly awarded to the exhibitor, Mr. S. Ford, gr., Leonardslee, Horsham. Messrs. Sutton & Sons, Reading, sent examples of a red-fleshed *Rhubarb*, named Reading Ruby, which, however, did not possess either the merit of novelty or of superior excellence. From Mr. Lewis A. Killick, Langley, near Maidstone, came a small sample each of some two dozen varieties of Potatoes; and a few good sorts of Apples were shown by Mr. Divers, gr., Wierton Place, Maidstone. Mr. Wallis, gr., Keele Hall, sent a dish of Beurré Diel Pears; and Mr. Miller, Clumber, some shoots of Peaches and Nectarines set by the aid of the garden engine. Messrs. Kinmont & Kidd showed two seedling Apples, *Duchess of Edinburgh* and *Uncle Tom*, the first-named being the best, but neither so good as many existing kinds. An American Apple, named Peck's Pleasant, was shown by Messrs. William Paul & Son, but was not favourably regarded.

Scottish Horticultural Association: March 4.—The second annual meeting of this Association was held at 5, St. Andrew Square, Mr. Dunn, President, in the chair. Over a hundred members were present. The Assistant-Secretary (Mr. Alex. Milne) read the annual report, in which the Council congratulated the members on the very large measure of success which had attended it during the past year. The membership had increased steadily, 111 new members having been added to the roll, making a total membership of 352. Council meetings had been held from time to time, and there had also been seven meetings of the adjudicating committees on new productions. A competition for kitchen garden plans brought out five competitors. The report referred in terms of regret to the loss to the Association by the death of Sir William Gibson-Craig, Bart., of Riccarton, Hon. President; Messrs. Thomas Methven, a member of Council; John Beveridge and George Galloway, members; and Thomas Lees and James MacNab, members of the adjudicating committees. During the year twenty-four papers on various horticultural subjects had been read, which were followed by interesting and instructive discussions, and notes on the weather and other subjects had also been given on several occasions. At the monthly meetings thirty-one members and others had exhibited flowers, fruits, and vegetables of excellent culture. On the recommendation of the adjudicating committees, twelve certificates had been granted by the Royal Caledonian Horticultural Society for plants, flowers, and vegetables. The Treasurer's statement showed that the income, including £10 6s. 1d. of a balance from last year, amounted to £48 2s.; expenditure, £27 1s.; balance carried to next year, £21 7s. 1d. The meeting then proceeded to the election of office-bearers. Mr. W. H. Maxwell, of Munches, was elected Hon. President in room of the late Sir William Gibson-Craig; Mr. Dunn, Mr. Fraser, and Mr. Laird were unanimously re-elected President, Vice-President and Treasurer respectively; and Mr. Alex. Milne was appointed Secretary in room of Mr. John Methven, resigned. Fourteen gentlemen were nominated for the vacancies on the Council caused by five retiring in rotation and the death of Mr. Methven, and after a division the following were elected:—Messrs. A. D. Mackenzie, Alexander Mackenzie, Lawrence Dow, Robt. Lindsay, Robert Morrison, and George Simpson. The following were sent in for exhibition:—Apple Beauty of Moray, from Mr. John Webster, Gordon Castle; Apple Lady Charlotte, a hybrid between Ribston and King of Pippins, from Mr. George Barry, Saltoun Hall, which he had raised several years ago and which was referred to the new fruits committee for their opinion; *Leucojum vernum*, from Mr. L. Dow, Saughton Hall; and five hardy spring flowers, viz., *Leucojum vernum*, *Iris reticulata*, *Primula kash-*

meriana, Bulbocodium vernum, and Saxifraga Burseriana, all of great beauty, from Messrs. Dickson & Co.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, March 12, 1879.

| MONTH AND DAY | | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | HYGROMETRICAL DEDUCTIONS from Glaisher's Tables 6th Edition. | | WIND. | RAINFALL. |
|---------------|-------|-----------------------------------|-----------------------------------|-------------------------|---------|--------|---------------|---|--|---------------------|--------------------|-----------|
| | | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 Yrs. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 Yrs. | Dew Point. | Degree of Humidity. | Average Direction. | |
| Mar. | In. | In. | | | | | | | | | | In. |
| 6 | 30.09 | +0.16 | 55.6 | 35.8 | 19.8 | 44.2 | +3.7 | 35.3 | 71 | WSW | | 0.04 |
| 7 | 30.17 | +0.43 | 48.5 | 31.9 | 16.6 | 39.8 | -0.7 | 37.0 | 90 | W. SSW | | 0.00 |
| 8 | 30.55 | +0.41 | 57.7 | 38.0 | 19.7 | 47.3 | +0.8 | 36.8 | 85 | E. S. E. | | 0.00 |
| 9 | 30.27 | +0.33 | 60.5 | 36.0 | 24.5 | 47.8 | +7.3 | 39.0 | 73 | W. | | 0.00 |
| 10 | 30.17 | +0.25 | 53.8 | 35.1 | 18.7 | 42.8 | +2.2 | 39.3 | 87 | S. W. S. S. W. | | 0.00 |
| 11 | 30.16 | +0.24 | 50.4 | 40.2 | 10.2 | 43.9 | +3.2 | 37.6 | 78 | N. N. W. N. N. E. | | 0.10 |
| 12 | 29.88 | -0.03 | 54.2 | 35.8 | 18.4 | 44.7 | +3.9 | 39.9 | 84 | W. S. W. W. N. W. | | 0.00 |
| Mean | 30.18 | +0.26 | 54.4 | 37.7 | 19.7 | 43.5 | +2.9 | 37.8 | 81 | variable | | sum 0.14 |

March 6.—A very fine clear day. Mild. Little rain fell in early morning.
— 7.—Fine, but gloomy, and cloudy till evening, then cloudless. Hoar-frost in morning. Cool.
— 8.—A fine bright clear day. Fog and hoar-frost in morning. Cool.
— 9.—A very fine warm day. Cloudless. Little fog in morning.
— 10.—Overcast till noon. Fine and bright till 5 P.M., overcast after. Fog in morning.
— 11.—A fine day, generally cloudy. Cool breeze. Rain fell in early morning.
— 12.—A fine day, but very cloudy. Strong wind. Overcast at night.

LONDON: *Barometer*.—During the week ending Saturday, March 8, in the vicinity of London the readings of the barometer at the level of the sea increased from 30.18 inches at the beginning of the week to 30.20 inches by the morning of the 2d, decreased to 29.92 inches by noon on the 3d, increased to 30.11 inches by the morning of the 4th, decreased to 29.98 inches by the evening of the 5th, increased to 30.61 inches by the morning of the 8th, and decreased to 30.50 inches by the end of the week. The mean reading for the week at sea level was 30.23 inches, being 0.34 inch above that of the preceding week, and 0.14 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 57 $\frac{1}{2}$ ° on the 8th, 55 $\frac{1}{2}$ ° on the 6th, and 53 $\frac{1}{2}$ ° on the 5th, to 46 $\frac{1}{2}$ ° on the 3d; the mean value for the week was 51 $\frac{1}{2}$ °. The lowest temperatures of the air observed by night varied from 28° on the 8th and 30° on the 4th to 42 $\frac{1}{2}$ ° on the 5th; the mean value for the week was 32 $\frac{1}{2}$ °. The mean daily range of temperature in the week was 18 $\frac{1}{2}$ °, the greatest range in the day being 29 $\frac{1}{2}$ °, on the 8th, and the least, 11 $\frac{1}{2}$ °, on the 5th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—March 2, 39° 2', -1° 2'; 3d, 38° 6', -1° 9'; 4th, 39° 4', -1° 1'; 5th, 47°, +6° 5'; 6th, 44° 2', +3° 7'; 7th, 39° 8', -0° 7'; 8th, 41° 3', +0° 8'. The mean temperature of the air for the week was 41 $\frac{1}{2}$ °, being 0° 9' above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 128 $\frac{1}{2}$ ° on the 8th, 115 $\frac{1}{2}$ ° on the 6th, and 105 $\frac{1}{2}$ ° on the 3d; on the 7th the reading did not rise above 78°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 26 $\frac{1}{2}$ ° on the 8th, 26 $\frac{1}{2}$ ° on the 2d, and 29° on the 4th; the mean of the seven lowest readings was 30 $\frac{1}{2}$ °.

Wind.—The direction of the wind was S.W., and its strength moderate. The weather during the week was generally fine and dry, and the mornings were cold and frosty.

Fog prevailed on the 8th, and a lunar halo was seen on the 4th.

Rain.—A little rain fell on the 3d and 6th; the amount measured was 0.09 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, March 8, the highest temperatures of the air observed by day were 60° at Sunderland, 57 $\frac{1}{2}$ ° at Blackheath and Cambridge, 57 $\frac{1}{2}$ ° at Leicester, and 57° at Bristol; the highest temperature of the air at Brighton was 50 $\frac{1}{2}$ °, and at Bradford was 52 $\frac{1}{2}$ °; the mean value for the week from all stations was 55 $\frac{1}{2}$ °. The lowest temperatures of the air observed by night

were 25° at Truro, 25 $\frac{1}{2}$ ° at Wolverhampton, 26° at Bristol and Nottingham, 27 $\frac{1}{2}$ ° at Leicester, and 28° at both Blackheath and Cambridge; the lowest temperature of the air at Sunderland was 36°; the mean from all places was 29 $\frac{1}{2}$ °. The range of temperature in the week was the greatest at Bristol, 31°, and the least at Brighton, 18 $\frac{1}{2}$ °; the mean range from all stations was 26°.

The mean of the seven high day temperatures was the highest at Sunderland, 54 $\frac{1}{2}$ °, Cambridge 53 $\frac{1}{2}$ °, and Truro 52 $\frac{1}{2}$ °, and the lowest at Brighton, 46 $\frac{1}{2}$ °, and Bradford 48 $\frac{1}{2}$ °; the mean from all places was 50 $\frac{1}{2}$ °. The mean of the seven low night temperatures was the lowest at Truro and Wolverhampton, both 31°, Bristol 32°, Nottingham and Plymouth 32 $\frac{1}{2}$ °, and Blackheath 32 $\frac{1}{2}$ °; and the highest at Sunderland, 39°, and Liverpool 38 $\frac{1}{2}$ °; the general mean from all stations was 34 $\frac{1}{2}$ °. The mean daily range of temperature in the week was the least at Leeds, 11°, and the greatest at Truro, 21 $\frac{1}{2}$ °; the mean daily range from all places was 16°.

The mean temperature of the air for the week from all stations was 41 $\frac{1}{2}$ °, being 4 $\frac{1}{2}$ ° lower than the value for the corresponding week in 1878. The mean temperature was the highest at Sunderland, 46°, and Liverpool, 43 $\frac{1}{2}$ °; and the lowest at Wolverhampton, 39°, and Brighton, 39 $\frac{1}{2}$ °.

Rain.—Very little rain fell during the week; the largest amounts were 0.16 inch at Truro, and 0.15 inch at Sheffield, whilst at Norwich 0.02 inch only was measured. At Sunderland no rain fell; the average fall over the country was 0.08 inch.

The weather during the week was fine and dry; the mornings were generally frosty, and the ranges of temperature were large.

Lunar halos were seen on March 3 at Cambridge, and on the 4th at Blackheath.

SCOTLAND: *Temperature*.—During the week ending Saturday, March 8, the highest temperatures of the air varied from 56° at Paisley to 50 $\frac{1}{2}$ ° at Greenock; the mean value from all places was 52 $\frac{1}{2}$ °. The lowest temperatures of the air varied from 32° at Paisley, and 33° at Perth, to 36 $\frac{1}{2}$ ° at Glasgow; the mean value from all places was 34°. The mean range of temperature in the week from all places was 18 $\frac{1}{2}$ °.

The mean temperature of the air for the week from all stations was 43°, being 1 $\frac{1}{2}$ ° lower than the value for the corresponding week in 1878. The highest were 44 $\frac{1}{2}$ ° at Leith, and 43 $\frac{1}{2}$ ° at Glasgow, and the lowest were 41 $\frac{1}{2}$ ° at Aberdeen, and 42 $\frac{1}{2}$ ° at Perth.

Rain.—The falls of rain varied from 3.27 inches at Greenock, 2.02 inches at Paisley, and 1.31 inch at Glasgow, to 0.99 at Aberdeen. The average fall over the country was 1.17 inch.

DUBLIN. — The highest temperature was 59 $\frac{1}{2}$ °, the lowest, 28 $\frac{1}{2}$ °, the range 31 $\frac{1}{2}$ °, the mean 45 $\frac{1}{2}$ °, and the fall of rain 0.17 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

INSECTS IN SEVILLE LONGPOD BEANS.—Can any of your readers inform me why the insect, *Bruchus granarius*, is more plentiful in this variety than in others? I rarely see a single Bean of this kind that has not been attacked by the insect. S.

Answers to Correspondents.

BANANA: *T. P. G.* Not being either a Palm or a Cycad, the Banana is not eligible for showing in classes devoted to those subjects.

BOOKS: *W.* *Choice Stove and Greenhouse Plants*, 2 vols., published by Mr. B. S. Williams.

CAMELLIA: *Old Subscriber*. It is difficult, without knowing the treatment, to say why the buds drop from your plants. Possibly they are too numerous, and this is only Nature's thinning process. Perhaps they have been too dry at the root—this is a frequent cause of failure; or possibly the roots may be unhealthy from excess of moisture in the soil. Guano requires to be very cautiously administered, and you may have given them too strong a dose.

CINERARIA: *J. H.* A very good decorative variety, but hardly full enough to pass muster as a first-class florist's flower.

CYCLAMENS: *J. F.* Cyclamens should never be "dried off." Purchase young plants and keep them growing on, with moderate rest after the flowering season. Seeds sown as soon as ripe should yield flowering plants in little over twelve months if pushed on freely.—*J. H.* A semi-double variety, worth preserving and seeding from with a view to getting a further improvement.

FLORAL DECORATIONS: *T. Dally*. Miss Hassard's *Floral Decorations for the Household*, published by Macmillan & Co.

HARD-WOODED PLANTS: *Subscriber*. Standen's *Manure*, applied in small quantities, would be much the safest for you to use.

KILMARNOCK WILLOW: *J. T. S.* To increase this it should be grafted on some free-growing erect Willow

as a stock. The Poplar is usually increased by suckers, or should be layered in autumn. Layers make the best plants.

LAWN TENNIS GROUND: *L. M.* If the relaying is done at once, and some nice showery weather set in, the grass should be fit to play on in July. Such work is, however, always best done in the autumn. A dressing of nitrate of soda, at about the rate of 275 lb. to the acre, will improve the grass very much.

LILIUMS: *W. B. S.* *Lilium auratum* and *L. speciosum* might be shown in a class for greenhouse plants, since they are often so treated.

MONSTERA: *J. F.* The fruit of *Monstera* takes about twelve months to swell and ripen. It will not change colour very much, but as it ripens the thick green scales will become detached from the inner succulent portion, which latter only should be eaten. It should be thoroughly ripened, or the little pointed crystals or raphides produce an unpleasant tickling in the throat.

NAME OF APPLE: *E. H.* Bedfordshire Foundling, very probably; but it is very difficult to determine, they are so much bruised.

NAMES OF PLANTS: *T. P. G.* We think it is a variety of *Cyrtotilum maculatum*. Materials not enough to identify it exactly.—*C. R.* *Dendrobium aggregatum*. We should be glad if you would send us a specimen for the 'herbarium'.—*V. G.* The thin flowers all belong to *Odontoglossum Ruckerianum*, *H. G. Rchb. fil.*—*S. C. C.* Apparently *Opuntia Rafinesquiana*.—*Mentone*. *Acacia pubescens*, and *Anemone pavonina*.—*J. D.* The Partridge-breast Aloe, *A. variegata*.—*E. F.* *Lachenalia luteola*.—*J. Wood*. *Atriplex Halimulus*.—*A Subscriber*. We are sorry we cannot oblige you with the names of the Camellias, as it is against our rule to attempt to identify florists' flowers.

ROLLED GLASS: *Subscriber*. Of course Grapes will grow under rolled glass, but better under that in ordinary use. We would not recommend you to use the former.

SALT AND RAPE DUST: *H. M.* You should have no trouble in getting either of these articles in your nearest market town.

SCIENTIFIC COMMITTEE: *W. C. Leach*. You should be at South Kensington not later than 11 A.M., and we should think you could remove your plant towards 5 P.M. Apply to the Assistant-Secretary for a schedule, which will give you all particulars.

THE TUBEROSE: *P. B.* This is probably of American origin. A wild specimen exists in the Kew herbarium from the Andes of Bolivia. Elsewhere the plant is only known in a cultivated state.

THERMOMETER STAND: *J. M.* Mr. E. J. Lowe recommends a stand about 6 feet high, of which the lower 2 feet 9 inches consists of the supports, and the other 3 feet 6 inches of the board on which the thermometers are placed. The thermometers should be slightly inclined—with the bulb end lowest if a minimum, and the bulb end highest if a maximum. They should face the north, and the stand should be perfectly firm, and as far as possible from any reflecting surfaces.

TURF-FRAMES: *H. M.* Make them at any time whenever you want them.

CATALOGUES RECEIVED:—William Potter (Sissinghurst, Staplehurst, Kent), Select List of Pelargoniums and other Bedding Plants.—Samuel Yates (16 and 18, Old Millgate, Manchester), Descriptive Catalogue of Vegetable and Flower Seeds; and List of Gladioli, Liliums, &c.—Messrs. James Dickson & Sons (108, Eastgate Street, Chester), Catalogue of Farm Seeds.—Messrs. Thibaut & Keteleer (Rue Houdan, 87, à Sceaux, Seine, France), General Plant Catalogue.—Messrs. Boulton & Paul (Rose Lane Works, Norwich), List of Poultry Houses, and Wirework Generally.—Messrs. Webb & Sons (Wordsley, Stourbridge), Annual Illustrated Descriptive List of Farm Seeds.

COMMUNICATIONS RECEIVED:—T. S. P. (the small objects found in the modelling clay appear to be seeds; but we will examine them carefully and report later on).—Haage & Schmidt.—W. B.—I. D.—J. R. J.—M. D. (many thanks).—A. D.—T. L.—P. G.

Markets.

COVENT GARDEN, March 13.

Good samples of late Grapes are now in demand, new ones selling badly, and at low figures. The only feature of the week has been the fall in Cucumbers, supplies being heavy. *James Webber, Wholesale Apple Market.*

VEGETABLES.

| s. d. s. d. | s. d. s. d. | s. d. s. d. |
|--|-------------------------------------|-------------|
| Artichokes, English | Globe, doz. | 2 0 4 0 |
| — Jerusalem, bunch. 6 0 | Lettuces, Cabbage, per doz. | 1 6 . . |
| Asparagus, Fr. sprue, per bundle | Mint, green, bunch. 1 6 . . | 1 6 . . |
| — Eng., per 100 | Onions, per bushel. 4 0 . . | 4 0 . . |
| — Fr. giant, p. bun. 30 | — young, per bun. 0 4 . . | 0 4 . . |
| Beans, French, p. 100 3 0 | Peas, per quart | 2 0 3 0 |
| Beet, per doz. | Parsley, per lb. | 2 0 3 0 |
| Brus. sprouts, bush. 10 0 | Potatoes, new, basket 1 0 . . | 1 0 . . |
| Cabbages, per doz. | Radishes, Fr., bunch 0 6 . . | 0 6 . . |
| Carrots, per bunch | — New Jersey, doz. 2 0 . . | 2 0 . . |
| Cauliflowers, per doz. 2 0 | Rhubarb, doz. | 6 0 8 0 |
| Celery, per bundle | Shallots, per lb. | 0 6 . . |
| Chilis, per 100 | Seakale, per punnet 2 6 . . | 2 6 . . |
| Cucumbers, each | Spinach, per bushel 5 0 . . | 5 0 . . |
| Endive, Batav. dozen 1 6 | Sweet Potatoes, per lb. 0 6 . . | 0 6 . . |
| Garlic, per lb. | Tomatos, per dozen 2 6 . . | 2 6 . . |
| Herbs, per bunch | Turnips, p. 12 bunch. 3 0 . . | 3 0 . . |
| Potatoes:—Regents, 100s. to 130s. : Champions, 80s. to 90s. : Rocks, 70s. to 75s. : Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy. | | |

| FRUIT. | | PLANTS IN POTS. | |
|---------------------------|----------|-------------------------|------------------------------|
| s. d. s. d. | | s. d. s. d. | |
| Apples, 1/2-basket .. | 1 6-5 0 | Arum Lily, or Rich- | ardia ethiop., doz. 9 0-18 0 |
| Cobs and Filberts, lb. .. | 0 9-1 0 | Azaleas, per dozen .. | 0 6-0 0 |
| Grapes, per lb. .. | 3 0-12 0 | Begonias, per doz. .. | 0 6-12 0 |
| Lemons, per 100 .. | 3 0-10 0 | Bouvardias, per doz. | 0 24 0 |
| | | Camellias, per dozen | 0 60 0 |
| | | Cinerarias, per doz. | 0 18 0 |
| | | Cyclamens, per doz. | 0 30 0 |
| | | Cyperus, per dozen | 6 0-12 0 |
| | | Dielytra, per dozen | 9 0-18 0 |
| | | Dracæna terminalis | 30 0-60 0 |
| | | — viridis, per doz. .. | 0 24 0 |
| | | Erica hyemalis, doz. | 9 0-30 0 |
| | | Euonymus, var., doz. | 6 0-18 0 |
| | | Ferns, in var., p. doz. | 4 0-18 0 |
| | | Ficus elastica, each | 2 6-15 0 |
| | | Oranges, per 100 .. | 4 0-8 0 |
| | | Pears, per doz. .. | 4 0-8 0 |
| | | Pine-apples, per lb. | 1 0-2 6 |
| | | Strawberries, per oz. | 1 0-1 6 |

| CUT FLOWERS. | | FOLIAGE PLANTS, vari- | |
|------------------------|----------|-------------------------|-------------------------------|
| s. d. s. d. | | s. d. s. d. | |
| Abutilon, 12 blooms | 0 6-1 0 | — ous, each .. | 2 0-10 6 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Fuchsias, per dozen | 9 0-18 0 |
| Azaleas, 12 sprays .. | 0 6-1 6 | Genista, per dozen .. | 9 0-24 0 |
| Bouvardias, per bun. | 1 0-4 0 | Hyacinths, per doz. | 6 0-18 0 |
| Camellias, per dozen | 1 0-6 0 | Mignonette, per doz. | 6 0-9 0 |
| Carnations, per dozen | 1 6-4 0 | Myrtles, per doz. .. | 6 0-12 0 |
| Cineraria, 12 bunches | 9 0-18 0 | Palms in variety, | each .. 2 6-21 0 |
| Cyclamen, 12 blooms | 0 3-1 0 | Pelargoniums, scar- | lets, zonal, doz. .. 6 0-12 0 |
| Deutzia, 12 bunches | 6 0-12 0 | Primulas, per dozen | 4 0-12 0 |
| Epiphyllum, 12 blms. | 1 0-3 0 | Solanums, per doz. | 6 0-12 0 |
| Eucharis, per doz. .. | 4 0-12 0 | Spiræa, per dozen .. | 12 0 30 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Tulips, per dozen .. | 8 0-12 0 |
| Gardenias, 12 blms. | 9 0-24 0 | | |
| Heliotropes, 12 sp. .. | 0 6-1 0 | | |
| Hyacinths, 12 spks. | 4 0-12 0 | | |
| — Roman, 12 spks. | 0 6-2 0 | | |
| | | Lily of Val., 12 sprays | 1 0-4 0 |
| | | Mignonette, 12 bun. | 6 0-12 0 |
| | | Narcissus, paper- | white, 12 sprays .. 1 0-2 0 |
| | | Pelargoniums, 12 spr. | 1 0-2 0 |
| | | — zonal, 12 sprays | 1 0-2 0 |
| | | Primula, double, per | bunch .. 0 9-1 6 |
| | | — single, 12 bunch. | 6 0-12 0 |
| | | Roses (indoor), doz. | 3 0-12 0 |
| | | Snowdrops, 12 bun. | 1 0-6 0 |
| | | Tropeolum, 12 bun. | 2 0-6 0 |
| | | Tuberose, per dozen | 3 0-6 0 |
| | | Tulips, 12 blooms .. | 1 0-3 0 |
| | | Violets, 12 bunches | 1 0-3 0 |

SEEDS.

LONDON: March 12. - Owing to the favourable weather, extreme activity is now shown both on the part of agriculturists and also of seed merchants. Considerable progress has lately been made with field work, and thanks to the influence of sun and wind the ground is rapidly losing the excess of moisture from which it suffered. Farmers, being busy in the work of ploughing and sowing, find no time for threshing; consequently the supply of home-grown Clover, &c., has fallen off to a surprising extent; the effect of this, and of the largely increased demand, has been to strengthen values all round. The advance established per cwt. during the past fortnight on the leading varieties is about as follows:— On one red Clover and Cowgrass 1s. to 2s., white Clover 3s. to 4s., Alsike 2s. to 3s., Trefoil 2s. to 2s. 6d. Of American seed there is scarcely any in London. Grass seeds have this week been in improved request; and the tendency of rates has continued adverse to the buyer. For spring Tares there is a brisk inquiry; the available supply being almost exhausted, quotations show a further rise. Rape seed is also dearer. Of English Sainfoin, the crop appears to be large. Canary seed is noted higher in Holland, but here the consumption keeps small, and the inquiry dull: the same can be said of Hemp seed. Blue Peas and Haricot Beans move off on former terms; Lentils are cheaper.—John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.

CORN.

Trade was quiet at Mark Lane on Monday. Good dry Wheat was well held, but there was no pretension to higher rates. Fine malting Barley was in moderate request, other qualities dull. Grinding Barley was rather flat. Malt was steady, on former terms. Oats were slow of sale, and quotations were a trifle lower on the week. Maize did not fully support the rates of last week. Beans and Peas were taken off quietly at about previous quotations. Flour was quiet, but firm.—A lamentable want of life was apparent on Wednesday, and prices were not very well supported. Fine dry Wheat was taken off to a moderate extent, but there was a dull sale for inferior produce, and offers of less money were not altogether rejected. Good malting Barley remained firm; grinding qualities were if anything cheaper. Malt was without change. Oats and Maize moved off somewhat heavily, while there was very little trade for Beans, Peas, and flour.—Average prices of corn for the week ending March 8:—Wheat, 39s. 1d.; Barley, 34s. 4d.; Oats, 20s. 5d. For the corresponding period last year:—Wheat, 50s. 2d.; Barley, 43s. 2d.; Oats, 24s. 2d.

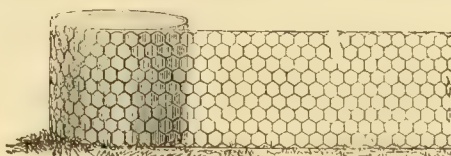
POTATOS.

The Borough and Spitalfields markets reports state that good Potatoes move off steadily at pretty full prices, but the markets are dull for inferior kinds. Regents, 95s. to 120s.; rocks, 65s. to 75s.; Champions, 70s. to 95s.; Victorias and flukes, 110s. to 135s. per ton.—The imports into London last week comprised 16,055 bags from Hamburg, 1160 Ghent, 919 Boulogne, 862 Paris, 113 sacks 40 casks Malta, 602 bags Harlingen, 138 tons 621 sacks Rouen, 230 bags Dunkirk, 115 Rotterdam, 100 Antwerp, and 84 tons L'Orient.

COALS.

The demand at market on Monday for house coal was dull, and prices receded 6d. per ton. Wednesday's quotations were as follows:—Walls End—Hetton, 17s. 6d.; Hetton Lyons, 14s. 3d.; Hawthorns, 14s. 3d.; Lambton, 17s.; Original Hartlepool, 17s. 6d.; Tunstall, 14s. 3d.; Salvins' Hutton, 15s. 9d.; Thornley, 16s. 9d.; Radford Navigation, 15s. 9d.

THE SOLE HIGHEST AWARDS BOTH AT THE PARIS AND PHILADELPHIA EXHIBITIONS FOR GALVANISED WIRE NETTING.



PRICES REDUCED ONE-THIRD. Prices per Lincal Yard, 24 in. high:—

| Size of Mesh. | Mostly used for | Gauge: | Or Light. | Gauge: | Or Medium. | Gauge: | Or Strong. |
|---------------|--------------------|--------|-----------|--------|------------|--------|------------|
| 2 in. | Dogs or Poultry. | 19 | 2½d. | 18 | 3d. | 17 | 4d. |
| 1½ in. | Small Rabbits, &c. | 19 | 3d. | 18 | 3½d. | 17 | 4½d. |
| 1¼ in. | Smallest Rabbits. | 19 | 3½d. | 18 | 4d. | 17 | 5d. |

THE SOLE HIGHEST AWARD FOR GALVANISED WIRE NETTING AT THE PHILADELPHIA EXHIBITION 1876.

Messrs. J. B. BROWN AND CO. herewith submit to their friends and the public the following indisputable proofs of their claim as above stated:—

Vol. III. of the Official Reports of the Philadelphia International Exhibition, as presented to both Houses of Parliament, by command of Her Majesty, and published by Messrs. Eyre & Spottiswoode, 1878, contains this first sentence in the opening "Memorandum," page 3:—

"As stated in the Executive Commissioners' Report, Vol. I., page 43, the medals and diplomas awarded at the Philadelphia Exhibition were uniform, the different degrees of merit being marked by the wording of the Judges' Reports."

In Vol. III., page 103, there is this Report on Messrs. J. B. BROWN AND CO.'S Exhibits:

"Galvanised Wire Netting for inclosing Poultry, Pheasants, Dogs, &c."

"Commended for excellence in assortment, from 4-inch to ½-inch meshes, material, workmanship, economy, regularity of meshes, proper thickness of wire, quality, and manner of Galvanising."

Now, as the Official Memorandum referred to, which prefaces the Commissioners' Report, distinctly states that the medals and diplomas were uniform, "the different degrees of merit being marked by the wording of the Judges'

Reports," Messrs. BROWN AND CO. have to challenge any other exhibitor to produce a Report on Galvanised Wire Netting at all equal or approaching theirs in superiority, as quoted above; and should no one be able to do this then Messrs. BROWN AND CO.'S claim is proved beyond dispute.

MESSRS. J. B. BROWN & CO.

ALSO CLAIM THE SOLE HIGHEST AWARD

AT THE PARIS INTERNATIONAL EXHIBITION, 1878,

FOR GALVANISED WIRE NETTING THE SILVER MEDAL AND THE REPORT OF THE JURY

(As officially intimated to them by the President) That J. B. BROWN & CO.'s Netting was the Best in the Exhibition.

Messrs. BROWN AND CO. trust they have now clearly established their claim to the Sole Highest Awards both at the Paris and Philadelphia Exhibitions for Galvanised Wire Netting. And every one who visited their stands either at Paris or Philadelphia admitted the distinct superiority of their Netting to all others, including the representatives of certain competing exhibitors, who apologised for the manifest inferiority of their exhibits that their netting had been taken out of stock.

The following is a copy of a letter written to Mr. J. B. Brown during the Paris Exhibition, from one of the largest and best-known French purchasers of English Wire Netting, who were themselves exhibitors at Paris, and who purchased from almost every English Wire Netting manufacturer. Messrs. Brown & Co. had just executed an order for the firm (in June, 1878) for 3000 metres of their Galvanised Wire Netting 50 inches high, 1½ mesh, 17 gauge:—

"We have received your sixty rolls of Netting. We really never saw anything so splendidly done in netting; so equal, so regular in the meshes. We have unrolled one roll and examined it from one end to the other, and did not find the slightest defect. We shall keep one roll in our warehouse here as a sample, and every one shall see the difference between your goods and others."

Messrs. Brown & Co. have also in their possession letters both from the United States, and from nearly all parts of France, testifying freely to the great superiority of their Netting to all others.

Messrs. Brown & Co. further challenge any Wire Netting Manufacturer in England, or elsewhere, to produce Netting equal in quality to that which they are known to supply.

90, CANNON STREET, LONDON.

CEDRUS DEODARA SEED, just arrived from India in splendid condition. Sample and Price on application to
HENRY CLARKE AND SONS, 39, King Street, Covent Garden, W.C.

CRANSTON'S NURSERIES

ESTABLISHED 1785.

EIGHTY ACRES.

ROSES, FRUIT TREES, CONIFERS, FOREST TREES, &c.

Descriptive and Priced Catalogue for 1878 now ready.

Address—

CRANSTON & CO.,

KING'S ACRE, near HEREFORD.



E. G. HENDERSON & SON'S

SEED CATALOGUE,

containing near 400 Illustrations of Flowers, with descriptions of the most beautiful; also the **NEW JAPANESE VEGETABLES, &c.**

Notes of these are given in the *Gardeners' Chronicle* for March 1.

Bulbs or Tubers of the following may be sent safely through the post. E. G. H. & Son's Selection of the following are from their select and choice cultivated collection, of which they have many thousands now ready:—

| | Per dozen sorts—s. d. | s. d. |
|--|-----------------------|-------|
| BEGONIAS, splendid assortment (mixed, 6s.) | 9 0 and 12 0 | |
| CALADIUMS, distinct varieties | 12 0 | 18 0 |
| GLOXINIAS, beautiful varieties | 6 0 | 9 0 |
| ACHIMENES, distinct and choice sorts | 2 0 | 3 0 |
| GESNERAS, fine selection | 4 0 | 6 0 |
| DAHLIAS, best of all sections | 4 0 | 6 0 |
| CHRYSANTHEMUM Cuttings | 2 0 | 6 0 |
| (New and Rare Varieties of the above, see prices in Catalogue) | | |
| SPIRÆA JAPONICA, with golden variegated leaves, 1s. 6d. | | |

THE PINE-APPLE NURSERY,
Maida Vale, London, W.

RHODODENDRON PONTICUM.

J. J. MARRIOTT has a fine stock of the above, and can supply nice bushy plants, 4 to 6 inches, at 60s. per 1000; 6 to 9 inches, at 80s. per 1000; 9 to 12 inches, 10s. 6d. per 100; 12 to 15 inches, 15s. per 100; 15 to 20 inches, 18s. per 100. Also 2, 3, and 4-yr. Seedlings, from 4s. to 7s. 6d. per 1000. The Trade supplied. Samples on application.
Highfield Nurseries, Matlock, Derbyshire.



MARBLEHEAD MAMMOTH CABBAGE.

This is undoubtedly the largest Cabbage in the world, single specimens having been raised weighing

SIXTY POUNDS.

Having been the original introducer of this variety to my own countrymen, I offer the seed to the Farmers and Gardeners of Great Britain. My seed is all of my own growing, from

Cabbages weighing 30 lb. and more each,
All Raised from the Centre Shoot of each Plant.

Under good cultivation about every Plant on an Acre will make a head.

Here is what Farmers say who have tried them:

"Green Bay, Iowa.

"I had heads weighing 48 lb. each; they were very tender and sweet.

"J. D. WALDEN."

"Bowmansville, Ontario, Canada.

"Last season I raised Mammoth Cabbages from your seed weighing 45 lb.

"THOMAS F. COLEMAN."

"Clintonville, N.Y.

"I raised from your Marblehead Mammoth Cabbage Seed, Cabbages that weighed 50 lb.

"H. H. MACE."

Package of the most choice strain of seed sent post-paid to any address in Great Britain on receipt of 1s.; ¼ lb. 6s.; 1 lb. 1s. The seed will be sent by next steamer after receipt of order.

Reference: Hon. GEORGE B. LORING, House of Representatives, Washington, D.C., U.S.A.

JAMES J. H. GREGORY,
MARBLEHEAD, MASSACHUSETTS, U.S.A.

FOREST TREES.

Surplus stock.

ASH, 2 to 3 feet, 20s. per 1000; 3 to 4 feet, 25s. per 1000; 4 to 5 feet, 40s. per 1000.
BEECH, 2 to 3 feet, 30s. per 1000.
HORNBEAM, 4 to 5 feet, 30s. per 1000.
LARCH, 2 to 3 feet, 25s. per 1000; 3 to 4 feet, 35s. per 1000.
SPRUCE FIR, fine and bushy, 15s. per 100, 120s. per 1000.
AUSTRIAN, 2 to 3 feet, fine, 15s. per 100.

And other **FOREST TREES**, equally cheap.
Also a large quantity of fine **AVENUE TREES, LIMES, HORSE CHESTNUTS, OAKS, &c.**, at half price for cash, and will be put on rail free of cost. The whole of the above are strong transplanted, of the best description.

R. TUCKER, Faringdon, Berks.

Rhododendron Ponticum.

J. J. MARRIOTT has a fine stock of the above, and begs to offer 4-yr. seedlings, 2-yr. bedded, at 24s. per 1000; 4 to 6 inches, transplanted, bushy, 7s. per 100, 60s. per 1000; 6 to 9 inches, 9s. per 100, 8s. per 1000; 9 to 12 inches, 12s. 6d. per 100. Also 2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000. The Trade supplied.
Highfield Nurseries, Matlock, Derbyshire.

Special Offer.

GEORGE FARNSWORTH has to offer large quantities of the following, which are good and well rooted:—

ALDER, 2 to 3 feet, 25s. 6d. per 1000.
ARBOR-VITÆ, American, 2-yr. seedling, 10s. per 1000.
ASH, Mountain, 1-yr. seedling, 3s. per 1000; 3 to 5 feet, 25s. per 1000.

Common, 2 to 3 feet, 20s. per 1000.
BERBERIS AQUIFOLIA, 2-yr. seedlings, 5s. per 1000; 1-yr. seedling and 1-yr. bedded, 10s. per 1000; 15 inches to 2 feet, bushy, 4s. per 1000.

COTONEASTER MICROPHYLLA, 1-yr. cuttings, 20s. per 1000.

WHIN or **GORSE**, Double, 1-yr. cuttings, 6s. per 1000; 1-yr. and 1-yr. transplanted, 12s. per 1000.

HOLLY, Common, 9 to 15 inches, 100s. per 1000; 12 to 18 inches, 130s. per 1000; 1½ to 2 feet, 240s. per 1000.

IVY, Irish, 1-yr. cuttings, 30s. per 1000.

LAUREL, Common, fine, 1-yr. cuttings, 10s. per 1000; 15 inches to 2 feet, 70s. per 1000.

Portugal, 3 to 4 feet, very bushy, 9s. per dozen.
LIMES, 2-yr. layers, 1-yr. transplanted, 2½ to 5 feet, 80s. per 1000; 4 to 6 feet, 12s. per 100; 6 to 8 feet, 20s. per 100.

POPLAR, Balsam, 2½ to 5 feet, 30s. per 1000.

"Black Italian, 2 to 3 feet, 20s. per 1000.

PRIVET, oval-leaved, twice transplanted, 1½ to 2 feet, 50s. per 1000.

RHODODENDRONS, 3-yr. seedling, 5s. per 1000; 3-yr. and 2-yr. bedded, 20s. per 1000; 6 to 10 inches, extra transplanted, 70s. per 1000; 1 to 1½ foot, 130s. per 1000.

"ferrugineum, bushy, 15s. per 1000.
"hirsutum, bushy, 15s. per 1000.

SPRUCE FIR, 1½ to 2 feet, 25s. per 1000.

Also other **NURSERY STOCK** as per **LIST**. Samples on application at The Nurseries, Matlock.

R. W. BEDELL offers strong rooted cuttings of:—

FUCHSIAS, best named sorts, including Earl of Beaconsfield, 5s. per 100, or 40s. per 1000.

LOBELIA, Bluestone, 6s. per 100, 50s. per 1000.

ALTERNANTHERA AMENA MAGNIFICA, 6s. per 100.

HELIOTROPE, 6s. per 100.

MESEMBRYANTHEMUM, 5s. per 100, 40s. per 1000.

MUSK HARRISONII, 1s. per dozen, 7s. per 100.

The Nurseries, Wallington, Surrey.

BEDDING GERANIUMS,

LOBELIAS, PANSIES, and VIOLAS.

GERANIUM Wonderful, 10s. per 100, 2s. 6d. per dozen; Leamington Lassie, 5s. per dozen—both autumn-struck. A few stock plants of Wonderful, with cuttings on, 2s. 6d. per dozen, 15s. per 100.

LOBELIAS, from cuttings—Brighton, 5s. per 100; St. Martin's Blue, 7s. 6d. per 100; Fumila grandiflora alba, 2s. per dozen, 10s. per 100.

PANSIES, Cliveden Blue, Cliveden Purple, and Dean's White Bedder, 2s. per dozen, 6s. per 50, 10s. 6d. per 100; Viola Bluebell same price.

Also extra choice Bedding Violas, 2s. 6d. to 4s. per dozen.

J. J. MARRIOTT, Highfield Nurseries, Matlock.

Cheap Plants by 100 or 1000.

WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter.

VERBENAS, purple, white, scarlet rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 1s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.

LOBELIA Emperor William and Blue Stone, two of the very best, 2s. 6d. per 100, 20s. per 1000.

CALCEOLARIA Golden Gem, best yellow, 5s. per 100, 50s. per 1000; Kayii, yellow, 4s. per 100.

PELAGONUMS, Vesuvius and Dean Sisley, best scarlets, 7s. per 100, 60s. per 1000; Madame Vaucher and Virgo Marie, fine white, 10s. per 100; Master Christine, best bedding pink, 10s. per 100; Striped Vesuvius (New Life), 6s. per dozen, 40s. per 100; White Vesuvius, 6s. per dozen, 45s. per 100; Dr. Denny, nearest to blue, the best Zonal of 1878, 9s. per dozen.

"Silver variegated, May Queen and Flower of Spring, 10s. per 100; Prince Silverings and Waltham Bride, 15s. per 100.

"Gold-leaf, Crystal Palace Gem, 10s. per 100; Happy Thought, 15s. per 100.

"Tricolor, Mrs. Pollock, 15s. per 100; other good sorts, as Sir R. Napier, 18s. per 100.

"Double, Smith's Wonderful, good plants, 15s. per 100, or from stores, 12s. per 100; Madame Thibaut, finest double pink, 12s. per 100.

AGERATUM Imperial Dwarf, 5s. per 100.

COLEUS and **IRENE LINDENI**, crimson, 6s. per 100, 50s. per 1000.

HELIOTROPIMUM, light and dark, 6s. per 100, 5s. 2s. per 1000.

DAHLIAS, all the best sorts, 15s. per 100.

CENTAUREA CANDIDISSIMA, 18s. per 100.

Note: 25 of any sort can be had at 100 rate.

Packing included. Terms cash.

Cemetery Nursery, Gravesend.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of **MAGNIFICENT SPECIMENS**, unequalled in Europe, consisting of the choicest and rarest Exotics, **ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, CYCLAMEN**, and all kinds of **FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.**

The Camellia Houses are now very interesting, the large specimens being in full flower, and are likely to continue in good condition for some time to come.

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

H. LANE & SON

HAVE TO OFFER A SPLENDID LOT OF

NAMED RHODODENDRONS WELL SET WITH FLOWER BUDS

At very Moderate Prices.

Also the following, wonderfully cheap, quite safe for transplanting:—

ARAUCARIA IMBRICATA, 12 feet to 17 feet.

THUJA LOBBII, 3 feet to 18 feet.

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CEDRUS DEODARA, 3 feet to 8 feet.

CRYPTOMERIA ELEGANS, 2 feet to 6 feet.

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WELLINGTONIA GIGANTEA, 2 feet to 10 feet.

PICEA NOBILIS, 2 feet to 9 feet.

"**NORDMANNIANA**, 3 feet to 13 feet.

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HOLLIES, Variegated, in variety, 2 feet to 7 feet.

LAURELS, Common and Caucasicum, 2 feet to 4 feet.

"Standard Portugal, 4 feet to 6 feet stems.

HAWTHORNS, Standard.

LIMES, Standard, &c.

Also a fine lot of well-grown Standard, Pyramidal, and Trained **FRUIT TREES**, in great variety, **ROSES, &c.**

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"ARCHIMEDEAN" AMERICAN LAWN MOWERS,

Will Cut Long and Wet Grass (as well as Dry and Short) without Clogging.

They are especially adapted for Cutting Slopes, Steep Embankments, under Shrubs, and close up to Trees, &c.; and are also extremely light in draught, simple in construction, well made, and not likely to get out of order.

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Highest Prize—Paris, 1878,
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BEGS TO OFFER THE FOLLOWING TO AMATEURS AND NURSERYMEN.

AZALEA INDICA,

nice healthy plants with buds, selected, of the best varieties, from
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with buds, in beautiful and distinct varieties, fine and robust plants,
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all the finest varieties of our rich and splendid collection,
£3 per 100 in 25 varieties.

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a very large and fine collection, £1 per 100, in distinct varieties;
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HYACINTHUS CANDICANS,

a first-class bulbous-rooted plant, bearing 20 to 25 pendulous
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of a very striking and distinguished effect; flowers exceptionally large
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Standards, from 50 to 100 vars., £3 5s. per 100; Half-standard, from
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CONSERVATORY AND GREENHOUSE BUILDERS,
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"MR. CANNELL'S 'HOME FOR FLOWERS' at Swanley, Kent, is known to all florists for its varied excellences, but it is well that it should be known to multitudes who may not be professional florists, but who have a really good and natural liking for a pretty flower or plant in their private gardens, verandahs, or window-sills. Everything in the enjoyment to be obtained from this period onward through the season depends on the stock from which the seeds or plants are derived. Mr. Cannell's establishment at Swanley is devoted exclusively to florists' flowers, and is probably the only one in the kingdom of which this can be said; and as Mr. Cannell himself is a Fellow of the Royal Horticultural Society, every one may judge what results ensue from a highly specialised direction of this kind under the most ample science and experience. In looking over the Descriptive Catalogue of Seeds one perceives the immense variety of genera and species therein embraced; but the testimonials appended are still more convincing, and carry a more palpable weight of evidence to the general mind. The testimonials come not only from every quarter of the United Kingdom, but from India, Australia, and other parts of the world to which English culture in other forms has so widely and permanently spread. His Seeds are of the highest excellence. *It is one of the greatest of all the wonders in the floral culture of this country.*"



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HAVE now for Sale, in excellent condition for transplanting, a fine collection of

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Common green, 1 to 10 feet; green and variegated varieties, 2 to 6 feet, at exceptionally low prices, as the ground must be cleared at once for other purposes.

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SWEET VIOLETS.

BLANDYANUM, Double.
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VICTORIA REGINA, best Single.

The above are large clumps, suitable for potting, forcing, or forming beds and clumps in flower gardens; 6s. per dozen, 40s. per 100.

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One each of the above 12 varieties, post or package free, 8s. 6d.

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CARTER'S FERTILISER FOR FLOWERS.

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ARTIFICIAL MANURES
For Root, Corn, and Grass Crops.

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BROWN FIBROUS PEAT, best

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Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

Fresh SPHAGNUM, 10s. 6d. per bag.

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PEAT, Black or Brown Fibrous, of superior

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FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners. 3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s.

4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;

5 sacks, 25s.; 12 for 45s., or 36s. per ton.

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YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF

MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

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Write for free PRICE LIST. Goods free to rail.

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RICH (late Finlayson & Hector), Cocoa-Nut Fibre Works,

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GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight

in solutions of from 1 to 2 ounces to the gallon of soft water, and

of from 4 to 16 ounces as a winter dressing for Vines and Fruit

Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d.

Wholesale by PRICE'S PATENT CANDLE COMPANY

(Limited).

Safe and Certain.

SIMPSON'S RED SPIDER

and THRIP ANTIDOTE. Per quart, condensed, 6s.;

per pint, 3s. 6d. Supplied to Seedsmen and Chemists.

Prepared by JOHN KILNER, Wortley, Sheffield.

GARDEN BROOMS, at 2s., 3s., 4s. and 5s.

per dozen (not less than 2 dozen). Sent to any part on

receipt of Post-office Order by

GEO. MANLEY AND CO., Manufacturers of every description

of Brushes and Brooms, South Street, Long Lane,

Borough, S.E. Established 1759.

CLAY'S FERTILISER,

Or PLANT FOOD,

Is now respectfully offered to the Public, after having been

thoroughly tested and approved, during the last three years,

by the principal Market Growers and Gardeners. It is a

powerful and lasting Manure, quick in action, and clean and

safe to use. See correspondence in *Gardeners' Chronicle*, Oct.

5, 12, 19, and 26. To be had of Seedsmen, Nurserymen, and

Florists, in packets, 1s.; and in bags, ½ cwt., 7s. 6d.; ¼ cwt.,

12s. 6d.; 1 cwt., 20s.; or by letter addressed to 174, High Street,

Homerton, London, E. References can be given to over 200

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For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER.

Established 40 Years.

This Manure is unequalled in effect for speedy and certain action in producing desired results, the strength and quality being highly concentrated. (Should be used by every one.)

For the convenience of consumers our Manure is packed in bags containing:—

1 cwt., 16s.; ½ cwt., 9s. 6d.; ¼ cwt., 7s.; 14 lb., 5s.;
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And may be obtained of all principal Nurserymen, Florists, and Seedsmen; or direct from the Works, by application to W. TRINDER, Chemical Manure Works, Stroud, Gloucestershire; or, T. HARDY, 27, Crosby Hall Chambers, Bishopsgate, London, E.C.

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GENUINE ROLL TOBACCO PAPER in packets; also CLOTH, as supplied to most of the London Nurserymen and Seedsmen. Trade price very low. J. GEORGE, Putney Heath, London.

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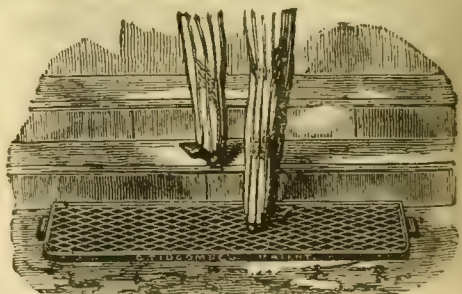
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For COVERING, TYING, and PACKING,

are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. SACKS and BAGS of every description. TARPAULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

THE GRAVEL-WALK METAL

SCRAPER MATS.—They improve the appearance of Entrances, are suitable for all kinds of Gravel-walk Entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step. They are the width of an ordinary step, and being directly in the path cannot escape use, save much wear in other mats, floorcloths, and carpets, and their endurance is incalculable. Lengths, 2 feet 3 inches, price 10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.; 3 feet 8 inches, 18s.; 4 feet, 20s. All 12 inches wide.



Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

HELLIWELL'S PATENTED
NEW SYSTEM OF AIR and WATER-TIGHT
IMPERISHABLE GLAZING. All Woodwork is covered,
and no outside Painting is required. Old Roofs Reglazed.
Any one can repair or take in pieces.
"It is suitable for Railway Stations, Mills, Weaving Sheds,
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Houses, and Orchard Houses, and we should be very much
inclined to try the system. It is certainly worth looking to,"—
The Builder.

"And will, in our opinion, supersede any other similar system
before the public."—*Building News*.
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thing we have seen yet."—*The Field*.

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"DEAR SIR,—I cannot see what Testimonial you can require
from me, than the fact that I have taken off all my putty
glazings, and removed Rendle's work to replace it with yours.
Any one seeing the two systems would say that yours is far the
superior, and that nothing yet out can touch it.—Yours,
T. W. Helliwell, Esq., Brighouse. W. R. PRESTON."

For Estimates, Drawings, or Particulars, apply to
the Patentee,
T. W. HELLIWELL,
Brighouse, Yorkshire; or, 19, Parliament Street, London, W.C.

Special Offer.
GLASSHOUSES.—A range of five Houses
just ready for fixing, 120 feet by 12 to 15 feet wide, for a
back wall 11 or 12 feet high, is offered at a reduction, owing to
a change in original plan. Price, with powerful Boiler and
Pipes, about £300 fixed; or central portion, 65 to 77 feet long,
can be had as three houses. Address
Mr. WARHURST, 43, Highgate Road, London, N.

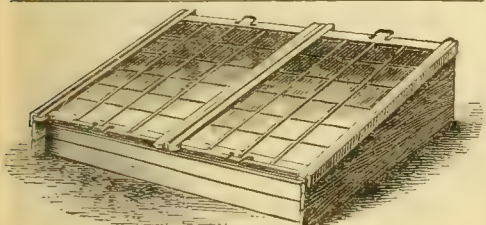
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BUILDER,
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Estimates given on application for GREENHOUSES and
CONSERVATORIES of all kinds, and to any design.

GARDEN BOXES AND LIGHTS. Each.
Portable Box with One Light, 6 feet by 4 feet, glazed
good 15-oz. sheet glass, painted four coats, and
packed ready for use 35 0
Portable Box with Two Lights, as above, each light
6 feet by 4 feet 65 0

LIGHTS ONLY.
3 feet by 4 feet light, not painted nor glazed 3 6
Ditto glazed, good 15-oz. sheet glass, and painted 4 coats 10 0
6 feet by 4 feet, not painted nor glazed 6 0
Ditto glazed and painted 4 coats 16 6



Cucumber Frames.
R. HALLIDAY AND CO. desire to
draw special attention to their Cucumber Frames,
of which they always have a large stock, ready glazed and
painted. They are made of the best materials, and are put
together in a very simple manner with wedges, and can be
taken apart in a few minutes.

Prices delivered to any station in England:—
2-Light Frame 8 feet by 6 feet 3 10 0
3-Light " 12 feet by 6 feet 5 5 0
6-Light " 24 feet by 6 feet 10 0 0

The glass is nailed and putted in. Lights and framing for
brick pits at proportionately low prices.

R. HALLIDAY AND CO., Hothouse Builders and Engineers,
Royal Agricultural Work, Middleton, Manchester.



BECKETT BROS.,
HORTICULTURAL BUILDERS AND HOT-WATER ENGINEERS.
Patentees & Manufacturers of the Self-adjusting Throttle Valve,
now so much in use for Horticultural purposes.
See Illustrated CATALOGUE, Two Stamps.
Designs and Estimates on application.

WORKS: ANCHOR STREET, CHELMSFORD.

Send for a PRICE LIST of BLAKE'S SELF-ACTING HYDRAULIC RAMS,

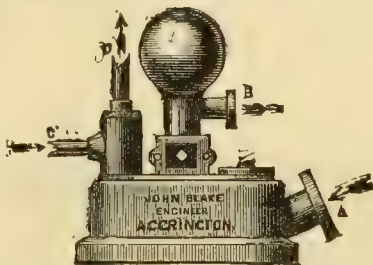
For Raising Water for the Supply of
Villages, Irrigation, Railway Stations, Mansions,
Fountains, Farms.

No Cost for Motive Power, which is obtained from the
Stream of Water passing through the Rams.

NO OILING OR PACKING REQUIRED.

Made in sizes to raise from 300 to 100,000 Gallons per day.
WILL FORCE TO A HEIGHT OF 1500 FEET.

This advertisement will
appear again on March 29.



This Ram will raise a part of the same
water that works it, or will raise pure water
from a well whilst it is worked by a stream
of impure water.

TESTIMONIALS.

From the Right Hon. T. SOTHERN ESTCOURT, *Estcourt Park,*
Gloucestershire, September 6, 1875.

"You will be glad to hear, as I am to tell you, that your
Self-acting Hydraulic Ram has worked exceedingly well and
continuously since it was erected, more than twelve months
ago. It is, in fact, perfectly successful."

(The delivery pipe in the above case is 4200 feet long, with
100 feet rise.)

From Captain TOWNSHEND, *Wincham, February 10, 1877.*

"In answer to your enquiry, I am glad to say the Hydraulic
Ram you sent me in November, 1875, is working exceedingly
well, and gives no trouble. It will work when quite immersed,
as it has been several times during the floods this winter,
forcing up water through a delivery pipe 900 yards long at the
rate of 80,000 gallons per day, although you only promised
50,000."

From W. SCARTH, Esq., *Agent to His Grace the Duke of*
Cleveland, Raby Castle, Darlington, July 16, 1878.

"The Hydraulic Ram you supplied to his Grace the Duke
of Cleveland in 1875 is a complete success. It worked for
more than two years without once stopping, and throws more
water than promised."

Deanwater, Wilmslow, November 20, 1873.

"Dear Sir,—In answer to your enquiries respecting the
Hydraulic Ram you supplied me with six months ago, I beg to
state that I am more than satisfied with it, as it is in perfect
order, sending up to the top of the house about 2000 gallons of
water in the twenty-four hours, whereas you only contracted to
deliver in that time 500 gallons. I have, therefore, every reason
to be well pleased with your work, and more especially as I had
a Ram supplied me by another maker which could not send up a
single gallon of water to the height required, and a second
maker informed me that no Ram with a fall of 3 feet could send
up water to the distance required, namely, 120 feet. But yours
is an accomplished fact, and does its work most effectually.—I
am, yours truly, L. HANMER."

From JOHN TAYLOR, Esq., *The Rocks, Bath, Aug. 22, 1878.*

"The Self-acting Hydraulic Ram you fixed here in March of
last year continues to work well. It has only the same quantity
of water and fall to work it as the water-wheel and pump which
I used previously to force to a height of 294 feet, and yet the
Ram sends up more than double the quantity of water than the
wheel did to the same height."

From JOHN PENNINGTON, Esq., *Emmott Hall, near Colne,*
December 21, 1868.

"Sir,—The Self-acting Hydraulic Ram you supplied me with
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water from a spring through a 2-inch pipe, of which it forces
3500 gallons per day of twenty-four hours to a height of 90 feet,
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and force pumps which it has displaced. Its cost is small, it
occupies but little space (2 square feet), and in mechanical
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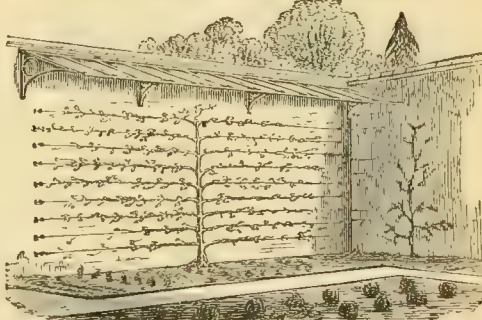


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HORTICULTURAL IRON and WIRE WORKS.
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WALL FRUIT TREE PROTECTORS.



Our Protectors for Wall Fruit Trees are supported on iron
brackets, secured to the wall by bolts. The lights slide in
grooves formed in the brackets, and are held firmly in position
by a clamp; the lights are of a uniform length of 6 feet each,
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desired, as no bolts or screws are used to secure them. This is
often a great advantage during a shower, as the rain saves
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by artificial means.

Our prices include the lights, which are 2 inches thick and
made of selected red deal, glazed with 21-oz. English sheet
glass, also brackets, bolts, &c., for fixing, all painted three
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Any Length supplied at a Day's Notice.
Length 30 feet, width 2 feet, £4 2s. 6d.
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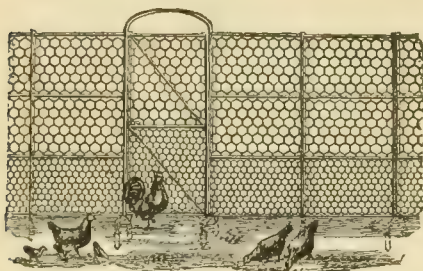
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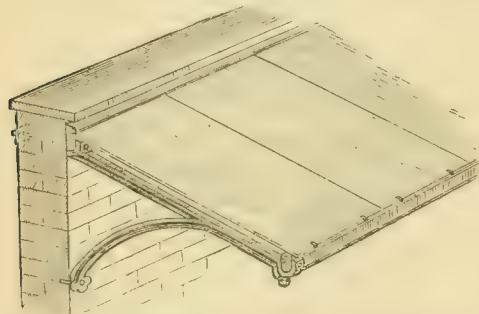
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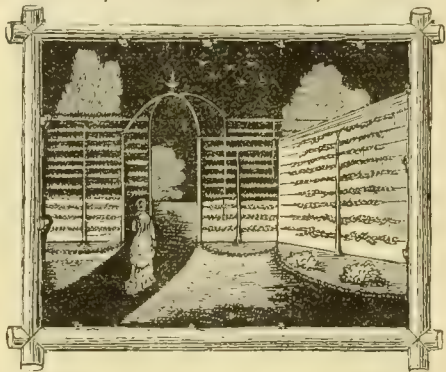
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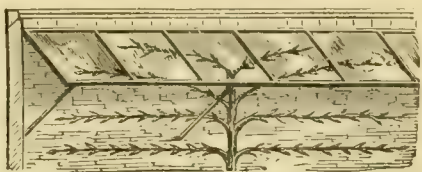
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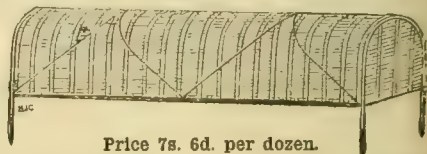
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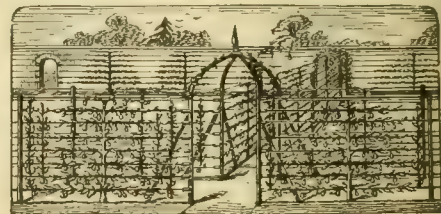
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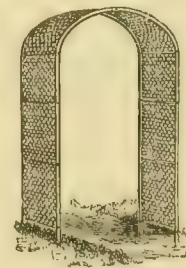
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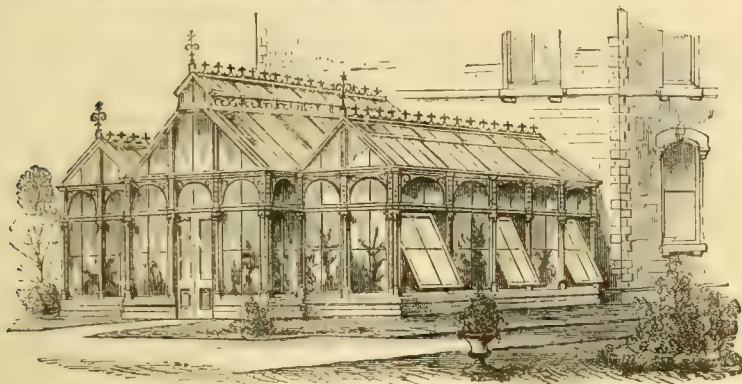
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| 2 | Rabbits & Hares | 19 | 3 | 18 | 3 1/2 | 17 | 0 4 1/4 |
| 1 1/2 | Rabbits, &c. | 19 | 3 1/4 | 18 | 4 | 17 | 0 4 1/4 |
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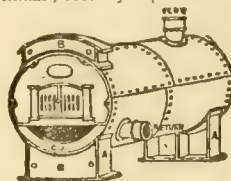
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Upwards of 90,000 of these Machines have been Sold since they were first introduced in the year 1856,

And Hundreds of unsolicited Testimonials have been received testifying to their superiority over all others.

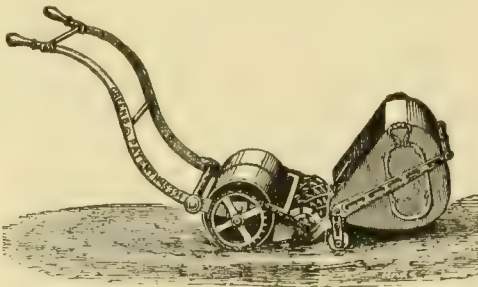
They have been submitted to numerous practical tests in Public Competition, and in all cases have carried off every Prize that has been given.

The following are the advantages over all others :—

- 1st. Simplicity of Construction—every part being easily accessible. 2d. They are worked with much greater ease than any other. 3d. They are the least liable to get out of order. 4th. They make little or no noise in working. 5th. They will cut either long or short Grass, wet or dry.

Single-handed Lawn Mower.

| | |
|----------------------------------|---------------|
| To cut 6 inches | Price £1 15 0 |
| Can be worked by a Lady. | |
| To cut 8 inches | 2 10 0 |
| Can be worked by a Lady. | |
| To cut 10 inches | 3 10 0 |
| Can be worked by a strong Youth. | |
| To cut 12 inches | 4 10 0 |
| Can be worked by a Man. | |
| To cut 14 inches | 5 10 0 |
| Can be worked by a Man. | |



Double-handed Lawn Mower.

| | |
|--|---------------|
| To cut 16 inches | Price £6 10 0 |
| This can be worked by One Man on an even lawn. | |
| To cut 18 inches | 7 10 0 |
| By a Man and Boy. | |
| To cut 20 inches | 8 0 0 |
| By a Man and Boy. | |
| *To cut 22 inches | 8 10 0 |
| * If made stronger, suitable for Donkey, 30s. extra. | |
| *To cut 24 inches | 9 0 0 |
| * If made stronger, suitable for Donkey, 30s. extra. | |

Prices of Donkey, Pony, and Horse Machines, including Patent Self or Side Delivery Box, Cross-stay complete, suitable for attaching to Ordinary Chaise Traces or Gig Harness :—

DONKEY and PONY MACHINES.

| | |
|---------------------------------|---------|
| To cut 26 inches | £14 0 0 |
| To cut 28 inches | 16 0 0 |
| To cut 30 inches | 18 0 0 |
| Leather Boots for Donkey | 1 0 0 |
| Leather Boots for Pony | 1 4 0 |

HORSE MACHINES.

| | |
|--------------------------------|---------|
| To cut 30 inches | £22 0 0 |
| To cut 36 inches | 26 0 0 |
| To cut 42 inches | 30 0 0 |
| To cut 48 inches | 34 0 0 |
| Leather Boots for Horse | 1 9 0 |

The 25 and 28 inches can easily be worked by a Donkey, the 30 inches by a Pony, and the larger sizes by a Horse; and as the Machines make little noise in working, the most spirited animal can be employed without fear of it running away, or in any way damaging the Machine.

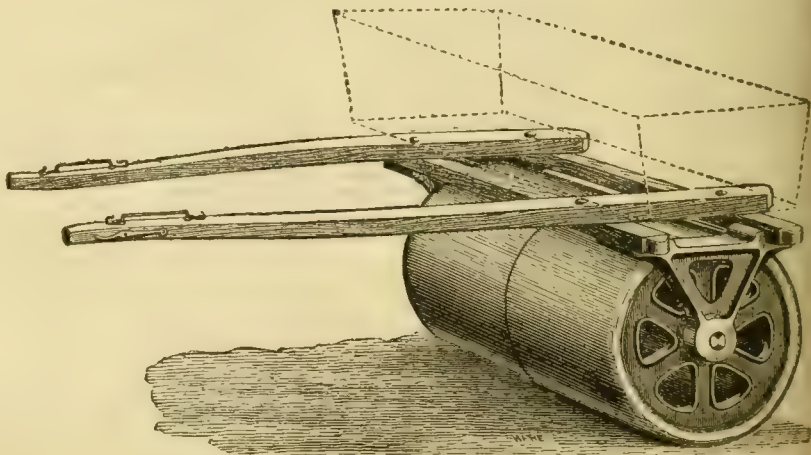
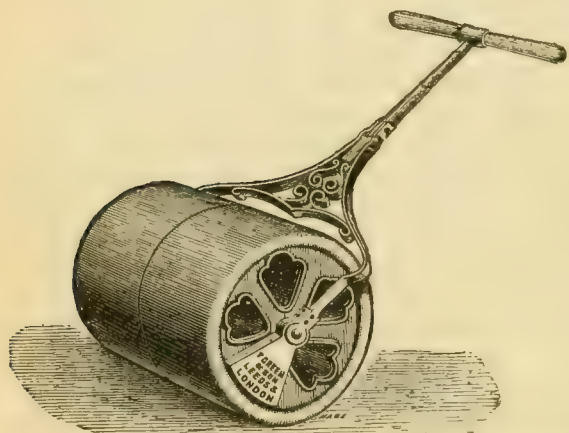
Delivered, Carriage Free, at all the principal Railway Stations and Shipping Ports in England, Scotland, and Ireland.

No Lawn Mower Manufacturer keeps so large a stock of Mowers as is to be found at our London Establishment, 54 and 55, Blackfriars Road, where purchasers can select from upwards of 500 Machines of Hand, Pony, and Horse Power, and have their Orders executed the same day they are received.

The above Machines are Warranted to give entire Satisfaction, otherwise they may be returned AT ONCE, free of cost to the Purchaser.

N.B.—Those who have Lawn Mowers which require repairing should send them to either our Leeds or London Establishment, where they will have prompt attention, as an Efficient Staff of Workmen is kept at both places.

GREEN'S PATENT ROLLERS FOR LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, GRAVEL PATHS AND ROADS, SUITABLE FOR HAND OR HORSE POWER.



PRICE OF HAND ROLLERS.

| In One Piece. | | | | In Two Pieces. | | | |
|---------------------------|---------|---|-------|---------------------------|---------|---|-------|
| Diam. | Length. | £ | s. d. | Diam. | Length. | £ | s. d. |
| 16 inches by 17 inches... | | 3 | 0 0 | 16 inches by 17 inches... | | 3 | 5 0 |
| 20 " | 22 " | 3 | 17 6 | 20 " | 22 " | 4 | 7 6 |
| 24 " | 26 " | 5 | 0 0 | 24 " | 26 " | 5 | 12 0 |
| | | | | 30 " | 32 " | 9 | 10 0 |

PRICE OF ROLLERS, IN TWO PARTS,

| Fitted with 1 Shaft. | | | | Fitted with 2 Shafts. | | | |
|---------------------------|---------|----|-------|---------------------------|---------|----|-------|
| Diam. | Length. | £ | s. d. | Diam. | Length. | £ | s. d. |
| 30 inches by 32 inches... | | 13 | 10 0 | 30 inches by 48 inches... | | 17 | 0 0 |
| 30 " | 36 " | 14 | 0 0 | 30 " | 60 " | 19 | 10 0 |
| 30 " | 42 " | 15 | 10 0 | 30 " | 72 " | 22 | 0 0 |

Weight Boxes extra, and Special Quotations made for Rollers 3, 3½, and 4 feet diameter, fitted with Shafts for One or Two Horses.

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THEY CAN BE HAD OF ALL RESPECTABLE IRONMONGERS AND SEEDSMEN IN THE UNITED KINGDOM, OR DIRECT FROM THE MANUFACTURERS.

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ILLUSTRATED PRICE LIST FREE, AND

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THE GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 273.—VOL. XI. { NEW SERIES. }

SATURDAY, MARCH 22, 1879.

{ Registered at the General Post Office as a Newspaper. } Price 5d. POST FREE, 5½d.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE.—SCIENTIFIC, FRUIT, and FLORAL COMMITTEES' MEETINGS on TUESDAY next, March 25, at 11 o'clock. Band of Royal Horse Guards at 3 o'clock in the Conservatory. Admission, 12.
* Their Majesties the King and Queen of the Belgians having graciously signified their intention of visiting the Exhibition on this occasion, it is expected that the Display will be of more than ordinary interest.

ROYAL BOTANIC SOCIETY,
Gardens, Regent's Park, N.W.
The FIRST EXHIBITION of SPRING FLOWERS this season will take place on WEDNESDAY NEXT, March 26. All Plants and Flowers must be staged before 10 o'clock. Gates open at 2 o'clock. Tickets to be obtained at the Gardens only, by Vouchers from Fellows of the Society, price 2s. 6d. each.

BURTON-ON-TRENT FLORAL and HORTICULTURAL SOCIETY.—The FIRST EXHIBITION of the SEASON of PLANTS, FLOWERS, FRUITS and VEGETABLES, will be held in the Hay, Burton-on-Trent, on WEDNESDAY, June 25, 1879. TWENTY POUNDS, TEN POUNDS, FIVE POUNDS for the best Twelve STOVE or GREENHOUSE PLANTS, &c.
Schedules of Prizes, and any information may be obtained from the Secretary, to whom nurserymen and others wishing to become subscribers should apply. R. B. BARRATT, Sec.
Abbey Cottage, Herringlow Street, Burton-on-Trent.

LEEDS HORTICULTURAL SOCIETY.
The Schedule of Prizes for the GREAT SUMMER SHOW, JUNE 25, 26, and 27, are now ready, and may be obtained of the Secretary,
J. H. CLARK, Printer, Briggate, Leeds.

CLAY CROSS HORTICULTURAL SOCIETY.
Twenty-second Annual Exhibition, AUGUST 12, 1879. Prizes THREE HUNDRED and FIFTY POUNDS. Twenty Plants, £25, £20, £15, £10, and £5. Other Prizes in proportion. Schedules will be ready March 29.
J. STOLLARD, Secretary, Clay Cross, near Chesterfield.

THE THIRTY-FOURTH ANNUAL EXHIBITION (Open to all England), of the Borough of Hackney CHRYSANTHEMUM SOCIETY, will be held at the Royal Aquarium, Westminster, on WEDNESDAY and THURSDAY, November 19 and 20, when, in addition to a liberal scale of prizes, eight handsome and valuable SILVER CUPS will be awarded. Schedules may be had on application to
WILLIAM HOLMES, Hon. Sec.
Frampton Park Nursery, Hackney.

HORTICULTURAL CLUB, 37, Arundel Street, W.C. Prospectuses and all information given on application to H. HONYWOOD D'OMBRAIN, Sec.

CATALOGUES.—His Excellency Pierre Wolkenstein will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to
S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

ORCHIDS.—Thousands of handsome Orchids in good plants can be supplied, at 3s. 6d., 5s., and 7s. 6d. each. An inspection is invited; or by sending names of those already possessed, a good selection of other kinds will be made.
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

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H. HARDING, Bagshot.

CARNATIONS and PICOTEEs, fine named sorts and good plants, 12s. per dozen pairs; PINKS, 6s. per dozen pairs. Discount to the trade.
SAMUEL HARTLEY, Headingley Nursery, near Leeds.

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RAWLINGS BROTHERS, Romford, beg to offer a great variety. All over 1-yr. old, 6s. per dozen. Mixtures, 10s. per 100.

Fit for Immediate Working.
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A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Rhododendrons.
H. LANE AND SON have a splendid lot of the best sorts, well set with bloom, to offer at very moderate prices.
CATALOGUE on application.
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ISAAC DAVIES' Sweet-scented RHODODENDRONS will be in FULL BLOOM about the Second Week in April, the original Seedling Plants having from 150 to 300 flower-buds on each, and several hundreds of his young plants being covered with buds. Many other of his Novelties will also be in bloom about the same time.
Inspection invited. Descriptive LIST on application.
Brook Lane Nursery, Ormskirk, Lancashire.

SCOTCH FIR, LARCH, Seedling and Transplanted, for sale cheap. Carriage paid to London.
LEVAVASSEUR AND SON, Nurserymen, Ussy (Calvados), France.

LARCH, 1½ to 2½ feet, 20s. per 1000, cash;
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CHARLES BUTLER, Nurseries, Wellington, Salop.

Special Offer
WM. AND D. STEWART have still to offer quantities of fine transplanted LARCH, ASH, and SYCAMORE. Height and prices on application.
Ferndown Nurseries, Wimborne, Dorset.

Special Offer.—Very Cheap.
SPRUCE, Norway, 100,000 twice transplanted, 1 to 4 feet, fine tops and wiggly roots. Also PINUS AUSTRIACA, in sizes up to 4½ feet. Apply to
T. AND W. HOGG, Nurserymen, Castle Douglas, N.B.

To the Trade.
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JOHN NELSON, Nurseries, Heeley, near Sheffield.

BLACKTHORN for Covert Planting, one million of strong transplanted, 10s. to 15s. per 1000.
THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

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W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

APPLE TREES with MISTLETO growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH AND CO., Nurserymen, Worcester.

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REQUIRING
GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

WANTED, ARAUCARIA IMBRICATA, 2½ to 3 feet, handsome robust plants, perfectly symmetrical, and with good roots; recently removed. Give price per dozen, quantity, and all particulars to
FRANCIS AND ARTHUR DICKSON AND SONS, The Upton Nurseries, Chester.

WANTED, a large quantity of good LYCOPODIUM.—Reply, stating quantity and price, to
JOHN WILLS, Royal Exotic Nursery, South Kensington, London, W.

WANTED, Common HOLLY for Stocks. State quantity and price.
DICKSONS AND CO., 1, Waterloo Place, Edinburgh.

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JOSIAH H. BATH, Manor Farm, North Cray, Kent.

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CAUTION.—No other English Seed House was awarded five Medals at the Paris Exhibition, and the Legion of Honour has not been awarded for Grass Seeds of English Seeds.

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HAMPTON COURT BLACK HAM- BURG VINE.—Strong fruiting well ripened Canes of this well known Grape, 5s., 7s. 6d., and 10s. 6d. each; Planting Canes, 3s. 6d. each. Also a good stock of most of the best kinds.
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BLACK HAMBURG VINES, and other leading sorts, in Fruiting and Planting Canes; also a few strong CALADIUMS, fine varieties, suitable for stock.
F. R. KINGHORN, Nurseries, Richmond, Surrey.

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J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

To the Trade.
THOMAS METHVEN AND SONS have a large and fine Stock of strong transplanted SCOTCH FIR and PINUS LARICIO, and will be happy to send special quotations on application.
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HARRISON'S New MUSK, very strong Plants, 8s. per 100. Cash with order.
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PELARGONIUS.—Strong healthy plants, in single pots, fit for immediate shifting, consisting of Show, French, and Fancy varieties, 35s. per 100, packing included. Cash with order.
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WM. CUTBUSH AND SON beg to announce that their Illustrated CATALOGUE of Select Vegetable and Flower Seeds, &c., is now ready, and will be forwarded post-free on application.
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A NEW ROSE.
Notwithstanding Shakespeare's dictum, "A Rose by any other name would smell as sweet," no Rose of recent introduction does smell as sweet as my new Rose, Duchess of Connaught.
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To the Trade.
ROSES, fine Standard, leading varieties. Special prices on application to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

ROSES.—Standards, £5 per 100; Half-Standards, 75s. per 100; on own roots, 75s. per 100.
A LIST of 200 of the best varieties to select from. Trade price on application.
H. LANE AND SON, The Nurseries, Berkhamstead, Herts.

NEW ROSES for 1879.—A selection of the very best only; the finest plants in the trade; ready in March.
LIST gratis, and post-free.
Mr. H. BENNETT, Manor Farm, Stapleford, Salisbury.

Now Ready.
EWING AND COMPANY'S LIST of New Roses for 1879 is a most select one of the best New English and French varieties. Gratis and post-free to applicants.
EWING AND CO., Eaton, near Norwich.

Garden Seeds.
CHARLES TURNER'S Descriptive CATALOGUE of the above is now ready, containing several interesting and valuable novelties.
The Royal Nurseries, Slough.

To Gardeners and Nurserymen.
FOR SALE, sixty QUEEN FRUITING PINES.—Apply
Mr. WM. GRIEVE, Gardener, Rietterby House, Carlisle.

ASPARAGUS, Giant, 2 and 3-yr. old.—Several thousand fine transplanted stuff; cannot fail to give satisfaction. Price per 100 or 10-0 on application to
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HOME-GROWN SEED POTATOS, free from disease.—Regents, Champions, Victorias, Early Rose, Red-skin Flourball. Special quotations for large quantities. Price on application.
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Importations of *Lilium auratum* and *L. Krameri*, in splendid condition.

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 24, 5000 splendid bulbs of *LILIAM AURATUM* from Japan, including many of unusual size; and 2000 fine roots of *LILIAM KRAMERI*; 1000 *TIGRIDIA GRANDIFLORA*, from New Jersey; importations of *DIONÆA MUSCIPULA* and *SARACENIA FLAVA*, received direct from New Jersey; choice *CYPRIPEDIUM*, *DISA GRANDIFLORA*, and other hardy ORCHIDS, TREE FERNS, &c.

On view morning of Sale, and Catalogues had.

3000 *Odontoglossum Alexandræ*.

MR. J. C. STEVENS has received instructions from the New Plant and Bulb Company to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 25, at half-past 12 o'clock precisely, a very extensive importation of *ODONTOGLOSSUM ALEXANDRÆ*, all in superb condition; also *O. PESCATOREI*, *O. TRIUMPHANS*, *O. PHALÆNOPSIS*, *ONCIDIUM CUCULLATUM*, the magnificent *CATTLEYA GIGAS*, and *C. MENDELII*, &c. This sale presents a grand opportunity to Gentleman and the Nursery Trade to enrich their collections, all being in splendid condition.

On view the morning of Sale, and Catalogues had.

Valuable Orchids, mostly in Flower.

MR. J. C. STEVENS has received instructions from Rev. J. B. Norman of Edware, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 27, at half-past 12 o'clock precisely, 400 lots of first-class ORCHIDS from this well-known collection, including *Masdevallia* in flower, *Odontoglossum Alexandræ*, fine plants; in flower; *O. triumphans*, *O. Pescatorei*, *O. sceptrum*, *Trichopilia suavis*, *Cologne conferta* in flower; *Oncidium*, many varieties in flower; *Cypripedium Dominionum*, *Dendrobium* in variety in flower; *Cymbidium Eburneum*, in flower; *Lycaste Skinneri* alba in flower; *Lælia anceps* Dawsoni, *Cattleya exoniensis*, and other varieties; fine plants of *Odontoglossum vexillarium*, and many other varieties.

On view morning of Sale, and Catalogues had.

Cymbidium eburneum, Best Variety.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, about 200 good strong established plants of this charmingly beautiful ORCHID. As is well known there are two or three varieties of this ORCHID, but these plants are all of the most handsome kind; see plant in blossom.

On view morning of Sale, and Catalogues had.

Lælia anceps alba.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at half-past 12 o'clock precisely, some good established plants of the new and beautiful white-flowered *Lælia*, *LÆLIA ANCEPS ALBA*. The *Gardener's Chronicle*, at p. 756, remarks of this new *Lælia*:—"Its peculiar characteristic is the purity of its white flowers, which equal those of a *Phalænopsis*, and whose texture may be compared to that of *Lapageria alba*; it must be seen to be appreciated, there is something so captivating in its dazzling whiteness."

On view morning of Sale, and Catalogues had.

Ipsæa speciosa.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, about 40 good plants of the above. This pretty terrestrial ORCHID was exhibited in blossom at the last exhibition (March 11) of the Royal Horticultural Society, and was awarded a First-class Certificate. The plants offered have been introduced from Ceylon. It gives large bright yellow *Dendrobium*-like flowers, and is handsome and attractive.

On view morning of Sale, and Catalogues had.

Vanda Parishii.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., imported ORCHIDS from Burmah, consisting of fine plants, in the best possible condition, of the rare and lovely *Vanda Parishii*, *Dendrobium crystallinum*, *D. Dalhousianum*, *D. Fytchianum*, *D. formosum giganteum*, *D. Devonianum*, *D. tortile*, finest variety; *D. albo sanguinea*, &c.

On view morning of Sale, and Catalogues had.

Bolbophyllum Beccarii.

MR. J. C. STEVENS has received instructions from Mr. William Bull, of Chelsea, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at half-past 12 o'clock precisely, some good plants of the above very extraordinary NEW ORCHID, introduced from New Borneo, unquestionably one of the most remarkable plants of recent introduction. A description of it, from the pen of Professor Reichenbach, appeared in the *Gardener's Chronicle*, January 11, 1879. It has grand broadly ovate leaves something like 18 inches long by 12 inches broad, and as "thick as a board." The flowers are very remarkable, handsome and highly attractive, of a light brownish colour painted with violet, with rich violet-coloured labellum.

On view morning of Sale, and Catalogues had.

Leamington.

The Arboretum, close to two Railway Stations. IMPORTANT UNRESERVED SALE of Choice Evergreen SHRUBS and TREES.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Arboretum, by order of Mrs. Hitchman, on THURSDAY, March 27, at 12 o'clock punctually, collections of unrivalled specimen Hardy CONIFERÆ and EVERGREENS ranging all sizes, in fine condition for removal and which were carefully prepared last spring, consisting of handsomely trained and symmetrically grown plants admirably adapted for immediate effect.

May be viewed and Catalogues obtained on application to Messrs. FIELD AND SONS, Solicitors, Leamington; or of Mr. F. PERKINS, 51, Regent Street, Leamington; and of the Auctioneers, 98, Gracechurch Street, E.C.

Important Sale of about 200 Choice Double Camellias, 2 to 4 feet, English-grown, in perfect health, well set; fine AZALEA INDICA and other GREENHOUSE PLANTS; a superb assortment of 500 handsome Standard and Dwarf ROSES of the best varieties; selected FRUIT TREES, hardy CONIFERÆ SHRUBS and AMERICAN PLANTS, with some fine Bulbs of *LILIAM AURATUM*, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, March 25, at 12 o'clock precisely.

On view morning of Sale, and Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Brixton, S.W.

About ten minutes' walk from two Stations, and 3 miles from Covent Garden.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, on SATURDAY, March 29, at 2 o'clock punctually, in one lot, the BENEFICIAL INTEREST in the LEASE of the Grove Nursery, Russell Road, North Brixton, S.W.—eighteen years' unexpired, at the exceedingly low rent of £3 per annum, with Six Greenhouses, Ranges of Pits, Cart-shed and Stabling standing thereon. At the same time will be SOLD the whole of the NURSERY STOCK, comprising about 3000 Evergreens and Coniferæ Shrubs, Flowering and Forest Trees in variety, fine Pyramid and Dwarf Fruit Trees, Standard and other Roses, &c.

May be viewed. Catalogues may be had on the Premises; and of the Auctioneers, 98, Gracechurch Street, London, E.C., and Leytonstone, E.

Wanstead, Essex.

Near George Lane Station.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, by order of Mr. Tripp, on the Premises, The Nursery, Tavistock Road, on SATURDAY, March 29, at half-past 12 o'clock, a quantity of well-grown EVERGREENS and other SHRUBS in great variety: cl. a. grown FRUIT TREES, Standard ROSES in choice assortment, and 150 lots of GREENHOUSE PLANTS, including Camellias, Heaths, Lily of the Valley, Begonias, &c.

On view. Catalogues on the Premises, and of the Auctioneers, Leytonstone, E., and 98, Gracechurch Street, E.C.

GREAT CLEARING SALE OF NURSERY STOCK, Perryhill Nursery, Aberdeen.—In consequence of the death of Mr. Roy, the whole Stock is to be SOLD off without reserve, by PUBLIC ROUP on FRIDAY, March 28, at 11 o'clock. The Stock is extensive.

Catalogues to be had on application to Messrs. COLLIE, Advocates, Aberdeen, Agents for Mr. Roy's Executors, or to the Auctioneer.

JOHN WILSON, Auctioneer, Aberdeen.

Harlington and Cranford, Middlesex.

About 13 miles from Covent Garden Market.

TO MARKET GARDENERS, FRUIT GROWERS, and OTHERS.

MR. E. P. NEWMAN, will SELL by AUCTION, at the "Coach and Horses" Inn, Harlington, near Hounslow, on WEDNESDAY, April 9, at 2 o'clock, the LEASE and INTEREST in 20 acres of thriving young FRUIT PLANTATION and 8 acres of open MARKET GARDEN GROUND, the whole in good heart and condition. The Lease has several years to run, and is held at a low rental. Particulars can be obtained of R. H. HARRIS, Esq., 46, Finsbury Circus, E.C.; and of the Auctioneer and Market Garden Valuer, High Street, Uxbridge, and Hillingdon, Middlesex.

MESSRS. CAPES, DUNN AND PILCHER, of Manchester, have the honour to announce that in pursuance of instructions from T. M. Shuttleworth, Esq., they will SELL by AUCTION, at Howick House, Preston, on TUESDAY and WEDNESDAY, April 15 and 16, without the slightest reserve, punctually at 12 o'clock each day, the unique and valuable COLLECTION of STOVE and GREENHOUSE SPECIMEN EXHIBITION PLANTS, comprising fine-leafed plants, Azaleas, Gleichenias, Tree and other Ferns (British and Exotic), Orchids, Ericas, Crotons; Palms, and Cycads, embracing many noble and matchless specimens. Also three Exhibition Vans, in perfect condition.

Catalogues may be now had from the Auctioneers. The Plants will be on view on Wednesday and Thursday, April 9 and 10, between the hours of 10 A.M. and 6 P.M., by card only, obtainable from the Auctioneers or from Mr. Shuttleworth. Refreshment tent on the ground each day. Stable accommodation at the Fleece Inn, within five minutes' walk of Howick House. Omnibuses each morning and evening to and from the Sale, starting from W. Harding & Co.'s Yard, Fishergate, Preston, facing the Railway Station.

The Public will be admitted to the Grounds and Gardens on the days of Sale at 9 A.M. by the Farm entrance, beyond the Lodge Gate.

Mr. Shuttleworth will be happy to recommend H. THORNBERRY, his HEAD GARDENER, to any Gentleman requiring a first-class Stove and Greenhouse Plantsman.

Trial Ground.

WANTED TO HIRE, about TWO ACRES of LAND, for a Trial Garden; must be in good heart and condition, and easy of access to the city.—Apply with full particulars to ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

FOR SALE, by Private Bargain, a NURSERY and SEED BUSINESS.—The Business of Galloway & Graham, Nurserymen and Seedsmen, carried on at 138, Queen Street, Glasgow, with Nurseries at Old Kilpatrick, is offered for Sale, on account of the death of Mr. Galloway. The Stock at present is valued at £1832 9s. 5d. The firm have had a large connection. The Nurseries are favourably situated, and the stock is in good condition for a profitable Business being in prospect.—Further information can be obtained on application to the Subscribers, with whom Offers are to be lodged on or before March 26.

MOORE AND BROWN, C.A., 128, Hope Street, Glasgow.

FOR SALE, seventy years' unexpired LEASE of about FOUR ACRES of LAND, having 10,000 feet of good Glass-houses upon it well stocked with Vines in splendid bearing condition; situated centrally for the best markets in Lancashire. Houses alone cost about £1000. Advertiser, not knowing the business, will accept £400, or best offer over. Immediate entry.—Apply by letter, R. W. Smith & Sons, Bookstall, Exchange Station, Liverpool.

TO FLORISTS and GARDENERS.—

Well ESTABLISHED BUSINESS. Good Vineries, Cucumber-houses, Conservatory, Dwelling-house, and Seed Shop. Improving neighbourhood. Long lease; low rent. Close to railway station. For further particulars apply to SHALLEN AND BUDDS, Burnt Ash Hill, Lee, opposite Blackheath Railway Station; and Kent Auction Rooms, Greenwich, S.E.

Borough of Wolverhampton.

To LANDSCAPE GARDENERS.

THE PARK and BATHS COMMITTEE of the Corporation of Wolverhampton invite DESIGNS for Laying-out the Interior of a proposed PUBLIC PARK, about 47 acres in extent, at an expenditure not exceeding £5000.

A Lithograph Plan and printed General Instructions and Conditions may be obtained from Mr. G. Eastlake Thoms, C.E., the Borough Engineer, at his Offices, Town Hall, on and after the 26th inst., on payment of One Guinea, which will be returned on receipt of bona fide Design.

The Committee offer Premiums of £50 and £25 for the best and second best designs respectively. No premiums will be paid unless the works can be carried out for the sum named—£5000. If the competitor obtaining such first-named premium is employed to carry out the work the premium shall merge in his commission, the rate of such commission to be hereafter agreed upon by the Committee.

Designs, accompanied in each case by specification and detailed estimate, under Motto, must be left at the said Offices not later than 12 noon, on SATURDAY, May 3, next, addressed to "The Chairman of the Park and Baths Committee."

H. UNDERHILL, Town Clerk. Town Hall, Wolverhampton, March 12.

BATH and WEST OF ENGLAND SOCIETY (Established 1777) and SOUTHERN COUNTIES ASSOCIATION.

EXETER MEETING, JUNE 2, 4, 5 and 6.

ENTRIES of LIVE STOCK, IMPLEMENTS, &c., CLOSE APRIL 16, after which date no Fee or Entries can be received.

POULTRY ENTRIES CLOSE MAY 1.

Forms and all information supplied on application to

JOSIAH GOODWIN, Sec.

4, Terrace Walk, Bath.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS

and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.

THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.

CATALOGUES on application.

MANETTI STOCKS.—A few thousands, of fine quality, still to offer. QUINCE STOCKS, also, very fine. CHARLES NOBLE, Bagshot.

FOR SALE, fine SPECIMEN PALMS

and FERNS—all in good healthy condition:—*Areca Baueri*, *Areca lutescens*, *Carludovica palmata*, *Euterpe edulis*, *Diemonopsis palmensis*, *Kentia australis*, *Kentia Belmoreana*, *Dicksonia antarctica*, and *Todea spicata*. Apply THE GARDENS, 33A, Turner Road, Lee, near Blackheath, S.E.

To the Trade.

ASH, ELM, SYCAMORE, BIRCH, BEECH, OAK, ALDER, POPLAR, fine trees, 6, 8, 10, 12, 15, and 18 feet. Weymouth PINE, 3, 4, 5, and 6 feet, well furnished plants. Apply to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

SUTTON'S MAGNUM BONUM

POTATOS, 10s. per cwt. Apply to W. W. PEARCE, Measham, Atherstone.

Fine Autumn Sown

CABBAGE PLANTS, Nonpareil and Early Battersea.

BRUSSELS SPROUTS. Scotch and Curled KALE.

Price on application to J. BOWEN, Plant Grower, High Wycombe.

SEEDLING LARCH, 1-yr., extra fine.

SCOTCH FIR, Native, 1-yr. and 2-yr. Seedling, extra fine. Samples and prices on application.

LITTLE AND BALLANTYNE, Knowfield Nurseries, Carlisle.

To be Sold, a Bargain, a Few Large

SPECIMEN AZALEAS, CLERODENDRON, and PANDANUS. These are all Show Plants, and in the finest condition. Apply to J. MUMFORD, Elmstead Grange, Chislehurst, Kent.

Just published, free on application, a complete

DESCRIPTIVE PRICED LIST of our unrivalled Collection of Tuberous BEGONIAS. Awarded Gold Medal at South Kensington, and First Prize at Preston.—JOHN LAING AND CO., Forest Hill, S.E.

QUICKS, 50,000 3-yr. transplanted, from

3 to 4 feet, for Sale. RICHARD CRUST AND SON, Spalding, Lincolnshire.

CAMELLIAS.—To be Sold, the Property

of a Gentleman, 10 Trees in Bloom, imbricated varieties, all true to name, averaging 6 feet high. Can be seen by applying to the HEAD GARDENER, Loampit Hill House, Lewisham, S.E.

CARNATIONS, PICOTEEs, and CLOVES.

—A grand stock of the above, very fine plants, consisting of the choicest varieties in cultivation. For descriptions and prices see New CATALOGUE of Florists' Flowers, free on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham London.

MILES' NEW HYBRID SPIRAL MIGNONETTE.—This being the best time to sow I beg to offer from the original stock, at 1s. per packet, or 12s. per dozen. The usual allowance to the trade.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown MANGEL WURZEL, and SWEDE and other TURNIP SEEDS of 1878 growth, and raised from transplanted Bulbs.

Seed Growing Establishment, Wisbech.

HARDY HEATHS.—60,000 good plants, in great variety—fine for Edging, Bedding, Covering Banks or raised mounds. The prices, which are very low, will be found in the CATALOGUE, free per post.

JAMES SMITH, Darley Dale Nurseries, near Matlock.

TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.

ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.

The Ottershaw Nursery, Chertsey.

Hazel—Scotch Fir.

J. GEO. HILL has a quantity of Strong HAZEL, 3 to 3½ feet; also Scotch FIR, 2 to 2½ feet, to offer on very liberal terms for cash.

J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

Carnations and Picotees.

CHARLES TURNER is now prepared to supply the above in fine Plants and in great variety. This is the best thing for planting to ensure a good bloom of these popular flowers. CATALOGUES on application.

The Royal Nurseries, Slough

KENTISH FRUIT TREES of every description, at extraordinary low prices. Send for Special LIST to

T. EVES, Gravesend Nurseries. Established 1810.

SURPLUS STOCK.—50,000 MANETTI STOCKS, Gloire de Dijon, Cheshunt Hybrid, and Céline Forestier ROSES. Prices on application to

EWING AND CO., Eaton, near Norwich.

GLASTONBURY or HOLY THORN.—Strong plants of above, 3 to 4 feet high, 2s. 6d. each. Always blossoms at Christmas.

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

To the Trade, &c.

ASPARAGUS, GIANT.—Splendid Roots for Planting, in immense quantity.

EWING AND CO., Norwich.

To the Trade.

ASPARAGUS, Giant, 1, 2, 3, and 4-year.

JAMES BIRD, Nurseryman, Downham.

ASPARAGUS, ASPARAGUS, Giant.—Strong roots, 2-yr. old, 1s. 6d. per 100, 10s. per 1000.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

CHAMPION POTATO is acknowledged to be, both in Kent and Scotland, the best Farmer's or Field Potato; most reliable in all soils and seasons, and its extended cultivation yearly is most marvellous.

Price per ton on application.

H. ORMSBY, Swanley, Kent.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to

THE LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

WEBB'S CHOICE POLYANTHUS AND OTHER SPRING PLANTS.—Early orders are solicited for the above choice plants. Apply to

THE MANAGER, Calcot Gardens, Reading.

WEBB'S PRIZE COB FILBERTS AND OTHER NUTS.

Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to

THE MANAGER, Calcot Gardens, Reading.

CATALOGUES post-free on application.

ENGLISH YEWS.—Extra transplanted and well furnished, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 90s. per 100.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

GOLD MEDAL BEGONIAS.—Seed saved from our unrivalled collection of named varieties, in sealed packets, 1s. 6d. and 2s. 6d. post-free. Special offers to the Trade.

JOHN LAING AND CO., Nurseries, Forest Hill, S.E.

SEED POTATOS.—The Advertiser has for Sale several tons of each of the following varieties:—Rivers' Royal Ashleaf, Myatt's Ashleaf, Early Shaw, Snowflake, Porter's Excelsior, Red-skin Flourball, Fluke, Paterson's Victoria, Regent, and Champion. Prices (low) on application to

JOSIAH H. BATH, 1, York Street, Borough Market, S.E.

THUJOPSIS BOREALIS, fol. var.—One of the best and finest hardy Conifers, fine strong plants, about 3 feet high, 6s. each, 48s. per dozen. Apply to

JEAN N. VERSCHAFFELT, The Nurseries, Ghent, Belgium.

ASPARAGUS.—The noted Gravesend Giant variety. Strong 3-yr. old, 3s. per 100.

T. EVES, Gravesend Nurseries. Established 1810.



B. S. WILLIAMS' PRIZE MEDAL FLOWER SEEDS. POST-FREE.

PRIMULA SINENSIS FIMBRIATA COCCINEA, new, 5s. and 3s. 6d. per packet.

Awarded two First-class Certificates by the Royal Horticultural and Royal Botanic Societies.

From Mr. E. HILLMAN, Gr., Fenny Hall, March 11, 1879.

"I have been very much pleased with your new Primula coccinea, so much so that I gave a note of it in the Garden some weeks since. I consider it well worthy the name of 'coccinea'."

PRIMULA SINENSIS FIMBRIATA, Williams' superb strain, red, white, or mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

The above Primulas were awarded a Silver Medal by the Royal Horticultural Society, February 11, 1879.

From Mr. JOHNSON, Derby, March 12, 1879.

"Please send me the seeds I have written down. The last Primulas were splendid."

CYCLAMEN PERSICUM GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per packet.

CYCLAMEN PERSICUM GIGANTEUM, 5s. and 2s. 6d. per packet.

The above Cyclamen have been awarded First class Certificates by the Royal Horticultural and Royal Botanic Societies.

CYCLAMEN PERSICUM, Williams' superb strain, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.



CALCEOLARIA, Williams' superb strain, finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

From H. MANGOOD, Esq., Coombe House, June 8, 1878.

"Will you send me a packet of your superb strain of Calceolaria? I have a splendid collection of flowers from the packet I had last year, none equal to them in the neighbourhood."

CINERARIA, Weatherill's extra choice strain, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.

From E. CROKER, Esq., The Grange, March 9, 1879.

"Please send me seeds named on the other side. My Cinerarias from your seed this year are very fine."

BEGONIA, New Bedding, finest mixed, tuberous rooted, 2s. 6d. per packet.

From Mr. R. CAMPBELL, Uttoxeter, N.Y., January 16, 1879.

"Please send the enclosed seed order as soon as possible. The Begonias I have raised from the seed purchased from you surpass anything I have ever seen or dreamt of."

SOLANUM HYBRIDUM, Empress, new, 2s. 6d. per packet.

VIOLA CORNUTA, Loveliness, new, 2s. 6d. per packet.

COLLECTIONS OF

CHOICE VEGETABLE SEEDS

For One Year's Supply,

10s. 6d., 21s., 42s., 63s., and 84s.

ILLUSTRATED SEED CATALOGUE POST-FREE

All Seeds of 20s. value Carriage Free.

Victoria and Paradise Nurseries, UPPER HOLLOWAY, LONDON, N.

FOREST TREES, Seedling and Transplanted.—The very extensive stock of the above is this season in splendid condition.

CATALOGUES on application.

The Lawson Seed and Nursery Company (Limited) Edinburgh.

Mangel Seed.

JOHN SHARPE is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs.

Bardney Manor, Lincoln.

To the Trade.

H. NEW POTATO, "PRIDE OF ONTARIO." and F. SHARPE are now sending out the above most prolific and handsome shaped new Potato. Full description and price may be had on application.

Seed Growing Establishment, Wisbech.

Special Cheap Offer.

TO SEEDSMEN, MARKET GARDENERS, and OTHERS PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to

W. BALL AND CO., Bedford Road Nursery, Northampton.

Florists' Flowers.

J. FORBES' CATALOGUE for 1879 (50 pages) of all the newest and best Carnations, Picotees, Pinks, Geraniums, Fuchsias, Pansies, Phloxes, Pentstemons, Antirrhinums, Begonias, Verbenas, &c., is now ready, and may be had free on application.

The Nurseries, Hawick, N.B.

Good Things.

JOHN MOGFORD, Exporter of CAPE BULBS, can supply the Trade with all the leading kinds, DISA GRANDIFLORA, &c.

10, Camp Street Gardens, Cape Town.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.

SANDER AND CO. Seed Growers, St. Albans

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

To the Trade.

SEED POTATOS.—Our SPECIAL LIST, containing all the best English and American varieties grown by us the past season, may now be had, post-free, on application.

H. AND F. SHARPE, Seed Growers, Wisbech.

Verbenas in Single Pots.

WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 5s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums.

WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

MAHONIA AQUIFOLIA.—Transplanted, 6 to 12 inches, 12s. per 1000; 1 to 1½ foot, 20s. per 1000.

THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

FRUITING PLANTS OF PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps.

CATALOGUES OF ROSES and ORCHARD-HOUSE TREES post-free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers AZALEA INDICA of all sizes, AZALEA MOLLIS, and A. PONTICA; CAMELLIAS, DEUTZIA GRACILIS, DIELYTRA SPECTABILIS, SPIRÆA JAPONICA, PALMS for Table use, DRACÆNAS, FERNS, and YUCCA VARIEGATA.

CATALOGUES free on application.

ALTERNANTHERAS of Sorts, from Stores, 8s. per 100, or 70s. per 1000. Orders now booked and executed in rotation.

LIST of Carpet and other Bedding Plants free on application. Terms cash.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

Paul's Roses.

WM. PAUL AND SON'S stock of ROSES is large, of excellent quality, and uninjured by frost. Standards, 15s. per dozen and upwards; Dwarfs, 9s. per dozen; Climbers, 6s. per dozen.

Priced Descriptive CATALOGUES free by post.

Paul's Nurseries, Waltham Cross, N.

Now Ready.

CRANSTON AND CO'S TRADE LIST of NEW ROSES for 1879.

King's Acre Nurseries, near H. reford.

To the Trade.

EDWARD HOLMES, Whittington Nursery, Lichfield, offers Giant and Connor's Colossal ASPARAGUS, 2-yr., fine. Price on application.

STEPHANOTIS for Sale (being two large for present houses).—Fine specimen from gardens at Beaufort Castle. Well-established plant; 22 feet long. Inspection allowed, and offers received by Mr. GLAYDEN, Gardener, Cookham Lodge, Cookham, Berks.

Green and Variegated Ivies of Sorts.

Large and small-leaved, in eight kinds.

ROBERT PARKER, having a surplus stock of fine plants in pots of the above-named, will be pleased to dispose of them in quantities, at very low prices. Names, sizes, and prices per dozen, 100 or 1000, will be given on application.

Exotic Nursery, Tooting, Surrey, S.W.

SCOTCH FIR, native, 2-yr., at £6 per 100,000; Common and Smooth White ALDER, BEECH, and SPRUCE, Seedlings, and 3-yr. LARCH: all to be sold cheap.

WM. KIERNAN, Nurseryman, Summerhill, Enfield, Ireland.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879.

Extra Strong SEAKALE, 2s. per dozen.

RICHARD SMITH, Nurseryman, Worcester.

HENDER AND SONS' strain of large-flowering PETUNIAS, the finest in cultivation, flowers of great substance regularly mottled and striped, scarcely any self-coloured flowers among them, very dwarf habits and free flowering. Sealed packet, 250 seeds, 2s.—Nursery, Plymouth.

DR. DENNY'S ZONAL PELARGONIUMS, Sixth Set.—This series will consist of the six splendid varieties that were awarded the Premier Prize for "six varieties not in commerce, florists' class," at the Pelargonium Society's Exhibition of 1878.

Descriptive CATALOGUES forwarded on application to Mr. JOHN BALAM, Vine Nursery, Hackney Downs Road, Lower Clapton, N.E.

AUCUBA JAPONICA, 2 to 2½ feet, and bushy, 50s. per 100.

YEW, English, 2 to 4, 5 and 6 feet, 30s., 60s., 75s., 80s. per 100.

DAPHNE CNEORUM MAJUS, good, and well set with bloom, from 35s. per 100.

LAURELS, Portugal, 4 to 6 feet.

ARTHUR KNOWLES (successor to the late William Collyer), Nurseryman, Horsell, Surrey, near Woking Station.

Pinus Laricio.

CORSICAN PINE.—For prices of this valuable Pine, which is seldom eaten by rabbits—never if they can get any other food—apply to

JAMES SMITH, Darley Dale Nurseries, near Matlock.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

CALCEOLARIA, Golden Gem.—Strong healthy autumn-struck, 6s. per 100, 50s. per 1000.

GERANIUM, Vesuvius.—Strong, from stores, 8s. per 100. Package free, cash.

W. FIELD, Tarvin Road Nursery, Chester.

PELARGONIUM VOLUNTE NATIONAL.—The most beautiful large-flowered Geranium ever introduced. Good Plants, 3s. 6d. each; free by post, 3s. 9d.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

To the Trade.

ROLLISSON'S TELEGRAPH CUCUMBER (true).

J. GEO. HILL has a quantity of above, true J. stock, and offers it at a low rate considering the quality. Also GOLDEN PERFECTION MELON—no other varieties grown. Price on application to

J. GEO. HILL (late Scott), The Royal Seed Stores, Yoevil.

STANDARD ROSES.—Clean, straight stems, with good heads and well rooted, of leading varieties only. List of sorts and prices on application to

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

VERBENAS.—50,000 now ready for Sale. All good, strong, spring-struck plants, perfectly free from all disease, of Purple King, Scarlet, White, and Pink, 6s. per 100. Twenty other good exhibition varieties, true to name, 8s. per 100. Package free for cash. Also strong healthy Cuttings of the above at half-price: free by post.

S. BIDE, Alma Nursery, Farnham, Surrey.

Hardy Florists' Flowers.

THOMAS S. WARE'S SPRING CATALOGUE of the above for the present year is now ready, containing a good list of Novelties, and including selections of choicest varieties of Carnations and Picotees, Chrysanthemums, Delphiniums, Pansies, Phloxes, Pyrethrums, and other families. Free on application.

Hale Farm Nurseries, Tottenham, London.

Planting Season.

E. BURGESS begs to offer the following:—Strong Standard PEARS, Standard-trained APRICOTS, Turkey and English OAK, English and Scotch ELMS, LIMES up to 12 feet, BEECH up to 7 feet, and a general Nursery Stock. Prices on application.

The Nurseries, London Road, Cheltenham.

JULES DE COCK, NURSEYMAN, Ghent, Belgium, offers to the Trade Seedlings in store pots:—*Areca lutescens*, 40s. per 100; *Areca rubra*, 30s. per 100; *Chamaerops excelsa*, 8s. per 100; *Cocos Weddelliana*, 100s. per 100; *Corypha australis*, 20s. per 100; *Euterpe edulis*, 25s. per 100; *Lantana camara*, 8s. per 100; *Pandanus utilis*, 25s. per 100; *Phoenix reclinata*, 16s. per 100; *Phoenix tenuis*, 12s. per 100; *Scaevola elegans*, 25s. per 100; *Thrinax elegans*, 35s. per 100; *Aralia Sieboldii*, 6s. per 100; *Dracaena indivisa*, 6s. per 100.

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LILIES AND GROUPS.
LILIUM AURATUM, by the dozen, hundred or thousand, at 9d., 1s., and 1s. 6d. each.
LILIUM KRAMERI, by the dozen, hundred or thousand, at 1s. 6d. and 2s. 6d. each.
LILIUM SZOVITZIANUM, by the dozen, hundred or thousand, at 1s., 1s. 6d., and 2s. 6d. each.
LILIUM TIGRINUM FORTUNELI, by the dozen, hundred or thousand, at 9d. and 1s. each.
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

PRIMROSES and POLYANTHUS are

Real Gems of Spring.

SINGLE PRIMROSES.
Auriculiflora, 1s. each, 9s. doz.
Lavender, 4s. per dozen.
Mauve Queen, 1s. each.
Magenta Queen, 4s. per dozen.
Purity, white, 3s. doz., 20s. 100.
Yellow, 4s. per dozen.
DOUBLE PRIMROSES.
Crimson or Velvet, 2s. each.
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Yellow, 3s. per dozen.
Rose, 1s. 6d. each.

One each of the above 12 varieties, post or package free, 8s. 6d.

BEDDING POLYANTHUS.

Single Varieties.
Henry Hooper, 6s. per dozen.
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Plover, 1s. each.
Magenta King, 4s. per dozen.
White Perfection, 6s. per dozen.
Hose-in-Hose Queen, 6s. doz.
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Hose-in-Hose, *Yellow*, 1s. each.
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Double Varieties.
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One each of the above 12 varieties, post or package free, 10s. 6d.

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SWEET VIOLETS.

BLANDYANUM, Double.
BELLE DE CHATENAY, new.
KING OF VIOLETS, Double.
MARIE LOUISE, best Double.
NEAPOLITAN, Double.
REINE DES VIOLETS, Double.
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WHITE CZAR, Single.
VIOLET CZAR.
VICTORIA REGINA, best Single.
The above are large clumps, suitable for potting, forcing, or forming beds and clumps in flower gardens; 6s. per dozen, 40s. per 100.
PRINCESS MARIE DE SAVOY, new, 3s. 6d. each.
PATRIE, 1s. each.
One plant each 12 vars. free by post, 7s. 6d.
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Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.

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A SPECIALITY.

Descriptive Priced Catalogues free.
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Cheap Plants by 100 or 1000.

WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter.

VERBENAS, purple, white, scarlet rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 1s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.

LOBELIA Emperor William and Bluestone, two of the very best, 2s. 6d. per 100, 20s. per 1000.

CALCEOLARIA Golden Gem, best yellow, 5s. per 100, 50s. per 1000; Kayii, yellow, 4s. per 100.

PELARGONIUMS, Vesuvius and Jean Sisley, best scarlets, 7s. per 100, 60s. per 1000; Madame Vaucher and Virgo Marie, fine white, 10s. per 100; Master Christine, best bedding pink, 10s. per 100; Striped Vesuvius (New Life), 6s. per dozen, 40s. per 100; White Vesuvius, 6s. per dozen, 45s. per 100; Dr. Denny, nearest to blue, the best Zonal of 1878, 9s. per dozen.

"Silver variegated, *May Queen* and *Flower of Spring*, 10s. per 100; *Prince Silverwings* and *Waltham Bride*, 12s. per 100.

"Gold-leaf, *Crystal Palace Gem*, 10s. per 100; *Happy Thought*, 15s. per 100.

"Tricolor, *Mrs. Pollock*, 15s. per 100; other good sorts, as Sir R. Napier, 18s. per 100.

"Double, *Smith's Wonderful*, good plants, 15s. per 100, or from stores, 12s. per 100; *Madame Thibaut*, finest double pink, 12s. per 100.

AGERATUM, Imperial Dwarf, 5s. per 100.

COLEUS and *IRENE LINDENI*, crimson, 6s. per 100, 50s. per 1000.

HELIOPTROPIS, light and dark, 6s. per 100, 50s. per 1000.

DAHLIAS, all the best sorts, 15s. per 100.

CENTAUREA CANDIDISSIMA, 18s. per 100.

Note: 25 of any sort can be had at 100 rate. Packing included. Terms cash. Cemetery Nursery, Gravesend.

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SPECIAL PRICES ON APPLICATION
GEORGE COOPER, SEED MERCHANT, Hertford, begs to offer the following, of the choicest stocks:—

BEEF, Red, Cooper's Excelsior
BROCCOLI, Hill's June
CUCUMBER, Improved Telegraph
PARSLEY, Curled, Cooper's
SWEDS, Cooper's Improved
TURNIP, Improved Aberdeen
ONION, White Spanish
"White Globe
"Bedfordshire Champion
CELERY, Cooper's Improved
White
BROMPTON STOCK, Giant Scarlet
CYCLAMEN PERSICUM, from large flowers.

New Catalogue for 1879.

WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire, will have great pleasure in sending their Descriptive LIST on application. Their stock of Florist Flowers, Bedding and Soft-wooded Plants generally, is surpassed by very few, if any, either in extent or quality, all the newest and best varieties being constantly added to the various classes, and the greatest care is taken to keep the varieties true to name. Another great advantage to purchasers is that none of the plants offered are taken from a warm propagating house and sent off immediately, but are all carefully hardened, and most of them potted off singly, and thereby fitted for transit by rail or post without the slightest injury. A great proportion of the undermentioned are autumn-struck plants, and can be had in pots if required, and all in variety of sorts and colours. All good for exhibition or home decoration.

Our selection. Per doz.—s. d. Our selection. Per doz.—s. d.
Abutilons, in variety .. 3 6 *Ivies*, Irish .. 3 0
Achimenes .. 2 6 *Kleinia repens*, per 100, 20s. .. 3 0
Ageratums, small plants, per 100, 5s. .. 1 0 *Lantanas* .. 2 6
Ageratums, in pots, per 100, 15s. .. 2 6 *Lilium auratum*, strong, each, 1s. and 1s. 6d. .. 1 0
Antirrhinums .. 3 6 *Lobelias*, small, per 100, 4s. .. 1 0
Azalea indica, 9s. .. 60 0 *Lobelias*, in pots .. 2 6
Begonias, tuberous, from 4s. to .. 18 0 *Mesembryanthemum variegatum*, per 100, 10s. .. 2 0
See Catalogue: our collection is very fine. *Mimulus*, in variety .. 3 0
Begonias, other kinds .. 3 0 *Myosotis*, 6s. per 100 .. 1 6
Bouvardias, 4s. and .. 6 0 *Paeonies*, splendid white, bluish crimson, and other shades, 6s. to .. 9 0
Caladiums, 12s. and .. 18 0 *Pansies*, show, 25s. per 100, 10s. .. 3 6
Calceolarias, Golden Gem, not in pots, per 100, 5s. .. 1 0 *Pansies*, bedding (about 20,000 to select from), 12s. per 100 .. 2 0
Carnation and *Picotee* plants .. 7 0 *Pentstemon*, 25s. per 100 .. 3 6
"pairs .. 12 0 *Phloxes*, 25s. per 100 .. 3 6
Chrysanthemums, per 100, 18s., in great variety .. 3 0 *Pelargoniums*, show, fancy, and French, 6s. to .. 9 0
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Cyclamens, 4s. and .. 6 0 *Polyanthus*, seedlings, 5s. per 100 .. 1 0
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Delphiniums, 6s. to .. 9 0 "Old Double Velvet, each, 1s. 6d. .. 2 0
Epiphyllums, 9s. to .. 12 0 "single, assorted colours .. 2 0
Echeveria secunda, glauca, 1s. 6d. to .. 2 6 *Primroses*, other sorts, great variety: see Catalogue
Ferns, stove and greenhouse, 6s. to .. 18 0 *Pyrethrums* .. 6 0
Fuchsias, per 100, 18s. .. 3 0 *Roses*, H.P., fine plants from ground, per 100, 45s. .. 6 0
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"bicolor .. 3 6 *Roses*, climbing or mosses .. 4 0
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Hardy climbing plants in great variety, 6s. to .. 9 0 *Tropaeolums* .. 3 0
Hollyhock, seedlings .. 4 0 *Violas*, immense stock of best sorts, 8s. to 12s. per 100 .. 1 6
Helianthemums .. 2 6 *Verbenas*, stock plants in pots .. 3 0
Herbaceous plants, 20s. per 100 .. 3 0 *Verbenas*, young, not in pots .. 6 0
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Hepaticas .. 4 0 *Vines*, all the leading kinds for planting and fruiting, 30s. to .. 60 0
Hydrangeas .. 4 0 *Apples*, Pears, Plums, and Cherries, pyramidal, 6s. to .. 18 0
Iresine Lindeni, 20s. per 100 .. 2 0 "dwarf-trained, 18s. to .. 30 0
Iris, German .. 3 0
Ivies, in variety .. 6 0

Sample trees on application.

WALTER CHARLES SLOCOCK, Goldsmith Nursery, Woking, Surrey.

SPECIAL SPRING OFFER.

ASH, transplanted, 2 to 3 feet, 22s. 6d. per 1000.

1-yr. seedlings, 2s. 6d. per 1000.

LARCH FIR, 1 to 1½ and 2 feet, 15s. and 25s. per 1000.

PINE, Austrian, 1½ to 2 feet, 25s. per 100.

ROSES, Standard, *Gloire de Dijon*, fine, 75s. per 100.

"Half-Standard H.P.'s, 1 foot, 9s. per dozen.

"Dwarf Standard, on 1 to 1½ foot stems, 6s. per dozen.

"Tea-scented and *Noisette*, in pots, ripened wood, in fine variety, 9s. per dozen, 70s. per 100.

Maréchal Niel, about 6 feet, in 7-inch pots, 18s. per dozen.

CÉDRUS DEODARA, 2 to 3 feet, 12s. to 18s. per dozen.

CUPRESSUS LAWSONIANA, 5 to 6 feet, 18s. per dozen.

JUNIPERUS CHINENSIS, 4 to 5 feet, 18s. per dozen.

"*VIRGINIANA*, 3 to 4 and 5 to 6 feet, 6s. and 12s. per dozen.

PINUS STROBUS, 5 to 6 feet, 20s. per 100.

RETINOSPORA PISIFERA, 5 to 6 feet, 9s. per dozen.

THUJA AUREA, 1½ to 2½ feet, 12s. to 18s. per dozen.

"*SEMPER AUREA*, 15 to 18 inches, 12s. to 18s. per dozen.

AUCUBA JAPONICA, 2 to 2½ feet, 6s. per doz., 40s. per 100.

HOLLIES, variegated, in variety, bushy plants, 3½ to 4½ feet, 24s. and 30s. per dozen.

MAGNOLIA GRANDIFLORA (Exmouth), 2½ to 3 and 4 feet, 24s. and 30s. per dozen.

RHODODENDRONS, of sorts, 2 to 3 and 4 feet, 18s. and 24s. per dozen.

CLEMATIS, of sorts, 9s. per dozen, 60s. per 100.

IVIES, Irish and variegated of sorts, strong, in pots, 6s. per dozen, 40s. per 100.

MAPLE, Ash-leaved, variegated, Standards, 4 to 5 and 6 feet stems, 6s. and 12s. per dozen.

CALYCANTHUS PRÆCOX (ALLSPICE), strong bushes, 6s. per dozen.

HORSE CHESTNUT, 9 to 10 to 12 feet, 9s. to 12s. per doz.

LIMES, 8 to 9 and 10 feet, 9s. and 12s. per dozen.

THORNS, Scarlet and Pink Flowering, 6s. per dozen.

Sample trees on application.

WALTER CHARLES SLOCOCK, Goldsmith Nursery, Woking, Surrey.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, CYCLAMEN, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

The Camellia Houses are now very interesting, the large specimens being in full flower, and are likely to continue in good condition for some time to come.

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

3000 ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS has received instructions from the NEW PLANT and BULB COMPANY to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 25, at half-past 12 o'clock precisely, a very extensive importation of ODONTOGLOSSUM ALEXANDRÆ, all in superb condition. Also O. PESCATOREI, O. TRIUMPHANS, O. PHALÆNOPSIS, ONCIDIUM CUCULLATUM, the magnificent CATTLEYA GIGAS, and C. MENDELII, &c. This Sale presents a grand opportunity to Gentleman and the Nursery Trade to enrich their Collections—all being in splendid condition.

On view morning of Sale, and Catalogues had.

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LONDON, W.C.

VALUABLE ORCHIDS (MOSTLY IN FLOWER).

MR. J. C. STEVENS has received instructions from Rev. J. B. NORMAN, of Edgware, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 27, at half-past 12 o'clock precisely, 400 Lots of first-class ORCHIDS from this well-known Collection, including MASDEVALLIAS in flower; ODONTOGLOSSUM ALEXANDRÆ, fine plants, in flower; O. TRIUMPHANS, O. PESCATOREI, O. SCEPTRUM, TRICHOPILIA SUAVIS, CÆLOGYNE CONFERTA, in flower; ONCIDIUMS, many varieties in flower; CYPRIPIEDUM DOMINIANUM, DENDROBIUMS in variety, in flower; CYMBIDIUM EBURNEUM, in flower; LYCASTE SKINNERI ALBA, in flower; LÆLIA ANCEPS DAWSONI, CATTLEYA EXONIENSIS, and other varieties; fine plants of ODONTOGLOSSUM VEXILLARIUM, and many other varieties.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN,
LONDON, W.C.

VANDA PARISHI.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at half-past 12 o'clock precisely, by order of Messrs. HUGH LOW & Co., imported Orchids from Bumah, consisting of fine plants in the best possible condition of the rare and lovely VANDA PARISHI, DENDROBIUM CRYSTALLINUM, D. DALHOUSIANUM, D. FYTCHIANUM, D. FORMOSUM GIGANTEUM, D. DEVONIANUM, D. TORTILE, finest variety; D. ALBA SANGUINEA, &c.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN,
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ROOTED CUTTINGS.

(Choice Varieties with Names.)

FREE
AND SAFE
BY POST.



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We have much pleasure in offering the following in well-rooted healthy Cuttings, which, by our improved system of packing, can now be sent by post with perfect safety to any part of the British Isles. The selection of varieties must in all instances be left to us:—


| | Per Doz. | s. d. |
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| BEGONIA FUCHSIOIDES, a pretty pot plant for the greenhouse | each, 4d. | 3 0 |
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| .. good standard varieties | per 100, 12s. 6d. | 1 6 |
| .. Pompon, a first-class selection | 1 6 | |
| COLEUS, from our splendid collection of nearly 100 newest and choicest varieties, extra choice sorts | 3 0 | |
| .. handsome varieties | per 100, 12s. 6d. | 2 0 |
| DAHLIAS. All the newest and best in cultivation. Show varieties, new and choice | 3 6 | |
| .. fancy varieties, new and choice | 3 6 | |
| .. fancy varieties, good popular sorts, per 100, 12s. 6d. | 2 0 | |
| FUCHSIAS, a splendid collection of all the newest and finest single and double-flowered varieties | 2 6 | |
| .. finest single, good popular varieties, per 100, 10s. 6d. | 1 6 | |
| FUCHSIA SPLENDENS, a rare and beautiful species | each, 4d. | 3 0 |
| GERANIUMS (Pelargoniums), show and fancy, in fine variety | 4 0 | |
| .. ZONAL and NOSEGAY, upwards of 250 of the newest and most splendid varieties in commerce, extra choice sorts | 4 0 | |
| .. choice sorts, fine exhibition varieties | 2 6 | |
| .. choice sorts, popular varieties | per 100, 10s. 6d. | 1 6 |
| .. choice sorts, twelve new varieties of 1878, including Cannell's New Life, White Vesuvius, Salmon Vesuvius, &c. | 9 0 | |
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| IRENES, Herbistii and Lindeni | per 100, 7s. 6d. | 1 0 |
| LOBELIA ERINUS, Emperor William, per 100, 7s. 6d. | 1 0 | |
| MIMULUS, Daniels' superb large-flowered, very fine, per 100, 10s. 6d. | 1 6 | |
| MUSK, Harrisons' Giant | per 100, 7s. 6d. | 1 0 |
| PHLOX, Perennial or Herbaceous, all the best varieties | per 100, 12s. 6d. | 2 0 |
| PENTSTEMONS, in beautiful variety | 1 6 | |
| TROPÆOLUMS, double-flowered and beautiful varieties of Lobbianum, fine for pots, hanging baskets, vases, &c. | 2 0 | |
| VERBENAS, in choice variety | per 100, 10s. 6d. | 1 6 |
| VERBENA, lemon-scented | each, 4d. | 3 0 |

Not less than 50 will be supplied at the rate per 100, or 6 at the rate per dozen.

From R. J. HAMILTON, Esq., Tonbridge, November 11, 1878.
"Enclosed please find P.O.O. in payment of account for Rooted Cuttings, all of which have turned out splendidly, especially the Chrysanthemums, which are very fine."

From Mr. W. D. PENNY, Nairn, N.B., November 5, 1878.
"I am very glad to say that the Rooted Cuttings I had of you in the spring turned out very well indeed, not a single failure in the lot."

Cheques or Post-office Orders to
DANIELS BROTHERS,
TOWN CLOSE NURSERIES, NORWICH.

 **OSBORN & SONS**
HAVE now for Sale, in excellent condition for transplanting, a fine collection of

HOLLIES,

Common green, 1 to 10 feet; green and variegated varieties, 2 to 6 feet, at exceptionally low prices, as the ground must be cleared at once for other purposes.

THE FULHAM NURSERIES,
LONDON, S.W.

CRANSTON'S NURSERIES.

ESTABLISHED 1785.

EIGHTY ACRES.

ROSES, FRUIT TREES, CONIFERS,
FOREST TREES, &c.

Descriptive and Priced Catalogue for 1878 now ready.

Address—
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KING'S ACRE, near HEREFORD.

ONE GUINEA COLLECTION
of VEGETABLE SEEDS, containing 6 quarts of excellent Peas for succession, and 50 packets of other leading sorts of SEEDS, all of best quality. Carriage Free to any Railway Station in England.

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CHOICE FLOWER SEEDS.

STOCK, East Lothian, very select strains.
 „ **Crimson**, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18.
 „ **Purple, Scarlet, White, and White Wallflower-leaved**, per packet, 6d., 1s., and 2s. 6d.
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 „ 24 varieties, separate, including latest novelties, 2s. 6d.
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 „ mixture of 24 splendid varieties: per packet 3d., 6d., and 1s.
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Above free by post.
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BEDDING GERANIUMS, LOBELIAS, PANSIES, and VIOLAS.

GERANIUM Wonderful, 10s. per 100, 2s. 6d. per dozen; Leamington Lassie, 5s. per dozen—both autumn-struck. A few stock plants of Wonderful, with cuttings on, 2s. 6d. per dozen, 15s. per 100.
LOBELIAS, from cuttings.—St. Martin's Blue, very fine plants with a quantity of cuttings on, 7s. 6d. per 100; *Pumila grandiflora alba*, a new white one, 2s. per dozen, post-free.
PANSIES, Cliveden Blue, Cliveden Purple, and Dean's White Bedder, 2s. per dozen, 6s. per 50, 10s. 6d. per 100; *Viola Bluebell* same price.
 Also extra choice Bedding Violas, 2s. 6d. to 4s. per dozen.
J. J. MARRIOTT, Highfield Nurseries, Matlock.

Rhododendron Ponticum.

J. J. MARRIOTT has a fine stock of the above, and begs to offer 4-yr. seedlings, 2-yr. bedded, at 24s. per 1000; 4 to 6 inches, transplanted, bushy, 7s. per 100, 60s. per 1000; 6 to 9 inches, 9s. per 100, 80s. per 1000; 9 to 12 inches, 10s. 6d. per 100. Also 2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000. The Trade supplied. Highfield Nurseries, Matlock, Derbyshire.

SEEDS FOR SALE.—Brussels Sprouts, Early Cabbage, Myatt's Extra Curled Parsley, Yellow Intermediate Mangel, all from selected stock. Also a few tons of Snowflake Potatoes. For lowest cash price apply to **F. AND C. MYATT**, Offenham, Evesham.

SURPLUS STOCK.

COLCHIC LAUREL, 3 to 4 feet, strong and bushy.
SYCAMORE, 1½ to 3 feet.
PINUS AUSTRIACA, 1 to 1½ foot.
LARCH, 15 to 24 inches.
SPRUCE FIR, 12 to 15 inches.
 Samples and Prices on application.
A. W. BARNES, Nurseryman and Seed Merchant, High Street, Skipton, Yorkshire.

Special Offer of STRONG FRUITING VINES to the Trade.

BLACK HAMBURGH, **DUKE OF BUCCLEUCH**.
BLACK ALCANTE, **FOSTER'S SEEDLING**.
MUSCAT OF ALEXANDRIA, &c.
 4s. 6d. each, or 45s. per dozen.
FRUIT TREES, ROSES, CONIFERS, in great variety.
 CATALOGUES on application.
W. G. CALDWELL AND SONS, The Nurseries, Knutsford, Cheshire.

CATTLEYA MENDELII, **CATTLEYA GIGAS**, **ODONTOGLOSSUM ALEXANDRE**, **O. PESCATOREI**, **O. TRIUMPHANS**, **O. PHALÆNOPSIS**, &c.; **ONCIDIUMS** of sorts, *macranthum*, *ampliatum majus*, *cucullatum*, &c., and a quantity of other beautiful ORCHIDS chiefly for cool culture. Before ordering, send for the "New Plant and Bulb Company's" LIST. These plants come from our own collectors, and can be supplied either just arrived very cheaply, or semi-established from last year's importations.
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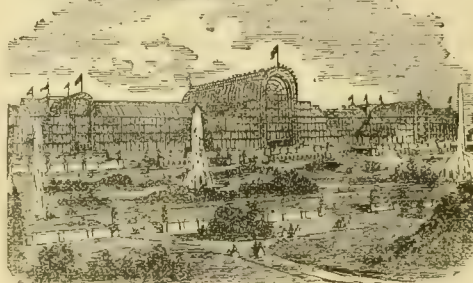
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PARIS, 1878.



PRIZE MEDAL,



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THE BEST TREATISE on the CULTIVATED GRASSES:
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BEGS TO OFFER THE FOLLOWING TO AMATEURS AND NURSERYMEN.

AZALEA INDICA,

nice healthy plants with buds, selected, of the best varieties, from £5 to £8 per 100.

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with buds, in beautiful and distinct varieties, fine and robust plants, £6 8s. per 100.

A good number of *C. alba plena* (double white), can be given in the hundred.

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a first-class bulbous-rooted plant, bearing 20 to 25 pendulous snow-white flowers on a spike 4 feet high, very suitable for the get-up of bouquets, &c., £3 per 100.

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one of the finest collections in Europe, £1 12s. per 100 varieties, consisting of very diversified and beautiful colours.

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A collection composed of the best varieties only, strong and bushy plants, with buds, 2s. 6d. each.

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Very strong and healthy stuff, consisting of the best and richest varieties, very distinct and beautiful.

Standards, from 50 to 100 vars., £3 5s. per 100; Half-standard, from 50 to 100 varieties, £2 10s. per 100.



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THE LARGEST AND BEST STOCK IN EUROPE.
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CARTERS' POPULAR
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Rhododendrons and Hollies

RHODODENDRON HYBRIDS, 6 to 9 inches, 80s. per 1000; ditto, ditto, 12 to 15 inches, 180s. per 1000; ditto Stocks, for grafting, 100s. per 1000. **HOLLY**, Common, 1½ to 2 feet, 28s. per 100. **LAUREL**, Common, 1½ to 2 feet, 6s. per 100; ditto, Portugal, 2 to 2½ feet, 15s. per 100. **PRIVET**, Oval-leaved, 2 to 3 feet, 60s. per 1000. **WHIN or GORSE**, Double, 9 to 18 inches, 50s. per 1000.

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NEW CHAMPIONS,
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The Two Best New Bedding Plants of the Year.



AGERATUM "CANNELL'S DWARF," never exceeding 6 inches in height; the brightest blue, and the best of all; a gem. 2s. 6d. each, 20s. per dozen, post-free.

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AGAPANTHUS UMBELLATUS MINOR.—A very nice dwarf free-blooming variety. 10d. each, 8s. per dozen, £2 10s. per 100.

AGAPANTHUS MOOREANUS.—Fine recently introduced species. 2s. each, £1 per dozen, £7 10s. per 100.

AGAVE FILIFERA.—Extra fine dwarf growing species; the small plants for mosaic beds, large plants for ornament, according to size. 3s. to £5 per pair, 15s. to £6 per dozen.

AMARYLLIS (HIPPEASTRUM).—One of the best Dutch collections, in endless variety. Only good flowering bulbs are supplied. Extra fine exhibition varieties, £12 to £30 per dozen. Fine flowers for decoration or bouquets, selected varieties, £1 10s. to £9 per dozen; mixed cheap varieties, £1 to £1 5s. per dozen, £7 10s. to £9 per 100.

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CONVALLARIA MAJALIS.—Extra fine 3-yr. old clumps for pots. 12s. per dozen, £4 4s. per 100.

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GENTIANA ACAULIS.—Nice blue flowering alpine herbaceous plant, 2s. per dozen, 15s. per 100.

GLADIOLUS BRENCHLEYENSIS.—Scarlet flowering. The best bedding variety. Extra, if used alternately with *Hyacinthus candicans*. 1s. per dozen, 5s. per 100, £2 per 1000.

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GLADIOLUS GANDAVENSIS.—A complete collection of all the best Continental and English varieties, in 50 varieties, £3, £4, £5, £6 per 100; in 25 varieties, £1, £1 10s., £2, and £3 per 100. Seedlings and mixtures, according to quality, per 100, 7s. 6d., 10s. 6d., 12s. 6d., 15s., £1 1s.

HABRANTHUS CONCOLOR.—This elegant Amaryllid has been reintroduced by our firm from Mexico. It was probably lost in Europe. It is figured in *Bot. Reg.* 1845, tab. 54, and was lately classified by Mr. J. G. Baker as *Hippeastrum (Zephyranthes) concolor*. It is cultivated like *Sprekelia formosissima*. 7s. 6d. each, £3 per dozen.

HELLEBORUS NIGER.—The Christmas Rose. 2s. per dozen, 15s. per 100, £6 per 1000.

HELLEBORUS NOVELTIES.—A great number of Belgian (Rodigas' collection) and German (Heinemann's collection) varieties, from 1s. 3d. to 7s. 6d. each.

HEPATICAS.—A complete collection of all known varieties of *Anemone hepatica*. 2s. to £1 10 per dozen, 12s. 6d. and upwards per 100; 100, in ten varieties, £3 15s.

HOTEIA (SPIRÆA, ASTILBE) JAPONICA.—Extra fine plants for pots, 2s. 6d. per dozen, £1 per 100, £7 10s. per 1000.

HYACINTHUS CANDICANS.—One of the best summer blooming bulbous plants, with large spikes bearing a great number of white pendulous flowers, which are extra for bouquet making; a fine bedding plant, too, if planted in company with *Gladiolus brenchleyensis*. Doubtless it will become by-and-by a general favourite. Our stock is unsurpassed. We sell bulbs in three sizes. First size, extra strong, 10s. per dozen, £3 15s. per 100, £30 per 1000; second size, good flowering, 8s. per dozen, £2 10s. per 100, £20 per 1000; third size, medium, perhaps flowering, 5s. per dozen, £2 per 100, £15 per 1000.

IMANTOPHYLLUM CYRTANTHIFLORUM.—This fine hybrid between *I. Aitonii* and *miniatum* is a first-rate decorative plant. The flowers are very good for bouquets. It flowers the whole winter. We have extra strong plants ready for sale at 2s. to 10s. 6d. each, £1 to £5 per dozen, £7 10s. to £30 per 100.

IMANTOPHYLLUM NOVELTIES.—We have a nice stock of all the older and new sorts of this fine plant, which are sold in good plants from 2s. 6d. to £10 10s. each.

IRIS GERMANICA.—Our collection of herbaceous Iris is doubtless the most complete in Europe, as we have introduced into it these last twenty-five years every variety offered. We sell 100 in 100 best varieties at £1 5s., 100 in 50 best varieties at £1, 100 in 25 best varieties at 15s.

IRIS KÄMPFERI.—Our collection is unrivalled, and contains every novelty. We offer collections of twelve varieties at 7s. 6d., 10s. 6d., 15s., £1, and upwards, to £7 10s.

PÆONIA SINENSIS (ALBIFLORA).—Our collection will doubtless be the most complete in Europe, as every variety offered is introduced into it. We offer the following choice collections:—Novelties, £2, £2 10s., £3, per 25 sorts; older sorts, £2, £2 10s., £3, to £4 per 100 in 100 sorts; do., £1 15s. per 100 in 50 sorts; do., £1 10s. per 100 in 25 sorts.

PHORMIUM TENAX.—The New Zealand Flax is one of the most ornamental plants. According to size we offer this at 3s. 6d. to 12s. 6d. per pair; strong plants, £1 1s. to £10 10s. per pair; good plants, £1 to £2 10s. per dozen; £7 10s. to £15 per 100.

PHORMIUM COOKII.—A more dwarf green-leaved species, very ornamental. Good plants, £1 to £2 10s. per dozen; £7 10s. to £15 per 100.

POLYANTHES TUBEROSA, flore-pleno.—Best double Italian Tuberoses, imported roots, 2s. per dozen, 15s. per 100, £6 per 1000.

RICHARDIA (CALLA) ÆTHIOPICA.—The white Arum, very ornamental, 4s. per dozen, £1 10s. per 100.

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SPREKELIA (AMARYLLIS) GLAUCA.—This fine form of the much esteemed Jacobæa Lily has till now been scarce in cultivation. We have introduced a fine lot of bulbs from Mexico, and can offer this beautiful plant at an unusually moderate figure. Its flowers are larger and brighter in colour than those of *S. formosissima*. 5s. per dozen, £2 per 100.

TIGRIDIA PAVONIA (RUBRA).—A very large flowering stock of the much esteemed Tiger-flower. 1s. 6d. per dozen, 10s. per 100, £3 15s. per 1000.

TIGRIDIA CONCHIFLORA.—The fine yellow flowering variety of the popular Tiger-flower. 2s. per dozen, 15s. per 100, £6 per 1000.

TRITOMA UVARIA.—Of these fine herbaceous plants we cultivate different varieties, viz., *T. uvaria*, *T. uvaria grandiflora*, *T. uvaria glaucescens*, and *T. glaucescens grandiflora*, of which we can specially recommend the last. These sorts are sold at 2s. 6d. per dozen, £1 per 100.

TROPÆOLUM TUBEROSUM.—Very nice for planting out in summer in the garden. 2s. per dozen, 15s. per 100.

YUCCA FLACCIDA.—An extra fine plant for the open ground; it flowers usually the second year after planting. 1s. each, 8s. per dozen, £2 10s. per 100.

STRAWBERRIES.—Our collection is the most complete in Europe. About 600 varieties have been tried, and a selection of the best has been kept for cultivation. All Continental and other novelties can be obtained. Very strong plants are supplied. A Dutch Catalogue, with 80 woodcuts, can be had. Prices on application.

POTATOS.—A trial collection of about 250 sorts is cultivated. It obtained a large number of prizes at domestic and foreign exhibitions. Collections of one tuber, or a larger quantity of every sort, are sold at moderate prices.

At the Price per 1000 not less than 500; at the price per 100 not less than 50; and at the price per dozen not less than six are supplied.

DISCOUNT TO THE TRADE.

AMIES' POTATO MANURE.

The finest Potatos were grown during the past year with Amies' Potato Manure. It fertilises and acts directly on the soil. It gives health and vigour to the Potato plant, and provides the particular foods required for its proper nourishment and development during the various stages of growth, producing large and sound tubers of uniform size. In numerous well authenticated instances it has been found to be a great preventive of the Potato disease.

Write for our New Descriptive Pamphlet, just out, containing reports from leading authorities and growers.

The Great International Potato Exhibition, September, 1878: The Premier Prize.

Royal Horticultural Society's Great Summer Show, May, 1878: First Prize.

Birmingham Root Show, December, 1878: The Premier Prize, and four other First-class Prizes, and the Silver Medal for the best dish of Potatos in the Show.

"The above is the list of Prizes I took last year for Potatos, and in growing them I, as usual, used your Manure."—January, 1879. "I may add I have used your Manure for four years with much success, having gained prizes for Potatos in nearly thirty competitions, never having competed without getting a prize."—PETER MCKINLAY, November, 1878.

"I have used your Manure for two years with the greatest success, not having lost a bushel of Potatos this season on 4 acres; the same last year, whilst my neighbours all around me have lost nearly all their crop."—RICHARD HEADLEY, Stapleford (grower of the celebrated "Nonpareil" Potato).

"I planted Potatos the second week in April—Snowflake, Vermont Beauty, Sutton's Magnum Bonum—rows 5 feet apart, and the growth astonished all who saw them. The rows were lifted: a more even or heavier crop I never saw; they covered the ground the whole length of the row, were perfectly sound, clean, and as beautiful tubers as any one could wish to see. They were nearly free from disease, and the tubers were of large size and uniform."—B. MAKIN, Pitsmoor Farm, near Sheffield.

"Having used your Manure this season, side by side with other Manures, on Potatos (over 150 varieties) in various ways, I find, after careful observation, that your (Amies') is by far the best, for where it was used I have had better results, both as to the quality and quantity of the crops. I find that it does not exhaust the soil so much, which I consider to be of great advantage. There is no disease where it has been used."—WALTER FORD, Seed Grower, Pamber, Basingstoke.

"I believe your Manure to be a good one. It has given me great satisfaction. I sowed some with early Potatos. After digging up the Potatos I sowed the field with white Turnips. I dressed the field as usual, except where the Potatos were grown, and I find the Turnips growing much faster where I applied your Manure."—THOS. MARCHANT, Farmer and Land Surveyor, Cranfield, Newport Pagnell.

"I used your Manure upon Potatos, and the crop is good in every respect."—JAMES O'CONNOR (Potato Grower), Cork.

Price £12 per ton, 15s. per cwt.

Amies' Chemical Manure may also be had of all principal Seedsmen and Nurserymen.

AMIES' CHEMICAL MANURE COMPANY (LIMITED), 79, MARK LANE, LONDON, E.C.

THE BEST POTATO.

First Prize Medal for Potatos,



Paris, October 16, 1878.

SUTTON'S MAGNUM BONUM.

Originally introduced by SUTTON & SONS in 1876, previous to which time there was no Potato known by that name.

WONDERFULLY PRODUCTIVE, A GOOD COOKING VARIETY, AND RESISTS DISEASE.

EXTRAORDINARY CROP.

210 SACKS PER ACRE!

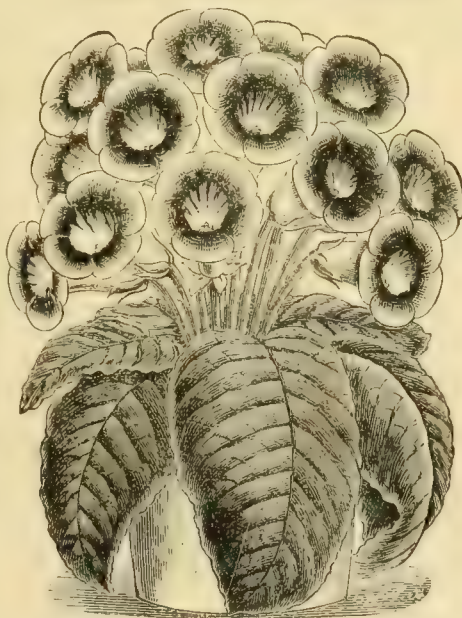
"CLARENDON VILLA. "The Magnum Bonum Potatos you supplied me with this year produced a most extraordinary crop, amounting to an average rate of 210 sacks per acre, of 240 lb. per sack, and there was not a single diseased one amongst them."

"Yours faithfully, "ROBT. PHILLOTT."

Price 14s. per 56 lb. Much cheaper per 168 lb. and to 1. Carriage free.

Descriptive List of other kinds on application.

THE FINEST STRAIN OF GLOXINIA.



Sutton's Gloxinia crassifolia gigantea.

| | Per packet—s. | d. | s. | d. |
|---------------------|---------------|-----|-------|--------------|
| Erect Flowered | 5 | 0 | and 2 | 6 post-free. |
| Horizontal Flowered | 5 | 0 | " | 2 6 " |
| Drooping Flowered | 5 | 0 | " | 2 6 " |
| Mixed | 5s. | 2 6 | " | 1 0 " |

From Mr. A. INGRAM, Gr. to the Duke of Northumberland—"Your Gloxinia is the finest strain I have ever seen; strong robust habit, the leaves are so reflexed as to nearly cover the pots. The flowers are very large and beautiful in colour. Some of the drooping-flowered sorts have blooms over three inches in diameter. They make quite a show of themselves in a house."

SUTTON & SONS. THE QUEEN'S SEEDSMEN, AND

By Special Warrant to H.R.H. The Prince of Wales, READING, BERKS.



SATURDAY, MARCH 22, 1879.

ON GRAFTING.

A VERY successful cultivator of hardy fruit trees, the late Mr. Webb, of Calcot, near Reading, practised and recommended simple grafting (i.e., without beheading or cutting off many branches) in the case of old and depauperated Apple trees in preference to any other method of rejuvenating them. In his garden he had a very large old tree—a centenarian—of the Pomme Roy, or King Apple. It was trained arbour-like over one of the paths, but had become unfruitful and showed symptoms of decay. As a remedy two grafts of a strong growing variety were put on, and the growth-action of these infused such an amount of new life and vigour into the old tree that for some years afterwards a crop of 12 bushels was gathered from it, and another bushel from the two grafts. The grafts were kept within bounds by judicious pruning. From this experiment Mr. Webb inferred that "an orchard of old trees might be kept for many generations in full flourishing and fruiting condition merely by fresh grafting any trees that show symptoms of decay." To a certain extent this could doubtless be done, but we must not forget that the power of grafting as here shown is thrown away unless we also supply fresh soil or manurial stimulants to the old soil, in order to enable the roots to work to the best advantage. It is highly necessary to bear in mind that no beheading was advised by Mr. Webb, the object being really to renovate or re-strengthen the old trees themselves rather than to replace them by the means of grafts inserted on the arms of the beheaded trunk, as is more generally recommended. In a word, the grafts inserted induced fresh and more vigorous root-action, and drew the sap to branches which were becoming too weak to attract it themselves.

To this point, however, we will return after glancing at the results attending some experiments made in grafting Roses by M. Charbon, as related in the *Revue Horticole*. M. Charbon relates, "that having grafted some delicate Roses of weakly growth on very robust wild stocks for the intended purpose of supplying them with the vigour which was wanting in their natural constitution, he was greatly disappointed in the result, nearly all the grafts so treated having perished, as it appeared to him, by a kind of plethora or surfeit of sap." He subsequently grafted other varieties on wild stocks of similar robustness to their own, and they succeeded well, the grafts throwing out long and healthy shoots. To give them more strength, however, he rubbed off the young growth of the wild stock, but to his surprise the previous fine growth of the grafts dwindled instead of becoming more robust, as he had expected. In another experiment, therefore, instead of destroying all the shoots of the wild stock, he only suppressed those of the grafted branch, allowing wild shoots to remain and flourish on the stock above the grafted branch, and in this case the most perfect vigour was obtained. M. Charbon points out that doubtless the shoots of the wild stock above the graft serve as sap-tractors, drawing up a good supply of sap past the grafted branch, which naturally partook of the food thus brought, as it were, to its very door.

Our fruit cultivators will recognise in Mr.

Webb's and in M. Charbon's experiments a result analogous to that gained by leaving a wood or leaf-bud at the apex of the fruit-bearing shoot of a Peach or Nectarine tree, or the leaves left on the fruit-bearing shoots of the Vine beyond the bunch. The late Mr. Pearson, of Chilwell, after having experimented with Grape Vines engrafted on various stocks, came to the conclusion that the stock, if completely headed-off, and so not allowed to make any leaf-growth of its own, lost all influence on the scion in about four years. This seems not only possible, but even probable, when we remember that all the additional substance, *i.e.*, woody and cellular tissue, by which the stock is enlarged after being wholly denuded of its own foliage, has been in the main supplied by the leaves of the scion or graft, which the stock supports in part only by its roots. Hence, there is a vast difference between a rod of one variety inarched or ingrafted on the fruit-producing rod of another kind, and another rod of the same variety inarched or grafted on a headed-off stock, which is not allowed to produce growth or fruit of its own. In looking over many records of Vine and other grafting, we find the evidence for or against certain stocks very contradictory. In some cases soil or general cultural management may be the cause of this, but in many cases we are fully convinced the diverse results obtained are owing to the different relations of scion and stock as above pointed out. Not only is this so of Grapes, but of Pears, Apples, Plums, and all other fruits or plants propagated by grafting. Hence it has now become highly essential to know, not only whether varieties of fruit are grafted and the particular name of the stock used when they are described as being successful or otherwise in different soils, positions, and localities; but it must also be explicitly stated whether the stock (or intermediate stock in the case of double grafted trees) is itself allowed to grow and bear fruit, or whether it is completely headed-off and merely used as a rooted support for the graft; for even when the scions vegetate equally well under both sets of conditions the practical result in the way of quantity and quality of fruit are often very different. The experiments of Mr. Webb and M. Charbon are highly suggestive ones, and the lesson they teach should not be allowed to pass without consideration. They show very plainly that healthy root-action is entirely dependent on healthy leaf-action, the active functions of the latter being the great motive-power in both series of experiments. The weak habited Roses failed to draw even needful nutrition from a strong growing stock, indeed they were starved rather than overfed; whereas on the other hand the strong growing grafts inserted by Mr. Webb were sufficient to reinvigorate an entire Apple tree of gnarled and decrepid growth, even although previous to the grafting it had shown symptoms of decay.

From these results we may see the wherefore of our success in the grafting of our strong-growing Pears on the headed-off Quince stocks, and of vigorous Apples upon the similarly restricted Pommier du Paradis. Both are comparatively dwarf and weak growers, but the more vigorous leaf action of the stronger constituted Apples and Pears they support induces them to vigorous root-action, the "wig of fibrous roots" for which both stocks are noted, and its fringe of food-grasping rootlets are set to work with a will by a leaf force superior to their own, and which must be fed; they are as slaves beneath a skilled and powerful taskmaster, and each must perforce do its best. This, however, has long been known, and the best gardeners of our own and other lands have almost ceased to wonder at the miracles performed by grafting on the so-called "restricting" stocks. Our practice, then, of placing vigorous scions upon weaker consti-

tutioned stocks induces the latter to do their best, and very often succeeds in inducing precocity and fruitfulness, is right in principle; but the reverse of this, namely, to graft weakly constituted scions upon vigorous habited headed-off stocks, with the idea that the scions will be necessarily strengthened thereby, is wrong. No matter how strong constitutionally the stock may be, its rooting or feeding power is entirely regulated by the leaf-growth it supports, and hence, in order to strengthen weakly constituted grafts, we must encourage the growth of the stock above the graft or grafts, if not permanently at least until the ingrafted portions have developed leaf-power enough to exercise command over the roots of the stock on their own account. How do our great Rose growers treat their acres of budded stocks? Do they not leave a growth above the buds? Those who do not, might do so with advantage in the case of weak-growing varieties on the Brier or wild stock. In practice it may ultimately be found best to effect a compromise by selecting as stocks varieties which themselves bear fruits (or flowers in the case of Roses, &c.) of merit, and then by judicious pruning the right and profitable balance between scion and stock, or the copartnership of two varieties on one stock, may be kept. Thus by grafting, aided by pruning, we may adjust the balance between mere vegetative growth and sexual vigour, and so make a tree more fruitful—more serviceable to us—than when on its own roots. We must not rest here, however, we should never forget that it is surely not impossible to raise seedling varieties suited to different soils and requirements, and in which the balance between sufficiently vigorous vegetative growth and fruitfulness is naturally so equal that grafting will only be necessary for propagating purposes and pruning will be almost superseded altogether. Thus may the old gardener's saw become true, "A good crop of fruit is the best kind of pruning." X.

New Garden Plants.

ODONTOGLOSSUM ORIENTALE, n. sp.*

This appears to be a good Orchid in the way of *Odontoglossum* spathaceum and pardinum. It has to take rank between *O. revolutum*, Lindl. (true, not in Europe, not to be confounded with Lindenii, so near it in the callus of the lip, so distant in habit and shape of flower), and *O. auropurpureum* of Rehb. f. It is nearer the last, very near indeed, but its flowers are much more stately, larger, its pedicelled ovaries are longer than the bracts, which are longer also. Then there is a good mark of distinction in the shape of the lip and in the callosities of the same. *Odontoglossum revolutum*, Lindl. (Hartweg's plant), has a lip angulate on both sides at the base, whereas in this it is round-lobed each side. Imagine an inflorescence 2 or 3 feet long with many straggling branches (twelve or thirteen in my three specimens, but the richest has twelve, and is decidedly only the superior half, as one may conclude from the length of the branches), and the flowers are larger than those of *Odontoglossum pardinum*, evidently yellow, spotted on the petals, upper sepal and lip with some dark colour (why did you not specify the colour, Mr. Klaboch?—that forgetfulness may cost you many sovereigns!). The slender column has a sharp angle in the middle of each side. I think it must be recommended. Don't ask about altitude—our friend did not think of that. A memorandum of the late Schlim gives 9000 to 10,000 feet for *O. auropurpureum*, so our plant may have a similar station. About bulbs and leaves I am sorry to say I have nothing to say. Mr. Ed. Klaboch found it on the Eastern Andes, I believe, of Ecuador. H. G. Rehb. f.

DENDROBIUM CHRYSANTHUM MICROPHTHALMUM, n. var.

We knew a var. Paxtoni of this well-known species a long time ago—the *Dendrobium Paxtoni*, Lindl., and reduced by the illustrious author himself. It is distinguished by its even sepals not having tubercles outside, by its serrate sometimes acute petals, and the

* *Odontoglossum orientale*, n. sp.—Panicula amplissima; vaginis spathaceis; ramulis plurifloris; bracteis spathaceis tertiam ovarii pedicellatim aequantibus; sepalis unguiculatis oblongis acutatis undulatis; tepalibus vix latioribus subaequalibus; labello trifido, lacinias lateralibus semiorundinis crenulatis, lacinia antica triangula acuminata undulata, lamellis geminis semiblongis, majusculis inter lacinias laterales, carina flexuosa antica libera acuta interjecta, papula acuta et lamellula subquadrata retusa utrinque ante lamellam; columna medio angulata—flores haud dubie flavis maculis obscuris in sepalis impari; tepalis; labello—And. orient. E. Klaboch. H. G. Rehb. f.

longer fimbriae to the lip. Now our new variety has the same kind of sepals, even outside, but while the petals are very little serrate and quite blunt, the fimbriae of the lip are exceedingly short, almost obsolete, and the four or two pallid brown blotches, in lieu of the two big dark central ones, stand near the base. The stem at hand has as many as four flowers in one cluster. I obtained this plant from Mr. W. Bull, in the present month of March. H. G. Rehb. f.

CATTLEYA TRIANÆ HARDYANA, n. var.

A delightful and apparently new variety of the old *Cattleya Trianæ*. Its flowers are large and generally white. The petals are white, washed with the lightest whitish purple, especially on the middle part. The lip in the anterior part is of the warmest purple, a light border of purple extends round the wavy margin, and there is a light ochre-coloured central line with two anterior shanks. Column pure white. This variety has attracted numerous visitors, some of whom wished to see it in their own glasshouses, and not in those of Mr. Yeo Hardy, Pickering Lodge, Timperly, Cheshire, the happy possessor, whose name it deservedly bears. As for me I have to thank my oldest English Orchidic correspondent, Mr. Stuart Low, for the pleasure of seeing the flower. H. G. Rehb. f.

INTERESTING STOVE PLANTS.

THE mixed stoves of amateurs are too often, like their greenhouses, filled up with plants of ephemeral beauty, like *Coleuses*, *Caladiums*, and *Begonias*, to the exclusion of those of permanent and growing interest.

In a mixed house, be it hot or cool, there will always be cramming and loss of plants, and much time wasted in shifting pots back and forward, for plants are mightily human in their selfish love of the best place, and resent being removed from the hottest or coolest, driest or dampest spot which suits them, but which is required to revive in turn some other favourite plant. *Coleuses* are notoriously troublesome to keep over the winter in small establishments, and *Caladiums* take up much room in summer, and cannot be at all crushed. As cramming must be the order of things, let there be subjects characteristic when of small size, and that always repay watching and observing. Of *Coleuses* let there be a selection of half a dozen of the very best, not merely the "new ones of the season;" and let the same strict rule be adhered to with both the old Rex section of *Begonias* and of the tuberous sorts, as also *Caladiums*, *Tydeas*, *Gloxinias*, *Achimenes*, &c.

Following the order noted for the greenhouse—1st, plants of sweet-scented foliage; 2d, those of peculiar growth; 3d, ornamental fruit bearers; and 4th, climbers—I can only name under the first head *Pogostemon Patchouly* and *Cinnamomum zeylanicum*. The first is very easily struck and grown. I have never seen the spike of small whitish flowers. Those who dislike the tenacious smell need not touch it, and then it would not be known to be in the house. A small plant of the Cinnamon, with its glossy ribbed leaves, of a bright rose colour when young, is ornamental, as well as pleasant to nibble at while working in the stove, and it is refreshing to smell if one has brushed past the patchouly with its overpowering perfume; and coming out in a winter's day from the close stove into snow or bitter winds a bit of the astringent leaf is no bad preservative against sore throat, if one is subject to such. I never throw an old leaf away; it retains the smell and flavour for any time. *Xylophylla latifolia* and *Reidia glaucescens* both flower peculiarly; the first on the edge of the so-called leaf, really a flattened out branch; the other hanging in a thin red fringe below the edge of its leaves. Where *X. latifolia* and *X. fraxinifolia* are not both grown, the former is surest to flower, and a most attractive plant it is, although one botanically without leaves. *Reidia glaucescens* gets leggy when old; small specimens are therefore best, and it is quite distinct and graceful withal. *Phyllanthus nivea*, allied to both *Xylophylla* and *Reidia*, should also be grown. The mottled white leaves—occasionally they are pure white—are very pretty. It flowers like *Reidia*, but sparsely.

Dorstenia is a very singular genus of herbaceous plants. The largest collection I ever saw was Mr. Wilson Saunders' at Reigate. *D. maculosa*, with long heart-shaped leaves, blotched with white, is useful for cutting; the peculiar fruit or receptacle is a flat shield

at the end of a 6-inch stalk; it also lasts long in water, and seeds and increases quickly. Allied to Figs, flowers so understood are of course not to be looked for. *D. lasiantha* is still more singular. Instead of a flat shield the receptacle is forked, a pair of dark brown outcurved horns 2 inches long. They catch the eye at once, as also the flat buttons at the tip of each branch of *D. Contrayerva*. This last is a firm little bush of 1½ foot high. There are between 2 and 3 dozen species, but these three are a very fair example of what perhaps, save for microscopic study, is a more curious than beautiful tribe of plants. They are no trouble to grow, and are free naturally of vermin.

Another set of plants I observe attract my young friends, who are always on the look-out for the present of a rat's-tail, but the *Peperomia* have many of them beautiful foliage. *P. arifolia* is a charming little plant, the beauty of the family. *P. maculosa* and *P. argyrea* have glossy smooth marbled oval leaves, 6 inches long, and the spadix or flower-spike of *maculosa* (rat's-tails) is 13 inches long and lasts for weeks: seedlings come up in the pots within reach. Then there are tiniest mouse-tails, as in the small growing Saxifrage-like *P. pulchella* and *P. rubella*, with red-stalked bright green leaves—all easily grown and taking up little room.

Aspidistra lurida, although so well known a plant, has its curious flower too seldom observed, and one plant should be kept in the stove until that has been watched and known. I have often been told that the great drawback of so useful a room plant is its having no flower, and have simply been thought imposing on my friend's superior wisdom or ignorance, when on lifting the surfacing of moss I have displayed the purplish flower growing as it were out of the soil. The miniature and scarce *A. angustifolia variegata* is a treasure for a crowded house: there seems no possibility of increasing it. The leaves are 3 inches long, and have much white in them. I got our little plant above twenty years ago from the well-known Mr. Buckley, of Rollisson's, who reluctantly parted with one of his two plants. I am not aware of any soil or treatment that we have not tried with it. We are thankful to have it safe, of exactly the same size, and visions of getting up a stock are at an end. *Marica Sabini* is an Iris-like plant, and at the end of one or two of the long leaves, which then hang over the pot, is a nice tufty young plant. The flower, which I have never seen, is beautiful and evanescent, lasting, Iris-like, but one day, but the plantlet swinging about in the air at the tip of the plain ribbon leaf, has a curious look. Strictly speaking this ribbon-leaf is a runner and a flower-stalk. *Ficus diversifolia* has a succession of its yellowish fruits all the year, and plants of even 1 foot high are useful; the branches when cut last long in water, and the thick cuneiform leaf ought to stand, one would think, as well as *F. elastica* or *angustifolia*, but we have not hardened it sufficiently or paid attention to that point. I am confident it is our fault, and that it might be a most desirable room plant. *F. religiosa* is more like a Poplar than a Fig, and its 2 inches of elongated tip of leaf gives it a distinct character. Then the minima variety of *F. repens* (although it should be placed under head 4, "climbers") is not often enough employed. It is such a temptation to get the back wall quickly covered where nothing will flower (that stumbling-block of the amateur, as if there was no interest in a plant save in its flower) that *F. repens* usurps every such space: a portion should certainly be left for the tiny *F. minima*, which also does well in a basket; grown in this way, however, one loses the opportunity of watching its root-climbing properties, which, tiny as it is, are very persistent, and it brings down the lime and plaster when detached from the wall. I presume, therefore, it also, as Mr. Darwin writes of *F. repens*, emits a "viscid fluid," which, ultimately modified into an unelastic cement, is used by the *F. repens* to cement its rootlets to any surface which it ascends.

I have frequently heard *Aralia Sieboldii* called an evergreen Fig, and perhaps it requires as much faith to believe that between such there is no relationship as is needful to credit the statement that *F. elastica*, *F. religiosa*, *F. repens minima*, and the Fig of commerce are of one and the same family. The structure of the fruit is, however, essentially the same in all, great as is the difference in habit and appearance. It is well to grow these half dozen interesting species, if for nothing else than to prevent oneself flying to mistaken conclusions. *F. J. Hope, Wardie Lodge, Edinburgh.*

PELARGONIUM-GROWING FOR MARKET.

THE exhibitions of the Royal Horticultural Society, which have sometimes included market plants among the objects staged, have served to illustrate in a remarkable manner the really marvellous specimens produced in so short a time, full of healthy vigorous shoots and covered with many and beautiful trusses of flowers. The wonders done with the regulation 48-pots have already been told in these pages; perhaps the greatest marvel of all is how such a perfectly finished specimen can be produced from such a limited root space. There is the stamp of the true artist in the man who can so successfully unveil this extent of Nature's possibilities.

"Earth appeareth in garments of beauty new drest," and we look on and wonder that from out of such an unpromising modicum of soil can come such perfect plants and flowers to reward the exertions of the patient and striving cultivator. Genius hath taken up its abode with the lowly gardener, and "prompting to noblest deeds" in his particular pursuits, rewards him abundantly as he witnesses his productions rising to higher levels of perfection in development.

Mr. William Brown of Hendon is one of the leading growers of market Pelargoniums, and his plants are not surpassed by any others taken into the market. Formerly, when joined in business with his brother, the annual output was from 10,000 to 12,000 plants, but as each pursues his separate way under new arrangements, he grows now 5000 to 6000 plants.

All market Pelargoniums are valuable for their decorative qualities, and it is required that they be of good free yet short-jointed habit, symmetrical in growth, and blooming freely in good trusses of bloom. Mr. Brown prefers high-coloured flowers, and finds they obtain the best sale; and in order that he should have something quite to his mind he has raised some seedlings of his own, which answer his purposes to a considerable degree. To these reference shall be made presently.

Of varieties raised by others, and in ordinary growth for market work may be mentioned *Mabel* (Foster), a very fine painted flower with rich dark upper petals and fine form; *Rob Roy* (Foster), a good free-flowering rosy purple variety; *Reflection* (Weatherall), bright magenta-rose, very free and good; *Whetstone Hero*, deep pink, dark blotch on top petals; *Mrs. John Wood*, large white; and *Marie Lemoine*, a very fine white, but not a good grower. All these are really good market varieties, but they are gradually being elbowed out of cultivation by the superior merit of Mr. Brown's seedlings.

Some time ago seedlings were raised on this establishment. One of them, an old but favourite market variety, still grown, is *Integrity*; and this was the parent from which Mr. Brown obtained his five new varieties. One of the most useful of these is *Mermerus*, very fine pale magenta-crimson in colour, with dark spots, and dark upper petals; habit close, compact and free. Visitors to the Whit Monday show of the Royal Horticultural Society will perhaps remember a group of Pelargoniums staged by Mr. Brown, among which were some plants of *Mermerus*, that were surprising examples of successful growth; one of the plants of this variety, growing, be it remembered, in a 48-pot, was found to have six main shoots, bearing in all forty-one trusses of bloom, averaging eighteen pips on a truss; besides others in the bud state. Other varieties are *Fascination*, bright magenta-pink; *Mirror*, bright crimson-rose, very free and good; *Challenger*, dark top petals with pale magenta-pink lower petals, very bright and effective; *Mermerus Improved*, a fortunate sport from *Mermerus*, with a much heightened colour, best described as a bright carmine-scarlet, very free and fine; *F. A. Dickson*, very bright rosy scarlet lower petals, with scarcely a stain on them, rich dark top petals, and wonderfully free; *Robert Green*, a seedling from *Mermerus*, bright deep magenta-rose, small black blotch on top petals, very fine; and *Duchess of Edinburgh*, the leading white, an excellent variety, that is becoming largely grown for market purposes. Mr. Brown regards *T. A. Dickson* as his finest seedling, and thinks that its wonderful floriferousness and its other excellent qualities will cause it to be generally grown when sufficient stock of it is obtainable.

The Pelargonium houses at Hendon form a sight

of unusual brilliancy in May and June, when the plants are in full bloom; one house, 56 feet by 16 feet, with a broad sloping stage, contained something like 700 plants, nearly all ready for market. As fast as room is made by the withdrawal of plants others are brought in from neighbouring houses. The first plants sent to market are in 32-sized pots, and are cut-down plants of the previous autumn. Then follow plants raised from cuttings in the usual way. The great bulk of the plants are raised from cuttings, and these are put in from June till August. When a batch of plants is selected for market the choice varieties are gone through, and any bit of growth from which a cutting can be made, not necessary to the effective appearance and symmetry of the plants, is cut away and made into cuttings. The work is thus constantly going on, but the great bulk of the cuttings are put in at the end of July and in August, in 48-pots, ten and twelve in a pot. They are simply put anywhere in a house where there is space to accommodate them, and when sufficiently rooted the largest are put into 60-pots; and the smallest into thumbs, and in these they are wintered, and are potted off into their blooming (48-sized) pots when there is room in the house to accommodate them. It is while the plants are in 60-pots that the foundations of these are laid, and I could understand the force of Mr. Brown's remark when he said he did not care for the plants being in 48-pots so long as they were occupying and doing well in 60's.

There are no secrets in the mode of cultivation—it is simply a matter of close and constant attention from beginning to end. No magician's wand is handled by the grower with which to touch his subjects and see them suddenly grow up into strength and glorious bloom; but it is a matter of patient hard work and unwearied watchfulness, keeping the plants growing, in health, clean and comfortable. Very little feeding in the way of administering stimulants is done. The great thing is to have a holding soil to get the plants well filled with roots; and to keep the soil thoroughly moist till the plants leave the house for market. A great deal in the way of fumigation is requisite; growers for market spend a comfortable income in tobacco in some form or the other; no quarter is given to greenfly, and they can scarcely survive a bath of suffocating smoke. Tying out and training is almost an art; one has only to watch a practised hand at this work to note the clever and rapid manipulation brought into play.

The Pelargonium is one of the most largely grown of market plants, as it is one of the best cultivated; and when we reach the time that a Horticultural University shall be set up to teach improved methods of performing practical work, some of the clever Pelargonium growers will have strong claims to elevation to the professorial chairs. *R. D.*

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

(Continued from p. 334.)

- EPIDENDRUM Galeottianum*, Rich., Ann. Sc. Nat., 3 série, ii., p. 21. Mexico.
- E. Ghiesbreghtianum*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 19; Gard. Chron. 1868, p. 815. Mexico.
- E. glaucum*, Lindl., Bot. Reg. 1840, Misc., 56.
- Epithecia glauca*, Knowles and Westc., Fl. Cab. ii., t. 87. *E. brachiatum*, Rich. et Gal. Mexico, 3000 feet.
- E. globosum*, Jacq. Amer., p. 222, t. 133. *Isorchilus globosus*, Lindl. Mosquito Coast, West Indies, Guiana.
- E. gravidum*, Lindl., Journ. Hort. Soc. Lond. iv., p. 114. Mexico.
- E. graciosum*, Rehb. f., Bonpl. 1856, 215. Central America or Mexico (?).
- E. guttatum*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 20. Mexico.
- E. Hanburii*, Lindl., Bot. Reg. 1844, Misc., 80. Mexico.
- E. imatophyllum*, Lindl., Fol. 222 (?) Nicaragua.
- E. imbricatum*, Lindl., Fol. 243. Costa Rica, Jamaica?, Brazil.
- E. incomptum*, Rehb. f., Bot. Zeit. 1852, p. 733. Guatemala, Veragua.
- E. ionophlebium*, Rehb. f., Beitr. Orch. Centr. Am., p. 103. Costa Rica.
- E. Karwinski*, Rehb. f., Bonpl. 1856, p. 327. *Isorchilus cernuus*, Lindl. Mexico.
- E. lacertinum*, Lindl., Bot. Reg. 1841, Misc., 109.
- E. indusiatum*, Kl. Guatemala.
- E. lamprocaulon*, Rehb. f., Bot. Zeit. 1852, p. 735. Mexico, 7500 feet.
- E. lancifolium*, Pav., Lindl. Gen. and Sp. Orch., p. 98; Bot. Reg. 1842, t. 50. Mexico.
- E. latilabre*, Lindl., Bot. Reg. 1841, Misc., 16; Costa Rica (Brazil).

E. ledifolium, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21. Mexico.
E. leucomelanum, Rchb. f., Linnæa, xli., p. 83. Mexico.
E. lignosum, Llav. et Lex., Nov. Veg. Descr. ii., p. 28. Mexico.
E. ligulatum, Llav. et Lex., Nov. Veg. Descr. ii., p. 26. Mexico.
E. limbatum, Lindl., Bot. Reg. 1843, Misc., 104. Guatemala.
E. Linkianum, Kl., Allg. Gart. 1829; Lindl. Fol. 39. *E. Pastoris*, Link. et Otto; Abbid., t. 12, non Llav. et Lex. *E. tripterum*, Lindl. Mexico.
E. luteoosum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 19. Mexico.
E. macrobotryum, Lindl. et Rchb. f., Bonpl. 1856, p. 327. Guatemala.
E. marmoratum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21; Rchb. f., Gard. Chron. n.s., v., p. 688. Mexico.
E. meliosum, Rchb. f., Gard. Chron. 1869, p. 989. Mexico.
E. michuacanum, Llav. et Lex., Nov. Veg. Descr. ii., p. 26. Mexico.
E. microbulbon, Hook., Ic. Pl., t. 347. Mexico, 7000 feet.
E. microcharis, Rchb. f., Gard. Chron. 1870, p. 1246; Xenia, iii., p. 12, t. 208. Guatemala.
E. microdendron, Rchb. f., Beitr. Orch. Centr. Am., p. 84. Costa Rica.
E. miserum, Lindl., Bot. Reg. 1841, Misc., 62. Mexico.
E. myodes, Rchb. f., Beitr. Orch. Centr. Am., p. 86. Costa Rica.
E. myrianthum, Lindl., Fol. 184; Bot. Mag., t. 5556. Guatemala, at a great elevation.
E. nævosum, Lindl., Fol. 6. Mexico, 4000 feet.
E. nemorale, Lindl., Hooker's Journ. Bot. iii., p. 82. *E. verrucosum*, Lindl., Bot. Reg. 1844, t. 51. Mexico, Jamaica.
E. nitens, Rchb. f., Beitr. Orch. Centr. Am., p. 82. Guatemala.
E. nocturnum, Linn., Sp. Pl. 1349; Bot. Reg., t. 1961; Bot. Mag., t. 3298. *E. discolor*, Rich. et Gal., *E. tridens*, Poepp. et Endl. *E. Spruceanum*, Lindl. Common and widely spread.
E. nonchinense, Rchb. f., Walp. Ann. vi., p. 324. *Broughtonia chinensis*, Lindl. Costa Rica.
E. nubium, Rchb. f., Beitr. Orch. Centr. Am., p. 81. Guatemala.
E. obtusum, A.D.C., Pl. Rar. Genev., 8, not, p. 17. Mexico.
E. ochraceum, Lindl., Bot. Reg., 1838, Misc., 15, t. 26. *E. triste*, Rich. et Gal. Mexico to Costa Rica, common.
E. (Erstedii), Rchb. f., Bot. Zeit. 1852, p. 937. Costa Rica.
E. oncioides, Lindl., Bot. Reg., t. 1623. *E. granicum*, Lindl. *E. affine* and *spectabile*, Focke. *E. guatemalense*, Kl. Guatemala, Guiana, Brazil.
E. ovalifolium, Lindl., Gen. and Sp. Orch., p. 104. Mexico.
E. Ovulum, Lindl., Bot. Reg. 1843, Misc., 71. Mexico.
E. pallens, Rchb. f., Beitr. Orch. Centr. Am., p. 82. Costa Rica, 9000 feet.
E. Panthera, Rchb. f., Bonpl. 1856, p. 326. Guatemala.
E. paranthicum, Rchb. f., Bot. Zeit. 1852, p. 736. Guatemala.
E. Pastoris, Llav. et Lex., Nov. Veg. Descr. ii., p. 23. Mexico.
E. patens, Sw. Ind. Occ. iii., p. 1495; Bot. Mag., t. 3800. Guatemala, West Indies.
E. pentadactylum, Rchb. f., Bonpl. ii., p. 89; Xenia, i., t. 48. Costa Rica, 9000 feet.
E. pergamenum, Rchb. f., Beitr. Orch. Centr. Am., p. 86. Costa Rica.
E. phyllocharis, Rchb. f., Xenia, iii., p. 11, t. 208. Costa Rica.
E. phymatoglossum, Rchb. f., Bot. Zeit. 1852, p. 731. Mexico.
E. physodes, Rchb. f., Gard. Chron. 1873, p. 289. Costa Rica.
E. piliferum, Rchb. f., Linnæa, xli., p. 82. Veragua.
E. platystigma, Rchb. f., Beitr. Orch. Centr. Am., p. 83. Costa Rica.
E. polyanthum, Lindl., Gen. and Sp. Orch., p. 106; Ref. Bot. ii., t. 112; Batem., Orch. Mex. and Guat., t. 34. *E. bisetum*, Lindl. *E. funiferum*, Morr. Ann. Gand. iv., t. 198. Mexico, Honduras.
E. porpax, Rchb. f., Bonpl. iii., p. 220. Nicaragua.
E. porphyreum, Lindl., Hooker's Journ. Bot. iii., p. 86. Guatemala (?), Peru.
E. pratense, Rchb. f., Beitr. Orch. Centr. Am., p. 84. Guatemala.
E. prismatocarpum, Rchb. f., Bot. Zeit. 1852, p. 729; Bot. Mag., t. 5336. Veragua, 5000 feet.
E. propinquum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21. Mexico.
E. pruinatum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 20. Mexico.
E. pseudopendulum, Rchb. f., Xenia, i., p. 160, t. 53; Bot. Mag., t. 5929. *Pseudopendulum spectabile*, Rchb. f. Veragua, 4000 feet.
E. pterocarpum, Lindl., Hooker's Journ. Bot. iii., p. 82; Bot. Reg. 1844, t. 34. *E. cinnamomeum*, Rich. et Gal. Mexico, 6000–7000 feet.
E. pulchellum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21. Mexico, 6500–7500 feet.
E. pygmaeum, Hook. Journ. Bot. i., p. 49. *E. uniflorum*, Lindl. Mexico, West Indies, Brazil.
E. radiatum, Lindl., Bot. Reg. 1841, Misc., 123, 1844, t. 45. *E. marginatum*, Kl. (?) *E. bracteolatum*, Presl. Mexico.

E. radicans, Pav., Lindl. Gen. and Sp. Orch., p. 104. *E. rhizophorum*, Batem. Central America.
E. ramonense, Rchb. f., Beitr. Orch. Centr. Am., p. 81. Costa Rica.
E. ramosum, Jacq., Amer., p. 221, t. 132. *E. rigidum*, Lodd., Bot. Cab., t. 1600. Mexico, 5000 feet; West Indies, Guiana, Brazil.
E. resectum, Rchb. f., Linnæa, xli., p. 82. Veragua.
E. rhynchophorum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 20. Mexico, 4000 feet.
E. rigidum, Jacq., Amer., p. 222, t. 134; Hook. Ic. Pl., t. 314. Mexico, West Indies, Guiana, Brazil.
E. sculptum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 22. Mexico.
E. scriptum, Rchb. f., Bonpl. ii., p. 89. Panama.
E. selligerum, Batem., Bot. Reg. 1838, Misc., 66. Mexico, Guatemala.
E. seriatum, Lindl., Fol. 183, Ref. Bot. ii., t. 90. Mexico, 5000 feet; Guatemala.
E. striatum, Lindl., Fol. 183; Ref. Bot. ii., t. 90. Mexico, 5000 feet; Guatemala.
E. sisyrrinchifolium, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 19. Mexico.
E. Skinneri, Batem., Bot. Reg., t. 1881; Bot. Mag., t. 3951. *E. Fuchsii*, Regel. Mexico, Guatemala.
E. spondiadum, Rchb. f., Bot. Zeit. 1852, p. 731. Costa Rica.
E. squalidum, Llav. et Lex., Nov. Veg. Descr. ii., p. 24. Mexico.
E. Stamfordianum, Batem., Orch. Mex. and Guat., t. 11; Bot. Mag., t. 4759. *E. basilare*, Kl. *E. cynostalix*, Rchb. f. Mexico, Central America.
E. stenopetalum, Hook., Bot. Mag., t. 3410. *E. lamellatum*, Lindl. Honduras to Panama, W. Indies and Guiana.
E. strophinx, Rchb. f., Linnæa, xli., p. 78. Guatemala.
E. subaquilum, Lindl., Bot. Reg. 1846, under t. 64. Mexico or Guatemala.
E. subulatifolium, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 21. Mexico.
E. teres, Rchb. f., Bonpl. iii., p. 220. Central America, 10,000 feet.
E. tessellatum, Batem., Bot. Reg. 1838, Misc., 9; Bot. Mag., t. 3638. Mexico, Guatemala.
E. tetraceros, Rchb. f., Bot. Zeit. 1852, p. 735. Veragua.
E. trachycarpum, Lindl., Benth. Bot. Voy. Sulph., p. 172. Central America.
E. trachychilum, Lindl., Fol. 57. *E. alatum*, Lindl., Pl. Hartw. Guatemala.
E. tripunctatum, Lindl., Bot. Reg. 1841, Misc., t. 131. Mexico.
E. (?) turbinatum, Llav. et Lex., Nov. Veg. Descr. ii., p. 41. Mexico.
E. vandifolium, Lindl., Journ. Hort. Soc. Lond. iv., p. 269. Mexico.
E. varicosum, Batem., Bot. Reg. 1838, Misc., 37. *E. leiobulbon*, Hook., Journ. Bot. iii., t. 10. *E. quadratum*, Kl. *E. Lunæanum*, A. Rich. Guatemala.
E. venosum, Lindl., Gen. and Sp. Orch., p. 99. *E. ensicaulon*, Rich. et Gal. Mexico.
E. Vieji, Rchb. f., Bonpl. iii., p. 22; Xenia, i., t. 48. Central America.
E. virens, Lindl., Paxt. Fl. Gard. i., under t. 30. *E. Wageri*, Kl. *E. ochranthum*, A. Rich. Guatemala, Cuba, Venezuela.
E. virgatum, Lindl., Hook. Journ. Bot. iii., p. 83. Mexico, 6500 feet.
E. vitellinum, Lindl., Gen. and Sp. Orch., p. 97; Bot. Reg. 1840, t. 35; Bot. Mag., t. 4107. Mexico, Guatemala, 9000 feet.
E. volutum, Lindl., Paxt. Fl. Gard. Gleanings, 427, fig. 215. Central America.
E. Warszewiczii, Rchb. f., Bot. Zeit. 1852, p. 736. Central America.

(To be continued.)

THE PORTUGUESE LABIATÆ.

SPAIN, Portugal, and Languedoc are the richest countries in representatives of this family (Bentham, *Labiatarum genera et species*). They can boast of 190 species, 138 of which are also common in other European countries. Only the Brazils surpass them in the number of species—235. Viewing Portugal separately, we find in Mr. Bentham's monograph of the Labiata (D.C. *Prodromus*, vol. xii.), twenty-seven genera with seventy-nine species that have been collected in that kingdom. But at that time the Portuguese territory had been but very little explored botanically, and it is no exaggeration to say that the number of species has since increased 10 per cent. Take, for instance, genera like *Lavandula*, *Salvia*, and *Mentha*, so very conspicuous in Spain, and for the present very poorly represented in Portugal, it seems not at all improbable that the number of Portuguese Labiata will amount by-and-by, after the more careful exploration of some districts, to one hundred species or even more.

In the southern provinces of Spain the proportion of the Labiate to the phanerogamic flora is as one to fifteen, while in Portugal it goes down to one to twenty-two. In Count de Ficalho's paper on Portuguese Labiata, founded upon the study of the late Dr. Welwitsch's herbarium, the richest that

ever has been collected in Lusitania (*Apontamentos para o estudo da Flora Portuguesa*, Lisboa, 1876): twenty-nine genera with eighty-eight species are elaborated. These latter can be divided into thirty-five shrubs, forty-three perennials, three biennials and seven annual ones. *Teucrium Pseudochamaeppis*, which Brotero and Link after him give as an annual species, is, in fact, both—either a small shrub or a vigorous perennial. If we look at the geographical distribution of these eighty-eight species we find six endemic ones, thirteen peculiar to the Peninsula, four which Spain and Portugal have in common with North Africa, eleven which grow everywhere in Southern Europe, twenty-five distributed over South Europe, North Africa, and some other extra-European territories, twenty-seven dispersed over Europe and some parts of Africa and Asia, and at last two species which Portugal shares either with Madeira, or with Madeira and the Canaries, viz., *Lavandula viridis*, Ait., and *Micromeria varia*, Benth.

Going still a step further on, and examining the localities in which they grow, ten species are only to be met with on moist places, two exclusively on the shore, *Thymus Welwitschii* and *T. carnosus*, and two are true mountainous plants, *Thymus cæspititius* and *Teucrium lusitanicum*. The other seventy-four species grow indiscriminately either in valleys, plains, or hills and mountains, and prefer as a rule dry loamy soil. The shrubby Labiatae consequently prevail, not only in the number of species (thirty-five) but particularly through the profusion of individuals, which cover in some districts large barren tracts, and deserve, in fact, to be called social plants. Nevertheless they stand in this respect much after the *Cistinee*, *Leguminosæ*, and *Ericaceæ*, and can hardly be termed characteristic forms, be it even for the smallest region of this country. It is generally known that the Labiatae show a great tendency to variation, and in the South this variation takes particular hold of the northern species, which lose more or less their typical aspect. Thus it can be explained why so many new species have found their way amongst the Portuguese Labiatae, which, after a more careful examination were, with the exception of a few, reduced to old ones. The pubescent variety of *Mentha Pulegium*, for instance (*Mentha Pulegium*, *β villosa*), has served to make three new species, *Mentha tomentella*, Hoffm. et Lk.; *M. gibraltaria*, Willd.; *M. tomentosa*, Sm. This variety is quite common in Portugal, whilst the typical glabrous form of *Pulegium* is very rare. I was somewhat surprised to find some authors citing Europe, excl. Scandinavia, as the native country of *Mentha Pulegium*. Mr. Baker *On English Mints* does not mention this species, while Mr. Bentham in the *Prodromus* names also Anglia, Dania, and Suecia. But the Portuguese Labiatae not only differ in shape, covering, &c., from the same species of northern climes, but also in the more or less strong odour peculiar to a great many European Labiatae. Every one of us knows the Horehound (*Marrubium vulgare*), which increases its strong aromatic properties the further we go north (*vide* Schübele, *Die Pflanzenwelt Norwegens*). This species also abounds in Portugal, but in the southern provinces it is quite scentless, and in the northern a slight odour is all which remains.

Mentha viridis, *M. sativa*, *M. gentilis*, and *M. Piperita* are Portuguese garden plants, but it would not be advisable to cultivate them on a larger scale for economic purposes, as is the case, if I am not mistaken, in some parts of England. The volatile oils of these species are to a great extent lost under the burning sun of the South; but some of the true southern species possess in compensation a high aromatic flavour, and where any species of *Thymus* about the visitor is from a great distance attracted through their most agreeable perfume. One of the oldest garden plants in Portugal is *Ocimum Basilicum*; it is quite a favourite with all, and even the poorest have during the summer months two or three plants of *Majericão*, nicely grown in pots, in front of the window. The Portuguese know at least eight varieties, which differ from each other through a peculiar scent, and these remain constant by seeds.

Beautiful as the Labiatae are when they are met with in large masses, still there are very few of the eighty-eight Portuguese species worthy of being introduced into our gardens.

Phlomis purpurea has been a cultivated plant with us for many years, but nobody can have a proper idea of its beauty except he has seen this small shrub grow-

ing in such abundance as on the hills near Setubal, where, during the spring months, its large purple-powdered flower-heads form a splendid contrast with the whitish foliage. Employed in a similar way, I fancy *Phlomis purpurea* would add a new charm to our shrubberies. *Teucrium fruticans* is also a very ornamental shrub; in Portugal they use it for making hedges, which look very neat indeed, and might be advantageously imitated elsewhere. *Salvia argentea*, not to be confounded with *Salvia candidissima*, is a very nice biennial plant, and *Cleonia lusitanica* as an annual species would be an excellent acquisition for the borders of our spring flora. *E. Goese, Greifswald.*

THE TEA TRADE OF CHINA.

It is generally supposed that though immense quantities of tea are consumed in Europe, the European tea-drinkers are quite ignorant of the delicate flavour that really good Tea ought to possess. The finest Teas are drunk only by the Mandarins, and are consequently kept in China; and the next best quality, it is said, finds its way to Russia, and is consumed exclusively by the nobles, and being carried overland does not deteriorate on the journey, as Tea is said to do by a sea voyage. Be this as it may—that is, whether an ordinary shipload of Tea does deteriorate by a usual sea voyage from China to London—it is well known that there is a brisk competition between fast-sailing ships to bring the new season's Tea to London in as short a time as possible—in short, an ocean race of clipper ships. To furnish these cargos unusual hurry must prevail in the gathering and drying of the leaves, so that it is doubtful whether the Tea so brought is after all of the superior quality attributed to it. This opinion is to some extent verified by Mr. Consul Sinclair's report on the Tea trade of Foochow during the past year. He says:—"At the opening of the market in May there was manifested the same eagerness among buyers for rapid shipment by the quickest route, the same rivalry to be the first to lay down the new Teas in the London market. Evidently this is the chief aim among buyers for home consumption. One would suppose that this hurry to buy and ship off would hardly leave time for the study of the leaf; cargos must in many instances be put on board in an imperfect state. A competition begun among the tea-men or brokers for the purchase of the Teas from the country growers, and followed up by a spirited competition among foreign buyers to obtain the Teas from the tea-men, cannot fail to enhance the price of the article for exportation. One other result of this double competition is, the neglect of the growers to improve the cultivation of the Tea plant. The shrub is left to wear itself out; the leaf, at first left too long on the trees, in order to obtain larger leaves with greater weight of Tea, is then hurriedly picked, and the Tea hastily prepared. No better proof of this exists than the marked inferiority of the Teas shipped from this port during the last few years.

The growers find the present production sufficient for the wants of the foreign market; it is, however, noticeable that from Pan-yang, Fuh-ngan, and Ping-ngan, districts near to Foochow, the quantity of Tea brought to market during the past three or four years has been steadily increasing, and may now be estimated at almost double what it was about six or seven years ago. In the inland districts the cultivation, or rather the production, of Tea does not increase to any marked extent. Natives state the quantity of Tea brought to market could be largely, almost indefinitely increased, if there existed the demand. Of late years no Teas of really prime quality can be obtained in Foochow in any large quantity; the low prices on the London market and the competition with Indian-made Teas has probably much to do in bringing about this result."

Unless very much care is bestowed on the picking and preparation of the leaf by the native growers, and more study be devoted to the subject generally, it is to be feared that Hankow and Calcutta may eventually become the shipping ports for a safe and marketable article. Both these ports supply the home trade with fine, strong, and well-prepared Teas, which are, in consequence, readily saleable: they are so much liked by consumers, and are gradually gaining so firm a hold in the United Kingdom, that the article sent forward from Foochow is beginning to rank only as common to medium Tea, and is sometimes difficult to realise.

THE LATE FRANZ KLABOCH.

ON the 11th of last month a telegram from the British Consul in Mexico reached me, which consisted of the two sad words, "Klaboch died." This message was confirmed the other day through the news conveyed by letter, that he succumbed to the fever in Inquila, near Oajaca. It seems but yesterday when Mr. Roetz brought his nephew, Franz Klaboch, with him to England, with the intention of taking him to the tropics and of instructing him in his profession. His first journey was to Denver City in Colorado, a town not easily forgotten by Mr. Roetz, for here it was that his 2000 dols. were stolen from him. Franz Klaboch collected at first seeds and bulbs, and *Yucca angustifolia* and quantities of *Calochortus* came to England; and for the first time *Picea concolor* was discovered in South Colorado. Shortly afterwards some new Cactuses and *Yucca baccifera* made their appearance from Mexico. Little rest did he have while with his uncle, who was bent on a great Lily hunt, and they returned to Denver City, and went *via* Cheyenne in Wyoming territory, to the Sierra Nevada of California, from whence the masses of *Coniferæ* seeds, *Lilium Washingtonianum*, *parvum*, *Humboldtii* and *puberulum* came; but now the time came when Klaboch discovered his first new Orchid. Having returned to Mexico, he found *Odontoglossum madrense*, and this his first



FRANZ KLABOCH.

debüt was a good one, for *O. madrense* is a lovely Orchid, and only the other day, when shown in flower in King Street, its beauty attracted the eyes of all present, the spike being some 18 inches long, and its sweet-scented flowers measuring some 4—5 inches across.

From Mexico many good things came home, and after a long stay he went to La Guayra, from whence *Cattleya labiata* Roetzlii and *C. Mossii* arrived. Later on we find him returned to Vera Cruz and Santecomapan, and shortly after he joined his brother Edward, and both travelled in Mexico and forwarded Orchids, Cacti, Agaves, and the new *Poinsettia pulcherrima plenissima*. The latter found its market in New York. The next voyage was to Ecuador, for Franz Klaboch was not to be persuaded away from the idea that *Masdevallia Chimera* could not be brought alive to Europe; he often tried, and as often failed; but from Ecuador, if not *Masdevallia Chimera* other novelties came home. *Odontoglossum cirrhosum* and its splendid variety *Klabochorum* made its appearance, and he found his "blue elephant," as he often jokingly called it, his *Bollea cœlestis*. One good novelty was now followed by another, among the best being *Maxillaria speciosa*, *Pescatorea Roetzlii*, *P. Dayana*, *Paphinia rugosa*, *Batemannia Wallisii* major, and *Pescatorea Klabochorum*. A fall from a rock stopped his travels for a short time, and a year later he came home with a large and valuable consignment of Orchids, including 1000 *Masdevallia Chimera*—all, however, dead. Owing to the Royal Mail steamer *Tasmania* stranding, he and his plants were twice transhipped under the

equator, and when at last he reached England little or nothing was alive among his large number of Orchids; and to make the sad cup still more bitter, the news of the death of his only sister reached his ears almost before he set his foot on land. After a stay of four months, during which time his leg had been healed, he started once more, and, alas! on his last journey. Mexico was once more chosen as his hunting-ground, and after sending home some thirty cases of Orchids, he died near Oajaca. On January 3 he wrote his last letter, as usual, full of spirit, saying that he was perfectly well; fourteen days later he expired. It seems that Orchid collectors should either come home once a year or not come home at all until they intend to stay altogether. The constitution of tropical travellers does so utterly change when abroad that death is almost certain when again they plunge into the tropics after a stay of a few months in Europe. If leave is taken it should be for a period of twelve to eighteen months, as is done by our Indian officers. Wallis, although perhaps worn-out, was never well after his stay. Endres and Klaboch both died after a short stay in Europe. In Franz Klaboch we lose one of the most enterprising of collectors, always cheerful, full of enterprise and hope, clever and hard-working. He discovered during his young life many splendid novelties, which will carry his name into future ages. He was liked by all who knew him, and a particular *protégé* of Professor Reichenbach, who often advised him in vain to give up his dangerous journeys. *F. S.*

COFFEA LIBERICA.

SINCE it was brought into commerce, this robust growing species has created a good deal of interest here. At first there were no facts upon which a right judgment could be formed; now, however, the first imported plants have begun to bear fruit, and its merits or demerits may be discussed with some degree of safety.

The Liberian species forms a real tree, and I am of opinion that the dwarfer growth of the Arabian plant renders the latter a much better plant for cultivation on a large scale. The bean of the new sort is large; the beverage it furnishes is not inferior to that of the common Coffee, and the productiveness of the plant seems to be a large one, the young trees having been literally loaded with berries. The most important difference, however, must be looked for in the structure of the fruit. The fleshy part or mesocarpium of the berry of *Coffea liberica* is much more developed than it is in the berry of the common Coffee plant, and this is a default which decides the matter. To comprehend this, it must be considered that the tedious and troublesome preparation of the crop for the market consists exclusively in the removal of the cover which encloses the bean. The following figures, which I obtained by carefully weighing, may show the great difference:—

| | Weight of pericarpium and endocarpium (or shell). | Weight of endosperm (or bean). |
|------------------------------|---|--------------------------------|
| <i>Coffea liberica</i> | 4.45 grammes. | 1.20 grammes. |
| „ <i>arabica</i> | 1.35 „ | 0.80 „ |

The proportion of the worthless shell to the bean is nearly as 4 to 1 with *Coffea liberica*, while it does not attain 2 to 1 in *Coffea arabica*. Besides this, the Liberian fruit requires a full year for its maturity.

Resting upon these facts, I consider the new Liberian species totally unfit to rival the common *Coffea arabica* as a plant for cultivation on a large scale. *A. Lietze, Rio de Janeiro, February, 1879.*

CHINESE BOTANICAL AND HORTICULTURAL LITERATURE.—A writer in *Der Deutsche Garten* states that the imperial library of China contains 15,000 works on the cultivation of flowers and botany, whereof about 500 are devoted to the Rose alone. Such quantities of Roses are grown in the Emperor's gardens that the sale of the essence prepared therefrom annually brings £5000 into the treasury. Talking of Chinese botanical literature, reminds us that the Japanese have already adopted the botanical nomenclature recognised in Europe and other countries, and their illustrations of the flora of Japan to which the Latin names are attached are exceedingly good.

Forestry.

BEFORE leaving the subject of pruning it may be well to state what is usually found beneficial and commendable in the ornamental departments of forestry, especially to Coniferæ as grown in the pinetum, and single ornamental trees generally. That the pruning, and indeed the whole treatment and culture of ornamental trees, should be materially different from that of common forests, woodlands, and masses of trees grown for profit, must be obvious to the least initiated in the art. Wherein the differences lie, and what constitutes their necessity, I shall endeavour to show in the sequel. The outline, structure, and general character of a purely ornamental tree is determined almost entirely by the taste of the grower, or those whom its appearance is to gratify. One person likes a close compact tree, and sees special beauty in such; another admires an airy loose flowing character, and most admires this; a third party perceives only charm and delight in an irregular, hard, and unique form of tree; others again are only pleased with the quaint, irregular, and romantic; while yet another class admires only the curious, fantastic, and grotesque. The pinetum of any considerable extent usually contains coniferous specimen trees of all sorts, and such as generally please the various tastes of individuals. The first class is charmed with such species as the Pinsapo Fir and the Chilian Arbor-vitæ, to which to their taste and liking no tree is to be compared. The kind of pruning these species generally require is attention to the leader, and preventing any lateral branches from extending beyond the prescribed limits, and those whose taste runs in this direction usually prefer the Pinsapo Fir to be pruned and trained as a cone or pyramid; and if not subjected to an over-rigid process, it forms in the estimate of many whose taste is not to be disregarded a most delightful object. Those who like a more airy, light, and flowing character of tree, will find it in the *P. lasiocarpa*, or woolly-scaled Silver Fir, common Larch, *Pinus monticola*, Weymouth Pine, &c. Pruning, and indeed any culture, are less required in this class, just because the taste is less rigid and exacting, and is less required; and except it be to relieve the tree of any irregular branch that does not bend, and harmonise with the general structure, to give direction to the leader, remove a dead or diseased branch, nothing further is required or should be done. The taste of the third party is most pleased with the Cedar of Lebanon, Atlas Cedar, common Silver Fir, *Araucaria*, &c. Pruning here again can do little to improve the tree in its points of admiration, as its irregularity constitutes to them its main feature of attraction. Double leaders, however, and such limbs as are liable to split from the tree by winds, lodgments of snow, &c., should so far be pruned as to render the risks less serious. The fourth class are usually most pleased with such trees as the *Araucaria*, common Yew, *Cupressus Lambertiana*, *Pinus insignis*, and such-like. Admirers of such a class as this rarely desire to see any pruning done, as with them any irregularity is a mark of beauty, or at least a point of admiration; and it has to be admitted that when beauty or rather delight is seen in an irregular branch, it must be a wrong thing to denude the tree of such, and obliterate that feature which of all others in the tree affords most pleasure and delight. Pruning may, however, even here be admissible, for there are few trees so grown that one branch may not over-ride another and gall its bark, or a limb project at such an acute angle as to form between the surfaces of the bark a false connection, and such as will ultimately end in the two separating and doing irreparable damage to the tree.

I have indicated in a very general way the kinds of preferences which different classes of individuals have for different species and descriptions of trees, but I have yet to notice that while one person has a special preference for one species and character of tree, it by no means follows that he has no appreciation of other trees. There are individual exceptions to this rule, but the rule I think is fairly this, that while perhaps any individual has one species or character of tree that he prefers to all others, he yet appreciates and finds delight in many if not all others. A well balanced mind is usually so constructed as to appreciate any natural product and specially all kinds and descriptions of trees; while there are enthusiasts who go heart and mind into certain special subjects, and such men not unfrequently make discoveries in these directions that others would overlook, from the simple circumstance that they

look neither long enough nor intensely enough in one direction. It is about trees, however, and not about men we are writing, hence I must go on to say, that each individual tree has to be grown in every way suited to its character, and specially in accordance with its nature and habits. No person, for example, would think it judicious to prune a *Picea Pinsapo* in a manner similar to the *Cupressus Lambertiana*, or treat an *Araucaria* as he would a *Wellingtonia gigantea*. One thing perhaps more than any other has to be considered in regard to ornamental tree pruning and culture, namely, the exposure in which they are grown. I have found it quite necessary to shorten the extremities of the branches of the *Abies Douglasii* in freely exposed situations, whereas in sheltered sites their defect was that their branches spread too little, hence required no shortening. In another situation freely exposed to the South and East, and sheltered on the North and West by trees and rising ground, the trees of all species required the branches on the exposed side shortened, whereas on the sheltered side the branches were deficient and required no shortening. Indeed the regret with such is that more branches could not be added. An ornamental tree, especially in its young state, should be fairly and evenly balanced, and equally rooted on all sides; this is not a mere matter of taste, but a *sine qua non* in all tree culture, for unless duly attended to in youth, in old age it suffers often to destruction and premature extinction. In the culture of ornamental trees—which I think should be always regarded as specimen trees, each the best and most perfect of its kind—if ornamental tree culture were primarily regarded as the culture of specimen trees there would then be something like a guide for pruning them, whereas without such object in view there can be nothing to guide and direct in the work but fancy, wild or tame, as the case may be. As an illustration of what I mean, a lady said she did not like the Larch either young or old, because when young as well as old it was naked and bare in winter, and in mature years it lacked that rounded cloudy top so admirable in the Bonnet Scots Fir, the native Highland Pine of Scotland.

Gilpin, in his *Forest Scenery*, says in respect to the Silver Fir, "it is ugly in the extreme," and he scarcely finds a place in the wide world sufficiently unworthy of it. Now, with all deference to those who hold such views and sentiments, I venture to say that in its own place the Silver is as grand and worthy a tree as the woodland can boast of, and over which the forest may with commendation clap its hands.

Any one with a landscape picture before him of the native mountains of Switzerland will usually observe the Larch as a prominent object, and its thin, sharp, spear-like tops, pointed, jagged, and weather-beaten, betoken the adaptation of means to ends, for in such exposures, with clouds of snowstorm and tempest to weather and outlive, no tree known to us would so well endure. Bearing then in mind the natural characteristics of any individual species of tree, and what it is in its highest state of perfection, we ought in all our efforts at culture, whether of planting, thinning, or pruning, to seek that attainment, or as near an approximation to it as can be. *C. Y. Michie, Cullen House, Cullen, March 13.*

Notices of Books.

Orchids for Amateurs, &c. By James Britten, F.L.S., and W. H. Gower. *The Country Office.*

The increasing popularity of Orchids is illustrated among other manners by the present volume—a reprint we believe from the pages of the *Country*. It is the joint work of a competent botanist exceptionally well placed for the task he has undertaken, and a successful cultivator with the experience of a quarter of a century. So far then we have a right to expect a work of superior merit. The two introductory chapters—that on cultivation, and especially that on structure—are rather meagre, though it is hardly necessary to say, correct as far as they go. The genera are arranged upon no system that we can discover. *Odontoglossum* comes first, and *Mesospinidium* last, the interval being filled in with *Dendrobies*, *Cattleyas*, *Oncidiums*, and most of the best known and most showy genera. Under the head of each genus the most showy species are picked out for special notice. The work, in short, is a descriptive catalogue of the most attractive varieties, and such as are most likely to fulfil the requirements of amateurs. A few wood-

cuts rather coarsely executed are interspersed among the pages of the book. One of the best features in the work is the index, in which the species are classified according as they are adapted for cultivation in the East Indian, Brazilian, or Peruvian house.

Traité de Minéralogie. By Dr. J. Léon Soubeiran. Paris: Rothschild.

A short treatise, in French, on mineralogy for the use of students of pharmacy, comprising a brief description of the principal minerals and metals, a still briefer sketch of the geological history of the globe, and a third portion devoted to the characteristics of mineral waters.

Garden Operations.

HARDY FRUIT GARDEN.

Notwithstanding the frequent frosty nights and occasional showers of snow, the buds of fruit trees are now swelling fast and showing in great abundance, thus giving us promise of a fruitful year if we can only escape late frosts and other disasters to which the tender blossoms and young fruit are liable. Apricots are coming on rapidly and are no longer safe without some sort of protection. Ours have a light covering on night and day for the present to retard them, but the time will soon arrive when the covering must be rolled up early in the morning when there is no frost and at other times as soon as the frost disappears. It is important to have the canvas, or whatever the material is, so fitted up with strings or rings, or both, as to be easily made secure by night and by day against rough winds, otherwise both shading and trees may get damaged by beating and chafing each other. Favourable opportunities for planting trees seem to be both few in number and of very short duration at present; it will be well therefore not to attempt more of such work than can be done without much difficulty, as there is nothing gained by planting trees in a hurry-scurry manner at this, or indeed at any other time of year; and unless the trees are actually in hand, and all the necessary preparations have been previously made, it will be better to defer the work until next autumn. Guard against deep planting, and see that no manure finds its way into the soil about the roots. Spread the latter out so as to cover as much ground as possible, commencing with the bottom roots first, which should have a good covering of earth before placing the next tier, and so on, finishing off with the collar of the tree a little above the surrounding level. I have frequently planted both young and old fruit trees without making a hole at all by fixing them firmly on the spot they were to occupy, and conveying sufficient soil to properly fill up between and cover their roots, and I never saw fruit trees do better than these have done. This plan, however, is not admissible in all cases, and therefore is not recommended for universal adoption, much depending upon the levels in the immediate vicinity and other circumstances. On the other hand, I would observe that digging a hole to plant a tree in often means making a pan to collect water, which will ruin the tree if ample means for it to drain rapidly away are not provided. Bring up all arrears of pruning as quickly as possible, and see to filling up any blanks that may have occurred in the Strawberry beds that were made last year. Our plan of growing Strawberries here is to make a new plantation of runners every year in the month of August, planting in rows a yard apart and a foot between the plants, and taking a crop of Endive between the rows, so that no ground is lost, and we have an abundance of plants to fill up all blanks in the spring. The alpine varieties are best raised from seed sown in boxes about September, and kept in cold frames during the winter; but where such plants are not at hand, runners may be taken up now and planted in lines by the side of walks and paths in good rich damp soil—a dry hot place they do not like—and by the end of summer, or before, they will have made fine strong plants and will bear freely from that time until stopped by frost. Their fruits are held in high esteem for making ices and jellies, and are not to be despised as a dish late in the season. *F. Harrison, Knowsley.*

FLOWER GARDEN, ETC.

The operations connected with the propagating department should now be in full swing. The dilapidations in the general stock caused by so long a period of sunless weather will by this time have become apparent, and thus form a guide as to the numbers required to supply deficiencies. *Pelargoniums*, especially those which were not well-rooted, have suffered very much, and will require extra care in providing sufficient stock, and an excellent plan is to prick the cuttings into shallow boxes about 2 feet square, and place them on bottom-heat with a tolerably dry atmosphere. A shelf which is close to, or even resting

upon, hot-water pipes, will induce them to root very freely. Amongst the infinite number of varieties which are now available for the purposes of bedding the nosegay section are most to be depended upon, and *Triomphe de Stella* and *Charlie Casbon* may be selected as very fair types of the class to guide the purchaser. The bedding Zonal class is useful for large beds, and affords some very brilliant colours, and if edged with a double row of whites with a dwarf habit are very effective. The propagation of Dahlias should now be especially attended to, rooted plants potted off, and gradually prepared for a cooler temperature. The bouquet or pompon varieties are very useful both for bedding out and in mixed borders. Three distinct varieties for bedding in masses are *Little Wonder*, *White Bedder*, and *Pluton*; all the sorts are exceedingly useful where cut flowers are in abundance. The larger show varieties are very effective as a background to mixed borders, and also in vacant spaces in the shrubby borders; but for strictly ornamental purposes, those sorts only should be selected which throw the flowers well above the foliage. Many very beautiful flowers for exhibition hide their flowers under the foliage, and are of no use for flower garden decoration. The roots of *Cannas* may now be brought out from the winter quarters, divided and potted, and placed in heat to give them a start, and afterwards removed to a colder temperature. Seedlings of the various kinds of subtropical plants will now be advancing, and should be potted off and retained in a brisk heat until well rooted, when, if necessary, a portion may be shifted into larger pots, and the whole introduced by degrees into a graduating scale of temperature with a view to the indurating process. Plants for various bedding-out purposes, such as *Salvias*, *Heliotropes*, *Cupheas*, *Coleus*, *Iresine*, *Verbena*, *Crystal Palace Gem Tropæolum*, and such like, which furnished the first batch of cuttings for spring propagation should now be potted off, pinched back where too tall, and they will make nice stocky plants for use by-and-by. Many of the cuttings will now be rooted and probably growing, and if required to furnish other cuttings may be left until the shoots are long enough for the purpose, but if the rooted stock is sufficient a better plan is to pinch out the centres and after a few days to pot them off at once. *Verbenas* will be better pricked out on a gentle bottom-heat under glass. Hardy annuals sown in pots on a gentle heat must not be allowed to become drawn up weakly but removed to a cooler temperature when the seed leaves are formed, as they should be ready for planting out by the end of April and the hardening processes must in no case be too sudden. An interesting break may be made in the general summer display in the flower garden by the introduction of the newer varieties of the *Abutilon*, a plant which is destined to become popular, and the improvement in which of late years has been very marked. The plants should be brought forward now in a warm greenhouse temperature and gradually hardened off by the beginning of June; only the more compact growing and free flowering varieties will be suitable for open beds on the lawn, while those which form long and strong shoots are only suitable for planting on trellises: pinching back will do much towards producing a compact growth when preparing the plants for the open air, but should be desisted from early in May. It appears to be a difficult matter in many places to induce *Verbenas* to flourish in a healthy condition owing to the disease, and an excellent substitute may be found in the *Lantanas*, which belong to the same natural order and have a similar habit in flowering. It is an old garden plant, and was in former years much used for bedding purposes, when bedding plants were not so numerous as they now are. Of late years they have been much improved both in habit and colour, and are highly deserving of especial attention, either for their own merits or as substitutes for the fickle *Verbena*. The treatment required is much the same as that of the ordinary stock of bedding plants; they should now be in the course of propagation from the store pots if they are in stock, if not, a young stock should be procured at once from the nurseries. The improved varieties of *Heliotrope* should not be neglected, they are very useful for breaking up the monotony of glaring colours, and are invaluable for cutting purposes. *John Cox, Redleaf.*

FRUIT HOUSES.

VINES.—Early Grapes that have passed the stoning process will be greatly benefited by having liberal supplies of tepid liquid-manure given to the inside borders; the paths, walls, and mulching over the roots may also be syringed with it on fine evenings an hour or two before the night air is put on. Pass the scissors over the bunches for the last time, and if any imperfectly fertilised berries remain let them be removed before they begin to bind, as nothing detracts more from a well-finished bunch of Grapes than small stoneless berries. Encourage lateral growth all over the house by pinching the points out of the strongest only, tie them down to the trellis, and allow the weakest to find their way up to the glass, when they

also may be stopped. Give air little and often through the early part of the day, reduce upon the same principle, and finally close in time to run up to 85° on bright afternoons. Attend to disbudding, tying, and stopping in succession-houses, and keep the thinning of bunches and berries well in hand; in mixed houses free setting kinds should be thinned first, but *Muscats* and *Alicantes* may be left until the best berries take the lead. Keep up a steady circulation of air where houses contain Grapes in bloom, and impregnate shy setters when the temperature has reached the maximum. One of our most handsome and best winter Grapes is *Black Morocco*; it is a strong grower and produces an abundance of fine shows, but owing to the presence of glutinous matter when in flower the berries never set kindly where its daily removal with the camel-hair pencil is neglected. In all other respects *Muscat* treatment suits it admirably, and well the parent of *Madresfield Court* repays all the attention that can be given to it. Former directions having been followed, the Vines in the latest house will now be moving. Ply the syringe freely several times a day, give the inside borders good waterings with warm liquid-manure, and endeavour to secure an even break and elongation of the bunches by shutting up with a humid atmosphere at a temperature of 75°. Strong young Vines that do not always break evenly should be kept in a horizontal position until all the lower buds have started, but old Vines on the spur system do not require this attention. Look well to pot Vines carrying full crops of fruit, keep them liberally supplied with good stimulating liquid, make additions to the top-dressing and mulching, and allow the laterals to spread over all uncovered parts of the trellis. *W. Coleman, Eastnor.*

MELONS.—Of these there is but little to say in this Calendar. We would, however, remark in passing, that it will be advisable on bright mornings to put a "chink" of air on when the thermometer registers 75°, which, moreover, should be added to progressively, as the temperature of the house increases and *vice versa*. Syringe the plants and house in which they are growing twice a day during bright sunshine, shutting up the house with plenty of atmospheric moisture early in the afternoon—say, after this month, 3 o'clock. Make additional plantings, pressing the soil firmly around each plant while doing so, and, should the sun be bright and powerful at the time of planting, shade the plants for a couple of hours for a few days until they have taken hold of the soil, when it should be discontinued altogether, inasmuch as Melons are sun-loving subjects. Keep young plants near the glass to prevent their becoming drawn, and make successional sowings as circumstances may require, maintaining a sharp look-out for slugs, while "looking round at night," for these sometimes do great—I was going to say irreparable—mischiefs. *H. W. Ward, Longford Castle.*

CUCUMBERS.—The stopping, thinning, and tying of the shoots will now require almost daily looking to. More especially will this be the case with the plants that have been fruiting all the winter, which, since the long-looked-for and much desired change in the weather has taken place, have been making growth freely. These plants, if so desired, could be kept fruiting satisfactorily all the ensuing season by subjecting them to the following simple but nevertheless effectual treatment:—Remove all decayed portions of wood and leaf, and encourage a free growth of young wood, which, as a matter of course, should be tied up to the trellis—removing the old wood wherever practicable in order to make room for the young. Then take off an inch or two of the soil from the surface of the bed, taking care not to unnecessarily disturb the roots in doing so, and replace it with an admixture of two parts light turfy loam and one of well decomposed short dung (free from worms), and a sprinkling of charcoal. Into these fresh ingredients the hungry roots will speedily push, after which, when circumstances require it, water them copiously with tepid liquid manure in a diluted state. If these and other cultural points, as circumstances may arise, are duly attended to, they will render those plants which have, as above stated, been fruiting all or best part of the winter almost, if not quite as prolific during the next six or seven months as those plants which have been raised from seed in the early part of January last are likely to be. Maintain a night temperature of from 65° to 70°, and 75° by day with fire, allowing the thermometer to rise 10° or 15° higher with sun, and see that the bottom-heat does not fall below 75° or rise above 90°. Add some more soil to the hillocks as the roots protrude through the soil. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

With lengthening days and a corresponding increase of sun and light the temperature of stoves may now be considerably raised, but with an augmentation of heat it is a matter of the greatest importance that the atmospheric moisture should be in proportion, other-

wise, instead of a free healthy growth being encouraged at a time when the plants are best prepared to make it, insects will soon be rife and the foliage assume a stunted-looking appearance. To obviate this the floors and other surfaces should be frequently sprinkled with water, and when the houses are closed in the afternoon a heavy syringing overhead given, the effect of which is very refreshing and invigorating to the inmates and a great check to the spread of thrips, red-spider, and other parasites that increase only too readily at this season of the year. To grow stove plants really well it is necessary to separate those of a shade-loving nature from such as require exposure to solar influence, as when treated together in the same compartment neither can be managed in a way to cause them to flower freely or make that amount of young foliage and develop the rich colours for which such things as *Crotons*, *Dracenas*, and others of that class are so highly prized. In cases where there is not the convenience to make the desired separation, much may be done by arranging *Allamandas*, *Dipladenias*, *Clerodendrons*, &c., along the front of the house, and there suspending their shoots and training the growth they make on strings pretty close up to the glass till they begin to show bloom, when with careful handling they may be easily arranged regularly around the trellises provided for them, and fine symmetrical specimens thus formed. At no time of year do cuttings of the above-named, or indeed of any of the various stove subjects, root so quickly and certainly as they do now, and there are many which if taken at once will grow into useful-sized flowering plants by the autumn. Among these may be enumerated the *Euphorbia jacquiniæflora*, than which a more useful thing for cutting or winter decorative purposes does not exist. This, with *Thysacanthus rutilans*, *Eranthemum pulchellum*, and *E. Andersoni*, *Plumbago rosea*, *Sericographis Ghiesbreghtii*, *Centropogon Lucyanus*, *Justicia flavicoma*, will go far to render a house gay when there is little else to be had. *Bouvardias*, too, should not be forgotten, for when subjected to stove-heat they are exceedingly floriferous, and alike valuable either to use in making up bouquets or to fill stands in windows in warm rooms, where, associated with *Primulas*, perpetual *Carnations*, *Cyclamens*, and suchlike, a most pleasing and interesting group may be formed. To get cuttings of *Bouvardias* that will strike freely the plants should be subjected to strong moist heat, and the shoots when they have attained a length of 3 inches or so, taken off with a heel. If these are then inserted in sharp sandy soil and covered with a bell or placed in a close propagating box, they will soon be ready for potting off, and after May will succeed well in any pit or frame if shut up early and syringed so as to keep a genial moist atmosphere about them.

GREENHOUSES.—By far the most useful and ornamental plants for the embellishment of these structures are the tuberous rooted *Begonias*, which started now in heat and a portion allowed to come on slowly and naturally in any cool place, will keep up a fine display from June till near Christmas. So valuable are these that no garden of any extent should be without a dozen or two at least, as among the many fine kinds there now are much variety of form and colouring is afforded, which with their gracefully pendent habit renders them objects of great beauty. Seed sown at once in heat, and the plants when up nursed on in any warm place, make nice useful stuff in a few months, and come in admirably for starting early another year. Just at this season there are always early flowering *Azaleas*, *Rhododendrons*, *Heaths*, *Epacris*, and such like things going out of bloom, all of which, if they are expected to be of service next spring, require attention, in order to preserve and encourage the young growth, as future success depends in a great measure on the way this is made and matured. Although the majority of *Heaths* are impatient of close confinement, *E. hyemalis*, *E. gracilis*, and others of that class are greatly assisted after cutting back by being placed where they can be syringed and kept warm, as are also *Epacris*, which when so treated always break better and make longer shoots. As soon as these are fairly on the move any requiring potting should receive that help and be pegged or tied out after, so as to get the side branches well down and regulated, with a view to forming uniform heads. It often occurs in the case of *Azaleas* that instead of shifting them on, it is more desirable to reduce the size of pots many of them occupy, or at least to limit them to those they already are in, which may be done and the plants maintained in perfect health and vigour by slicing away a portion of the old ball and replacing the same with some good tough fibry peat. This should be used in a rather dry state, and after having a portion of the more earthy matter beaten out of it, be well rammed in so as to make it as solid as possible, otherwise the water will find its way through without wetting that occupied by the roots. Plants so treated require to be kept in a close, moist atmosphere where they can be well syringed till they get a good start, and if relieved of their flower-buds before operating on them the easement will be greatly in their favour. *J. Sheppard.*

THE Gardeners' Chronicle.

SATURDAY, MARCH 22, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, March 24 | Rainhill Horticultural Society's Show Sale of Liliun auratum, &c., from Japan, &c., at Stevens' Rooms. |
| TUESDAY, March 25 | Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; and General Meeting, at 3 P.M. Poplar, Bromley, and Limehouse Floricultural Society's Show. Sale of 3000 imported Odontoglossum Alexandræ, at Stevens' Rooms. Royal Botanic Society's Spring Show. Glasgow and West of Scotland Horticultural Society's Spring Show. |
| WEDNESDAY, Mar. 26 | Ealing, Acton, and Hanwell Horticultural Society's Spring Show. Sale of Miscellaneous Plants, at Stevens' Rooms. |
| THURSDAY, March 27 | Sale of first-class Orchids, at Stevens' Rooms. Sale at the Arboretum, Leamington, by Protheroe & Morris. Sale of various Plants, &c., at Stevens' Rooms. |
| SATURDAY, March 29 | Sale of the Grove Nursery, North Brixton, by Protheroe & Morris. |

SOME time since we were favoured by a correspondent with specimens of a peculiar woody excrescence from the lower part of the stem of *Sequoia sempervirens*, an illustration of which is given at p. 377. The growths in question submitted to us varied from the size of the fist to that of a child's head. The plants were, we are informed, raised from cuttings, and a fair idea of the form and appearance of the growth may be gained by describing it as an enormously enlarged and woody callus. The development of the roots and stem has been proportionately small, for in plants of the same age not so affected the root-development is larger and the stem much taller. We are not able to suggest a cause for the growth in question, but to render the history of the case as complete as possible we subjoin our correspondent's letter:—

"The *Sequoia sempervirens* sent were, I find, planted as cuttings in the autumn of 1867. I have had a further batch of them lifted, and find that there are some straight well-formed trees similarly malformed at the root. It appears that about half of the batch, including well-formed trees, are in like condition. Some of the tallest normal-rooted trees are 8 feet to 9 feet high. I have measured the root-ball of one straight tree of 6 feet in height, and find it (the ball) 16 inches in circumference. The soil of the spot is a poor light loam on gravel.

"Some years ago, in transplanting a large bed of seedling *Cupressus Lawsoniana*, one was noticed—and it is preserved here—with a similar protuberance at what nurserymen call the collar. In this example there is a clear space between the roots and the swelling.

"I will have one of these *Sequoias* planted again to see, if I am spared, whether this bulbous development will increase, and whether the tree will continue as it is, comparatively fibreless in proportion to its size and age."

Some noteworthy facts are brought out in our correspondent's letter, as that some of the plants, though deformed as above mentioned at the root, have nevertheless straight well-formed leaders. Again, the occurrence of a similar growth on a seedling plant of *Cupressus Lawsoniana* shows that raising from cuttings is not the sole cause of the phenomenon. The reader will naturally be reminded of the curious gnaurs which grow from the roots of the nearly allied *Taxodium distichum*, which are large enough in this country to be troublesome obstructions to the passage of the lawn mower or the scythe, but which in the Southern States of the American Union attain a height of some feet, and becoming hollow are used as beehives (see fig. 51).

It is not improbable that some of our correspondents have observed instances of like nature in other Conifers. If so, they will be doing a service by communicating the fact. It is possible that the original cause of the excrescences above referred to may have been the puncture of an insect, but in the fully-developed specimens it is impossible to trace any such origin.

— LONDON INTERNATIONAL HORTICULTURAL EXHIBITION OF 1880.—The "International Committee" held a meeting on Tuesday last, Sir DANIEL COOPER, Bart., in the chair, at which it was unanimously agreed that it is inexpedient to go on at present with the proposed Exhibition; and a resolution of adjournment for an indefinite period was passed. At the same time an explanatory letter to Her Majesty's Commissioners, with whom negotiations had just been opened for the use of the South Kensington site, was also agreed to. The committee in this letter explain that they have come to the conclusion that, on account of the continued commercial depression, they would not at the present juncture be justified in entering upon a work the estimated cost of which will not be less than £15,000; but though hesitating under present circumstances to incur this large expenditure which would be necessary to carry out an exhibition at once creditable to the country and satisfactory to horticulturists, they are still of opinion that such an exhibition should be held in London as soon as returning prosperity permits. They have consequently made arrangements by which the question can be resumed as soon as the aspect of commercial affairs is more favourable, and they have sought to engage the sympathies of Her Majesty's Commissioners in reference to the use of the site at South Kensington, if it should not become otherwise permanently occupied when the time of action arrives, so that the show, when it does take place, may be held there.

— THE ROYAL HORTICULTURAL SOCIETY, SOUTH KENSINGTON.—We are gratified to learn that



FIG. 51.—GNAUR ON ROOT OF *TAXODIUM DISTICHUM*, MUCH REDUCED

their Majesties the King and Queen of the BELGIANS have signified their intention of visiting the Society's gardens at South Kensington on the occasion of the meeting of the Fruit and Floral Committees on Tuesday next, and that an effort is being made by the responsible officials of the Society to bring together such a display of plants as shall be worthy of the occasion. Messrs. VEITCH & SONS, BULL, WILLS, LEE, WILLIAMS, OSBORN, and others, we believe, intend to send collections; and it is expected that Hyacinths and other spring flowering bulbous plants will be well represented. English exhibitors are under so many obligations to their Belgian Majesties and to their subjects, that we trust one and all will do their best to render the visit of King LEOPOLD and his royal consort as agreeable an one as it is possible to do.

— THE BLACK WALNUT.—This is one of the noblest of trees, but though introduced as long ago as 1656, it is still comparatively little known. The tree, known botanically as *Juglans nigra*, is a native of Eastern-Northern America from New England to Florida, where it is said to attain a height of 60–100 feet. It is a rapid grower, and the heart-wood is of a deep black colour, taking a beautiful polish. LOUDON, from whom we take these details, says that no tree will grow in the shade of this tree, and that the grass is even injured by it. The nuts are frequently produced in this country, and, like the husks, are rough and tubercled. Our illustration (fig. 52) is taken from a fine specimen in the historic grounds of Fulham Palace, so rich in noble and interesting trees, and of which we have already given several illustrations. The tree in question is some 16 feet in girth at breast height, and has passed its prime.

— THE RECENT ROYAL MARRIAGE.—The floral decorations at Windsor Castle, on the occasion of the marriage of H.R.H. the Duke of CONNAUGHT and the Princess LOUISE of Prussia, were entirely carried out under the direction of Mr. JONES, Superintendent of the Royal gardens, and the vast quantity of plants and flowers required for the event was supplied from the royal establishment under his charge. As all the arrangements were in "State," the decorations were carried out on a much more extensive scale than on previous occasions of a similar nature, about 2000 flowering plants being especially prepared by Mr. JONES for the event, the majority of course being white flowers, including 400 grand pots of Lily of the Valley, *Spiræas*, forced Lilac, *Eucharis*, 300 white Roman Hyacinths, *Narcissus*, &c. On the grand staircase was arranged (on each side) a border of flowers, consisting of the usual decorative and forced plants available at this time of year; the whole having a neat edging of *Selaginella denticulata* and *Panicum variegatum*. Around the statue of GEORGE III. was arranged a noble group of plants, including a pair of *Seaforthia elegans* (12 feet); *Livistonia altissima*, *Chamædorea elegans*, *Dracena australis* (10 feet); Tree Ferns, including *Dicksonia antarctica* and *squarrosa*, *Cibotium regale*, *Cyathea medullaris*, *Burkei*, &c.; large plants of *Salvia Heerii*, specimen *Azaleas*, *Richardias*, *Cycas revoluta*, *Rhododendrons*, *Cinerarias*, *Primulas*, *Hyacinths*, *Dielytras*, Ghent *Azaleas*, &c., edged with *Cyclamens* and Maidenhair Fern. On the landing were two noble plants of *Latania borbonica*, forming the centres of two groups of flowering and fine-foliage plants, which were continued in the direction of the reception rooms, also in the opposite direction leading to the suite of apartments occupied by the King and Queen of the BELGIANS. Around the statue of HER MAJESTY (by BOEHM) were tastefully arranged three half-circular beds of flowers having for a centre a Palm (a *Latania*), and two *Chamærops excelsa*; these were surrounded by plants of a uniform height, Tulips, Hyacinths, *Narcissus*, Lily of the Valley, &c., having an edging of *Pteris serrulata*, *Adiantums*, &c. This arrangement had a peculiarly bright and spring-like appearance, and lent quite a warmth and colour to the grand vestibule, with its suits of armour, trophies of war, banners, &c. The QUEEN's private staircase was furnished with a choice selection of decorative species, such as *Cocos Weddelliana*, *Dæmonorops fissus* and *palembanicus*, *Areca lutescens* and *aurea*, *Latania aurea*, *Thrinax*, *Kentias*, *Euterpe edulis*, *Geonoma gracilis*, *Dracena amabilis*, *Baptisti*, *regina*, *nigro-rubra*, *Cooperi*, *Hendersoni*, *Robinsoniana*, &c.; *Epacris*, *Heaths*, specimen *Azaleas*, *Eucharis*, Orange trees (in full flower), *Adiantum farleyense*, *A. cardiophyllum*, *A. gracillimum*, &c.; Orchids, such as *Dendrobium nobile* (in quantity), *Odontoglossum Roezlii* and *Alexandria*, *Lælia anceps* and *albida*; *Dendrobium densiflorum*, *Lycastes* (in good variety), *Oncidiums*, *Phajus Wallichii* and *grandifolium*, *Phalænopsis*, *Anthurium Scherzerianum*; the whole being edged with a broad band of Lily of the Valley, the pots hidden by *Selaginella denticulata*. This was (as it should be) the most chaste and beautiful arrangement of all, and here in particular was the taste of Mr. JONES admired by all those privileged persons who had the pleasure of seeing it. The wedding breakfast was served in the QUEEN's private dining-room, and the table was decorated throughout with white flowers. In the centre was the cake (5 feet 6 inches high), on each side two double white *Azaleas* on gold tripod stands 3 feet 6 inches, draped with *Ficus repens*, &c., to the table. Round the base of the cake were placed four dwarf Orange trees in flower; corresponding with these were eight pots of Lily of the Valley, all in gold vases; in a line with the cake and *Azaleas* were pairs (3 feet high) of *Kentia Forsteriana* and *Canterburyana*. There were also fifty bouquets of choice white flowers—*Eucharis*, *Spiræas*, *Camellias*, Lily of the Valley, &c.—surmounting pyramidal stands 2 feet high of the confectioner's delicacies; the whole combining to make up such a floral feast as is seldom seen. The banquet to the Ambassadors, &c., was served in St. George's Hall. Here larger plants were used, including *Azaleas*, *Begonias*, *Arecas*, *Sabal*, *Dæmonorops*, &c., in all twenty pairs, and fifty bouquets similar to those before-named, but with the flowers of various colours. The bride's bouquet was, by special permission, presented by Messrs. JAMES VEITCH & SONS, of Chelsea; and HER MAJESTY and the Crown Princess of GERMANY accepted bouquets from the same firm, while Mr.

JOHN WILLS had the honour of presenting a bouquet to Her Majesty the Queen of the BELGIANS. Mr. JONES provided bouquets for the other Royal and distinguished visitors, and these were made up with Gardenias, Eucharis, Lily of the Valley, white Camellias, Roses, Bouvardias, Orchids, &c. We are pleased to hear that Mr. JONES has since received, through the Lord Steward of HER MAJESTY'S household, a letter expressing the Sovereign's entire satisfaction with the whole of the decorations and arrangements carried out in the department under his charge.

— PROFESSOR CHURCH AND THE AGRICULTURAL COLLEGE.—At a meeting of the Committee of Management of the Agricultural College, says the *Wills and Gloucestershire Standard*, held last week in

staff." We understand that, in consequence of the above decision as to Professor CHURCH'S connection with the Agricultural College, the two resident Professors next to him in seniority have resigned their respective chairs; the chair of mathematics and physics being vacated by Professor H. W. LLOYD TANNER, M.A., that of natural history by Professor FREEM, B.Sc., F.G.S. We are sorry for the College, but we are rather disposed to congratulate Professor CHURCH on getting out of it. The loyalty of his brother Professors is an agreeable thing to witness, and, taken in conjunction with a similar secession some years since, is a pretty good indication of the spot where the shoe pinches, though doubtless there is something to be said on the other side too.

soil, as in the case of the *Hydrangea*, but this always was disproved by the fact that scarlet and blue flowers occurred on the same stalk. The tint is slaty-blue, most apparent over the veins of the petals, but in some cases becoming diffused over the whole of the distal half of the petal. Flowers of a similar hue occur amongst those recently brought over from America by Mr. HOVEY.

— ORCHIDS IN BLOOM AT DAVENHAM BANK, GREAT MALVERN.—Among the more important of the Orchids now in bloom in Mr. J. D. PERRIN'S collection is *Cœlogyne cristata*, with sixty-three spikes and 256 blooms; *Dendrobium Wardianum*, with eight flowering bulbs and 155 blooms; *D. heterocarpum*, with nine flowering bulbs and 210 blooms: this is



FIG. 52.—JUGLANS NIGRA AT FULHAM PALACE. (SEE P. 372.)

London—present Earl BATHURST, the Earl of DUCIE, Colonel KINGSCOTE, C.B., M.P.; Mr. G. SOTHERON ESTCOURT, M.P.; Mr. A. L. GODDARD, M.P.; Mr. T. S. BAZLEY, and Mr. EDWARD BOWLY—the following resolution was passed, in reference to Professor CHURCH'S application for permission to reside out of the College:—"The Committee of Management are of opinion that the discipline of the Agricultural College cannot be satisfactorily maintained except by the residence of Professors within the College walls, in conformity with the original byelaw, No. 47. Being fully sensible of the services rendered by Professor CHURCH during his sixteen years' residence in the College, they the more regret that they cannot accede to his recent proposal of non-residence, a compliance with it involving such alterations as would unduly disturb the present organisation of the College

— SOMETHING LIKE A HYACINTH.—Mr. W. SOWERBY obligingly informs us of a Hyacinth with fifteen flower-spikes produced from one bulb. Fasciated stems are not uncommon, but in Mr. SOWERBY'S experience, no less than in our own, the production of fifteen spikes is very unusual, if indeed it be not unprecedented.

— BLUE CAMELLIAS.—We are indebted to the Rev. GEO. HENSLOW for the inspection of some Camellias with a much more marked blueish tinge than we remember to have seen before. At first we were inclined to think the colour due to bruising of the petals, but the inspection of a young uninjured bud in which the blue colour was deepest negated this notion. Another suggestion was that the change in colour might be due to the presence of iron in the

very sweetly perfumed, and so is the lovely *Odontoglossum pulchellum majus*, which bears thirty-two spikes and 225 blooms.

— THE PROVINCIAL SHOW AT PRESTON.—Unfortunate in its inception, unfortunate in its management, unfortunate in the weather, unfortunate financially, it is hardly to be wondered at that the winding up of this affair is not likely to prove very satisfactory. But while those who were conversant with the history of this ill-starred exhibition can experience no surprise at the result, they will regret that the Lindley Medal, which was established to be the highest honour obtainable by the cultivator, should be suffered to be metaphorically dragged through the mud. We can say nothing of the reasons which may have weighed with the authorities of the Society in

the particular case to which the subjoined letter, forwarded to us by Mr. SHUTTLEWORTH, refers. We are simply anxious to prevent, if possible, the Lindley Medal from falling so low in public estimation as the Legion of Honour bids fair to do. Mr. SHUTTLEWORTH'S collection was honestly worth the award which the judges recommended should be made, but, on applying for it, "no sort of notice was vouchsafed" till after renewed application, when the following letter was received by Mr. SHUTTLEWORTH:—

[Copy.]

"Royal Horticultural Society, South Kensington, W.,
March 12, 1879.

"T. M. SHUTTLEWORTH, Esq., Howick House, Preston.

"Sir,—I am directed by the Council of this Society to acknowledge the receipt of your letter of the 20th ult. regarding the gold Lindley Medal, which the judges at the Preston Show recommended should be awarded to you for your collection of plants, and to say, in reply, that the Council will forward the Medal, upon receipt of its value from the general fund of the Preston Show.

"I am, Sir, yours faithfully,

"ROBERT HOGG, Secretary R. H. Society."

— CHINESE PRIMULAS.—By growing at Chiswick a large collection of Chinese Primulas from seeds obtained from the leading Continental seed houses Mr. BARRON has this season provided an admirable demonstration of the immense improvement that has been wrought in this flower during the past few years, and especially of the great superiority of the types introduced by our own florists. Still, if it is clear, from an inspection of the Chiswick collection, that home-raised flowers have the greatest merits as florists' flowers, to the Continental growers must the credit be given for having originated the greatest novelties in the important point of colour. It is true that of the great number of distinct colours shown in the Continental plants, from some glaring defect or other the majority of the sorts are not worth growing, yet there are two at least which mark a decided advance on anything seen before, and of these we have reason to believe our leading growers intend to make good use. The first is decidedly novel in colour, being bright red and most showy, notwithstanding an apparent want of substance in the flower. The second, named La Pipe, has also a ground colour of red, beautifully shaded with violet, lighter towards the centre, and is, in fact, the darkest of all the purple-shaded that we have seen in Primulas. Both were introduced by Messrs. VILMORIN & Co., of Paris, to whom we shall look with interest for further developments in the same direction.

— THE ROYAL HORTICULTURAL SOCIETY'S CHISWICK GARDENS.—In order to popularise and extend the love of flowers and the knowledge of horticulture, the Council has decided to issue annual tickets to residents in the neighbourhood of Chiswick who may wish to visit these gardens, where the various practical experiments in horticulture conducted by the Society are carried out. These tickets will be issued at the rate of one guinea each, giving admission to bearer and two friends, on all occasions when the gardens are open, with participation in Fellows' privilege No. 9 (which entitles the holders of the tickets to purchase the flowers, fruit, &c., grown in the gardens which may not be required for scientific purposes), and may be had on application to Mr. BARRON, at the Society's Garden, Turnham Green.

— MINIATURE CAMELLIA.—We have received from E. J. LOWE, Esq., blooms of a seedling white Camellia of good form, but so small that they appear to be exactly the thing for button-hole bouquets. The leaf is of the usual character, rather acuminate, and the flowers are pure white shell-petalled, and when fully blown only 1½ inch across. The flower is certainly a curiosity.

— INDIAN PLANTS ADAPTED FOR COMMERCIAL PURPOSES.—Under this title Mr. JACKSON, of the Kew Museum, recently read before the Society of Arts a paper on this important subject, in which he alluded to the discouragement thrown upon enterprise by the premature inquiry, "Will it pay?" In the case of a new product long trial and careful experiment are often needed, and the man of commerce is not inclined to undertake these, but it might well be a principal function of experimental gardens and laboratories to take up such questions, and pave the

way for the trial on a larger scale by the manufacturer, who would thus have at least some guarantee that he was not throwing money away and losing time into the bargain.

— THE ROYAL BOTANIC SOCIETY.—A correspondent remarks that while the affairs of the Royal Horticultural Society are regularly watched and criticised by horticulturists of all shades of opinion, it seems strange that the doings of the sister society, the Royal Botanic, are all but ignored. Yet it would seem as if a little outside criticism would do the latter body no harm, and as it is about time that the prize money won by exhibitors last year was paid, the mere mention of the fact that such prize money has not yet been paid might prompt the Treasurer of the Society to consider the matter as "urgent." Our correspondent complains that he exhibited, at considerable expense, at three of the Society's shows, but cannot get a settlement for any of them.

— ECONOMICAL GARDENS FOR LONDON AND OTHER SMOKY TOWNS.—This was the subject of a paper read on Wednesday evening, at a meeting of the Society of Arts, Lord ALFRED S. CHURCHILL in the chair, by Mr. W. MATTIEU WILLIAMS, F.R.A.S., to which we shall allude at greater length in our next issue.

— BOLBOPHYLLUM BECCARII.—Amongst Orchids are to be found many of the strangest forms existent in the vegetable kingdom, not alone in the fantastic character of the flowers, but also in the plants on which the bloom is borne. Few that have yet been seen are so distinct in general appearance as the recently imported *Bolbophyllum Beccarii*, now beginning to grow freely in Mr. BULL'S establishment at Chelsea. Like *Phalenopsis* and some others it is devoid of the pseudobulbous stems present in most Orchids, and consists simply of roots issuing from a short non-thickened collar, which bears a solitary leaf in the way of the Cavendish Orchid (*Oncidium Cavendishianum*) but of immense size and substance: several that we measured were 20 inches long, and 15 inches broad. Many of the plants are pushing vigorously shoots from the stems just below the junction of the leaves, and so far have more the look of leaf-growth than bloom. The flowers grow in dense cylindrical drooping racemes a foot long. This plant, to which from its decidedly distinct and singular appearance much interest is attached, has been technically described by Professor REICHENBACH in our present volume, p. 41.

— ORCHIDS IN FLOWER AT CHELSEA.—The following Orchids are at present in flower at Mr. WILLIAM BULL'S establishment, King's Road, Chelsea, London:—

| | |
|------------------------------|-----------------------------|
| Ada aurantiaca | Masdevallia ignea |
| Aerides japonicum | Odontoglossum |
| Cattleya Trianae | Andersonianum |
| "splendens | "angustatum |
| "tyrianthina | "bictoniense |
| "violacea | "cirrhosum, between forty |
| Cœlogyne corymbosa | and fifty spikes |
| "ocellata | "cirrhosum Klabochianum |
| Cymbidium eburneum, two | "cordatum |
| varieties | "crispum (Alexandrae), up- |
| Cypripedium barbatum Crossii | wards of twenty spikes |
| "Boxallii | "gloriosum |
| "Bullenianum | "superbum |
| "Dayanum | "odoratum |
| "Harrisianum | "Pescatorei, one spike with |
| "Lowii | eight branches |
| "venustum pardinum | "Phalenopsis |
| "villosum | "Rossii majus |
| Dendrobium Ainsworthii | "triumphans, upwards of |
| "chrysotoxum | a dozen spikes |
| "crassinode | "triumphans nigrum |
| "Barberianum | Oncidium bicallosum |
| "Freemani | "crispum |
| "littellianum | "fuscum |
| "luteolum | "sarcodes |
| "nobile | "Weltoni |
| "Pierardi | Pescatoria Roezlii |
| "primulinum giganteum | Phalenopsis amabilis |
| "Wardianum, several; | "Schilleriana |
| one spike has upwards | Saccolabium ampullaceum |
| of forty flowers on it | Sophranites grandiflora |
| Lycaste Skinneri | Vanda alpina |
| "rubella | "suavis |

— A DISTINCT AND BEAUTIFUL CœLOGYNE.—At Mr. B. S. WILLIAMS' nursery, Holloway, we saw in flower the other day a most distinct and beautiful *Cœlogyne*, which is supposed to be quite new. It differs materially from any of the genus that we are acquainted with, the pseudobulbs being large, tapering towards the top and bearing a pair of very thick leathery leaves, betwixt which from the apex of the bulb springs the flower-spike, about 1 foot long, with seven or eight flowers in shape not unlike those

of *C. media*, but three times the size. The sepals and petals, which open wide, are pure white, as also the ground colour of the labellum, which has a large irregular blotch of bright yellow on each side inside, and another on the lip, all edged with a well defined line of bright brownish red which gives the flower a most telling and effective appearance. Another peculiarity is that on the outer surface of the labellum there are also yellow blotches edged in like manner, and just opposite those on the inner surface; they are not a reflection of the colour from the inside, but clearly and similarly marked on both inner and outer surfaces, and which, so far as our recollection goes, is a distinct feature not before noticed amongst these flowers. The plant is an exceedingly free bloomer, being almost covered with its arched racemes of elegant blossoms.

— ODONTOGLOSSUM MADRENSE.—Messrs. JAMES VEITCH & SONS request us to state that in the paragraph by Professor REICHENBACH under this heading, at p. 342, it is stated that the inflorescence described was sent by that firm to the Professor from W. WARNER, Esq., Camden Wood, Chislehurst; it should have been W. VANNER, Esq.

— THE EALING DISTRICT GARDENERS' SOCIETY.—On Wednesday evening last, before the members of this Society, Mr. A. DEAN, of Bedford, read a paper on the "Potato as a Subject for Exhibition." The reader gave in a condensed form much useful information as to the general mode of culture adopted by the best growers of show tubers, pointing out that the skill displayed in the production of high-class samples was not less available for the growth and cultivation of all garden products. In reference to the sorts advised for growth stress was laid on the fact that out of twenty-four best show kinds nearly every one was of first-class table excellence, thus controverting the common notion that high-class show sorts were of inferior quality. The points essential in good judging were clearly laid down, stress being laid on the fact that just as large tubers were objectionable for table use so should they be deemed objectionable for exhibition. There was a large attendance of members, and the usual vote of thanks was awarded to Mr. DEAN at the close.

— SAXIFRAGA BURSERIANA.—This lovely little alpine is the earliest to flower of the Saxifraga family. Indeed, it would be impossible to say too much in its favour. In the York Nurseries there are a considerable number now finely in flower. We noticed a specimen of it which was growing on the rockwork. The tuft was about 6 inches in diameter, and quite hemispherical in shape, with upwards of 100 buds and flowers. There are two forms of this Saxifraga; one has dull scarlet calyx and pure white flowers three-quarters of an inch in diameter; in the other, the calyx or buds are greener, and the flowers larger, being 1½ inch in diameter. The former is found on the dolomite mountains in the Tyrol; the latter is also found in the Tyrol, but much further south—near the Italian frontier. It is blooming very finely on the new rockwork at Chiswick Garden, where Mr. BARRON has been very successfully cultivating many interesting plants of this class.

— HIMALAYAN PRIMULAS.—Those fine early Primulas denticulata and purpurea are just now very fine under glass at the Bedford seed grounds. The trusses of bloom are large and full, the flowers of unusual size, and in many the colour much deeper than is found in the common forms of denticulata. These plants were grown in the open ground last summer, and lifted into 8-inch pots early in the winter. Primula denticulata and its congener are deep rooters and require much more root-space than pots afford. Where this is to be had the crowns are unusually large and the trusses of bloom exceedingly fine. Plants kept in pots, however well treated, fail to produce such fine results. No other hardy Primula is so quick to bloom from seed as is this species. A pinch of seed saved from a large rich-coloured purpurea and sown last June has given hundreds of plants, many of which were in flower the first week in the present month, and as showing the constancy of the variety to reproduce its best features not one inferior flower has opened, whilst some are even much deeper than were the flowers of the parent plant. To assist in the production of gaiety and variety in the conservatory or greenhouse at this time of the year these hardy

Primulas are most valuable; they bloom freely and finely all through March without the least artificial heat, and are admirable companion plants to Chinese Primulas, Cyclamens, Cinerarias, and the other special greenhouse plants of this period of the year.

— EUPHARIS CANDIDA, now in flower at Kew, is a valuable companion for the universal *E. grandiflora*. With several plants it is scarcely ever out of flower, and the polished blooms of smaller size and elegantly recurved segments allow it in no way to be dimmed by contrast, especially as the smaller blooms for some purposes are considered especially useful. It was fortunately obtained by Mr. BULL's collector in New Grenada, and as few comparatively were imported, or at least something short of the demand, we are glad to see that it evinces a tendency to increase rapidly.

— TREES AT THE WEST-END.—From a letter in the *Times* of Thursday last we learn that "The Westminster Vestry, having resolved to plant some trees as an ornament on the vacant triangular space near New Tattersall's, at Knightsbridge, long known as Knightsbridge Green, have met with an unexpected opposition from the local tradesmen, who consider that the trees will injure their business, and also from the cab-drivers, who consider the projected measure an invasion of their rights. At a meeting of some inhabitants of the neighbourhood a resolution was passed condemnatory of the planting of the trees, and at its close a body of cabmen and others proceeded to the Green, where they gave emphasis to their resolution by seizing the shovels of the workmen and filling up the holes which had been dug to receive the trees."

— SELAGINELLA KRAUSSII (DENTICULATA).—Of this most useful plant, now grown in such enormous quantities for decorative purposes, and especially to meet the great demand of such professional floral decorators as Mr. JOHN WILLS and others, Mr. BARRON has at Chiswick what may appropriately be called a golden counterpart, or, in other words, a neat-growing, distinct, golden-yellow variegated form, which promises to become a very popular plant if it remains constant. It was sent to Chiswick by Mr. DONALDSON, gr. to the Earl of KINTORE, Keith Hall, Aberdeenshire, but we know nothing of its origin.

— ROYAL VISIT TO MESSRS. VEITCH'S NURSERY.—Messrs. JAMES VEITCH & SON's famous nursery at Chelsea was visited on Wednesday afternoon by H.R.H. the Princess of WALES and H.I.H. the Crown Princess of GERMANY, accompanied by His Excellency Count MÜNSTER, the German Ambassador, and his daughter, the Countess MARIE MÜNSTER. The distinguished visitors spent upwards of an hour in examining the numerous floral objects of interest to be seen in the establishment at this season.

— ORCHIDS IN FLOWER AT GLASNEVIN.—A correspondent informs us that at the present time there is a fine display of Orchids in flower at Glasnevin. The following is a list, which will give some idea of what is to be seen in the Orchid-house at the present time:—

| | |
|---|--|
| <i>Aerides suavisissimum</i> | <i>Maxillaria Harrisoni</i> |
| <i>Angraecum eburneum</i> | <i>Neottia picta maculata</i> |
| <i>Camarotis purpurea</i> | <i>Oncidium pachyphyllum</i> , spha- |
| <i>Dendrobium Wardianum</i> | celatum, Krameriana, |
| " <i>nobile</i> | bilobum major |
| " <i>Jamesoni</i> | <i>Odontoglossum Phalaenopsis</i> , |
| " <i>densiflorum</i> | triumphans, hastatum, |
| " <i>Devonianum</i> | Dawsonianum, Hallii |
| " <i>fimbriatum</i> var. <i>oculatum</i> | <i>Phalaenopsis Schilleriana</i> |
| <i>Cymbidium Mastersii</i> | <i>Schomburgkia undulata</i> |
| <i>Cypripedium Roezlii</i> | <i>Vanda cristata</i> , tricolor, gigan- |
| " <i>Lowii</i> , <i>barbatum</i> , longi- | tea, <i>suavis</i> , and a host |
| <i>folium</i> , <i>villosum</i> , <i>Dominianum</i> | of others that are more |
| <i>Epidendrum Stamfordianum</i> | of botanical interest |
| <i>Lyciste Skinneri</i> | than otherwise |

— THE NEW ROCKERY AT CHISWICK.—The new rockery at Chiswick is one of the prime features of the garden at the present time. Some fine clumps of Hepaticas, such as the single blue and single white, the double red, the rose-coloured *H. Barlowi*, and the pale tinted *Anemone* (*Hepatica*) *angulosa* have a grand effect in contrast with the dull grey stone of which the rockery is formed. *Cyclamens ibericum* and *Coum* have also flowered very finely, while that little gem, *Saxifraga Burseriana*, is flowering with great freedom, also *S. oppositifolia pyrenaica rubra*, a charming companion to the first-named, with small red flowers. A third species is *S. retusa dryoides*, a most diminutive plant, with very small

dark coral-red flowers, much resembling red berries at first sight. Just coming into flower—and proving to be perhaps the earliest to bloom of the genus—is a very dwarf species of *Iberis*, collected by Mr. MAW on the mountains of Greece; and also many garden varieties of *Crocuses*, which Mr. BARRON has planted in clumps to provide a little bloom at a time when there is not much else in that attractive condition.

— MENTHA PULEGIUM GIBALTARICA.—It is to be feared that many growers who, depending upon this useful carpet bedding-plant being quite hardy, did not take the precaution to winter their store stock under glass, will be short in their supply when the bedding-out season comes round, so badly was the plant hit in many places during the severe frost. On the new rockery at Chiswick it was killed outright, while the Golden Chickweed, on exactly the same aspect, remains uninjured, forming a golden carpet most charming to behold.

— PLANTS FLOWERING IN THE OPEN AIR AT MR. WARE'S.—The following plants were in flower, March 18, in Mr. T. S. WARE's nursery, Tottenham:—*Coptis orientalis*, *Rhododendron præcox*, *Saxifraga pyrenaica* and vars.; *Draba*, several varieties; *Iris reticulata* and *purpurea*, *Iris persica*; *Fritillaria pudica*, *Primulas*, viz., *denticulata*, *purpurea*, species from Kashmir; a new crimson-flowered species from the Himalayas; *nivalis*, and many forms of the common *Primrose*; *Scillas*, viz., *sibirica* and *bifolia* and varieties; *Leucojum vernum*, and several forms of dwarf *Narcissus*, *Androsace Lageri* and *carnea*, *Erythrinum giganteum*, &c.

— CHIONODOXA LUCILLE.—Without doubt this charming bulbous plant is one of the most valuable recent additions to the list of spring flowers. In foliage it much resembles *Scilla bifolia*, but the flowers are considerably larger, being 1 inch in diameter, with rather narrow segments, which slightly reflex. The colour is white in the centre, gradually merging into the sky-blue tint of the outside. It is one of the numerous introductions of Mr. MAW, who found it at Nymph Dagh, Smyrna, a year or two since, and having collected it in quantity, distributed it with his accustomed liberality; so most probably it will not be long before it gains the popularity to which its high merits entitle it.

— HORTICULTURAL CLUB.—The annual dinner of the Club took place on Tuesday, the 11th inst., at the Club-house, Arundel Street, Strand, the chair being taken by Mr. JOHN LEE, and the vice-chair (in the unavoidable absence of the Hon. and Rev. J. T. BOSCAWEN) by Dr. HOGG. According to the rules there were but few toasts; that of "The Visitors" was responded to by Mr. HOVEY, of Boston, U.S., who gave an interesting *resumé* of the comparison of his visit now with one made twenty-five years ago; and "The Prosperity of the Club," by the Secretary, who stated that a further sum had been invested in the Funds, and that no better proof of its prosperity could be given.

— VERONICAS AND THE FROST.—Since the disappearance of the severe frost we have seen but very few plants amongst hundreds of *Veronicas* grown in suburban forecourt gardens that have not been killed outright, or most severely injured. At Chiswick it appears all were killed but *V. pinguifolia* growing on the rockery.

— PRIMULA ROSEA.—Flowering at Kew is *Primula rosea*, newly introduced, and truly one of the prettiest. Its merit is due to a pure and charming colour, unsurpassed by any of the genus, and this feature has secured for it the most appropriate name that could be given. The leaves are lanceolate, at present nearly erect or slightly spreading, finely serrate, brownish when young, and at length pale green; the scapes do not emerge from the expanding bud in some plants, in others they rise to a height of perhaps 5 inches just above the larger leaves; the best umbels have six to nine flowers, four or five expanded at the same time, with corollas nearly three-quarters of an inch in diameter. The buds are deeply coloured, and so are many of the flowers, while others shade off to the delicate tint of a Peach blossom. It grows in Kashmir at a height of 8500 feet, where it flowers about the end of August, and is found also in

Afghanistan. ROYLE gives a figure in his *Botany of the Himalayas*, but which does scant justice to the plant as it grows before us, being harshly drawn, and if correct even, only for a form less beautiful than the present. Comparison with specimens also leaves no doubt, however, as to its identity. ROYLE says that, "Ornamental as are all the known *Primulas*, they are nowhere more so than on the coldest and most exposed of the Himalayan peaks," and among those not introduced this must be one of the choicest gems, as indeed it is of those in cultivation. Its habit is similar to that of *P. Stuartii*, so much so that before flowering it was supposed to be that plant.

— THE GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY.—The spring show of this Society is fixed for Wednesday next, and the autumn show for September 3, both to be held in the New Public Hall, Glasgow.

— FAREHAM AND SOUTH HANTS HORTICULTURAL SOCIETY.—The annual exhibition of this Society is fixed for Wednesday, June 25.

— COMPENSATION CASE: CARTER v. THE METROPOLITAN DISTRICT RAILWAY, FULHAM EXTENSION.—This case was heard at the Sheriff's Court, Red Lion Square, on Wednesday, March 12, being a claim for £1000 in respect of 2 acres of market garden land at Fulham, leasehold, for an unexpired term of thirteen years, and for damage by severance to the adjoining 11 acres. Mr. WEBSTER, Q.C., was counsel for the claimant, and Mr. BIDDER, Q.C., for the company. Three valuers, Messrs. A. BAKER, GOMME, and CARTER, on behalf of the claimant, estimated market gardener's profits at £25 per acre per annum, or a sum of £500 for the whole term, and they further estimated the damage by severance, &c., at an additional £500. No witnesses were called on behalf of the company, but Mr. BIDDER contended that a sum of £300 would be ample compensation. The verdict was for £766.

— WEATHER FORECASTS.—On and after April 1 any person may obtain by telegraph from the Meteorological Office the latest information as to the weather in any district of the United Kingdom by payment of 1s. in addition to 2s., the cost of the message to the Meteorological Office and the reply. The telegram containing the inquiry must not exceed twenty words in length, and must be addressed "Meteorological Office, London." The Meteorological Office does not undertake to give any information which is not substantially included in the latest notice posted at its own doors, nor does it give forecasts of the weather on the Atlantic coasts of the British Isles, although it is ready to furnish any information it possesses as to the actual state of the weather on those coasts. The Meteorological Office is open for such inquiries between the hours of 11 A.M. and 8 P.M. on week days, and between 6 P.M. and 8 P.M. on Sundays.

— THE WEATHER.—From the meteorological report issued by the Meteorological Office for the week ending March 17, we learn that the weather was generally fair during the early part of the week but more cloudy towards its close. A considerable quantity of snow fell in Scotland and the north of England and much rain in "England, N.W." and "Ireland, N." The temperature was about the mean in "England, S.W." but below it in all other districts—the deficit being as much as 8° in "Scotland, E." The maximum for the week occurred very generally on Wednesday the 12th, when the thermometer rose a little above 55° over England and "Ireland, S.," but at many of the English stations a second maximum was observed on Sunday the 16th, and in some places the thermometer was as high on that occasion as before. The lowest minima were recorded about the middle of the period, i.e., from the 13th to the 15th, and were as low as 22° at Glasgow, Selkirk, and Nairn, 20° at Shrewsbury and Shields, 19° at Leith, 18° at Glenalmond, and 16° at Durham. The rainfall was a little below the mean in most of the English districts, but considerably above it in "Scotland, E." and "England, N.W." In Scotland snow fell almost every day, and on the morning of the 17th it lay 9½ inches deep in the open at Glenalmond. The wind was W. at the commencement of the week, veering to N.W. and blowing a gale on our north and east coasts on the 12th. Variable breezes prevailed during the next day or two, but on Saturday south-westerly winds set in except in the north of Scotland. In the latter region an easterly breeze showed itself and, increasing in strength, it also spread gradually to the south, with cold weather, and displaced the south-westerly breeze. On Monday, however, it began to veer to S.E. very generally.

Home Correspondence.

Anemone (Hepatica) angulosa.—I was about to draw attention to the beauty of *Hepatica angulosa* as a spring flower, when my copy of the *Gardeners' Chronicle* showed that "G." at page 343 had already done so. This *Anemone* or *Hepatica* and the *Snowflake* have been the two most beautiful flowers out with us. I had lately the pleasure of a visit from a well-known old horticulturist, Mr. Hovey of Boston, U.S.A., he was especially struck with the *Anemone*. Intended growers should be warned that there are two varieties, one large flowered the other small, the foliage being the same. I found this by experience. The flowers of our first bought plants were very small: for some time I fancied this to be from improper cultivation, until a second purchase grown in the same situation gave the large flowers without trouble. Judging from the number of people who remark upon it here, the *Snowflake* is not nearly as much known as it deserves to be. I have tried it in many situations and find it, though easy to grow anywhere, to show itself best planted in shade in front of a bed of Christmas Roses. We have now a border of this sort with about 150 flowers of the *Snowflake* out, the effect is beautiful; the stems are of different length, according to the size of the bulbs—some have two flowers. I enclose one or two specimens of the taller ones with a leaf. The specimens of the two varieties of *Hepatica* (*Anemone*) *angulosa* are not very good ones, but they were taken from plants growing side by side and are fair for comparison. *Cyclamen Atkinsii* is in great beauty. *Saxifraga Burseriana* is a little gem; a really happy great clump of the old double pink *Hepatica* shows its beauty at a great distance, but I think all yield to the *H. angulosa* and the *Snowflake*. *George F. Wilson, Heatherbank, Weybridge Heath, March 15.*

Setting Peaches.—Much has been written respecting the setting of Peaches, as if it were a difficult feat to perform, whereas if the roots and trees are only healthy, the temperature of the house in which they are kept anywhere near the mark and proper ventilation afforded, it is impossible to fail. I suppose that one grain of pollen is sufficient to bring about fructification, and yet Nature has been so bountiful as to supply thousands in the many anthers there are surrounding the stigma of a Peach flower, which is so placed that some or other of the pollen grains, when they become dispersed, must fall on or be carried to it, and there remain till their allotted functions are performed. The slightest current of air is sufficient to set it in motion, provided it is dry and ripe, in which condition there is no occasion for the aid of Pampas-grass plumes, or anything else that man or insects can bring to bear, the work of Nature being faultless in all respects, and, as a rule, requiring no assistance. If it were otherwise we should come badly off, as not only would the fruits of the earth be very uncertain if so dependent, but Wheat ears would often be barren, instead of which these and other grains are rarely met with except in a perfect state. Where the male and female organs do not exist in the same flower Nature, as if to make amends, has been even more profuse—a striking instance of which may be seen in the case of a nut bush, the catkins on which fill the air with their pollen. The same thing occurs with the Maize, and more notably with *Garrya elliptica*, the pollen from which coats the leaves and ground under the bushes as if sprinkled with sulphur. Depend on it, if Peaches will not set and swell a crop without help in fertilising there is something wrong either at the roots or in the air of the house to account for it, for if the flowers are strong perfect fructification follows as a matter of course. *J. S.*

Erica codonodes.—During the past inclement January, when even *Jasminum nudiflorum* showed but a few scattered flowers against a south wall, one shrub alone was able to make its ordinary display. *Erica codonodes*, on the north side of the house, set the north-east wind at defiance, and proved itself to be a treasure indeed for the winter garden. *H. K.*

Snowdrops on Grass Banks.—If anything attracts the eye of the visitor at Brougham Hall, after such a severe winter, with everything in the shape of vegetation looking lifeless, it is a sloping grass bank of considerable depth which is dotted with thousands of clumps of *Snowdrops*, which at the present time are literally swarming with their little white flowers. The effect is charming, owing to the situation. The bank is viewed from a terrace which commands a fine prospect. The Lowther and the Eamont, two small streams, seem, as it were, united up to one point, where they divide when viewed from one end of the terrace, the former gliding softly down in a picturesque valley well studded with forest trees and other *Coniferae* at the base of the bank alluded to. It is a wonder such sights do not bring the cultivation of hardy spring flowers more into public favour, and especially those little harbingers of spring which are

quite at home wherever they are planted, either on grass or in woods, by the side of walks or on a front border amongst shrubs. I can only suppose they are not expensive enough, or they might be used for many purposes of house decoration at this season, as well as for the embellishment of lawns and woods. *Visitor.*

Fruit Prospects.—At no time do I remember to have seen a better prospect for all kinds of fruit than we have this season, and unless we get spring frosts more than usually late, it is impossible now for the bloom to become sufficiently advanced to take any harm, as the buds up to the time of writing this are only just beginning to show that they are on the move, and it will therefore take some weeks of warm weather before they are fully expanded. Bad and trying as the winter has been to many, it is somewhat cheering to feel that the country will derive some benefit from it, and be less dependent on foreign supplies than we have been for the last two years past. Trees have had such a rest now, that if a crop is only secured, they will be well able to bear it and receive benefit too, for in the majority of cases they are getting over robust, and require a load to check the production of wood. Before the end of last March Apricots, Peaches, and Nectarines were in full flower; but so far as can be judged at present they will not be in the same condition till quite the middle of April, after which a very slight protection ought to render them secure. Strawberries look much cut, and have all the old foliage completely destroyed, but the crowns fortunately do not appear to have suffered any harm, as they are now starting vigorously, and only want a few warm showers and sun to aid in reclothing them with fresh verdure. *J. Sheppard.*

The Wild Daffodil, which will soon in mugsful adorn the cottage windows, has two local names in Devon, and perhaps elsewhere. They are known as "Lentcocks," in allusion, it seems, to the barbarous custom of cock-throwing which was prescribed by our forefathers for Lent, or rather for Shrove Tuesday. The boys, in the absence of live cocks to throw sticks at, practised the art of decapitation on the flower. But they are also called "Gracidsays" (I do not say that the word is so spelt, or ever spelt at all), a name abbreviated possibly from grassy Daisies, or can any other origin be supplied? *T. Turner.*

The Pentstemons and the Frost.—I find the Pentstemons in the open borders here almost without exception killed to the root, without any prospect of their breaking again from the base. As I expect them to be killed on an average one winter in five, I take care to preserve a stock under glass; but my object in writing this is to ask whether any of your readers have tried the plan of partly raising their Pentstemons, so as to loosen the root, at the beginning of winter. I am induced to think that many might this year have been saved in this way. About the end of February, when I went round to examine my Pentstemons, which I grow in large numbers and of large size, I found that whilst the rest of the plant was brown and withered, many branches which had been partly or entirely broken off by the early snow remained fresh and green, and quite fit to make cuttings from. At first I thought this was owing to the protection they had received beneath the snow, which was very deep here all December; but on further examination I found that undetached branches running along the ground were killed, whilst those partly broken off near the top of the shrub remained fresh and green. It appears, then, that the diminution of the flow of sap had lessened the power of the frost. Would it be likely that the treatment proposed above would have enabled the whole plant to resist the frost and survive the winter? *C. W. Dod, Edge, Malpas.*

Early Strawberries.—My attention has been called to a slight inaccuracy in your issue of the 8th inst. with regard to the first appearance this season of forced Strawberries. I purchased a small box of Mr. G. Monro, salesman, on February 14, which to my certain knowledge were the first that had been seen this season. *James Webber, Covent Garden Market.*

—On February 16 I gathered 4 oz. of beautifully ripened fruit; on the 24th ult. I gathered 3 oz. more; and in the first five days of March I gathered 2 lb. 12 oz. On February 22 I supplied Mr. Solomon with the first lot of fruit he had this season, and I have no doubt that the fruit which appeared in his window on the 5th inst. was part of a lot I sent him on March 3. Since that time I have been getting a regular supply. I force about 4000 Strawberries, 2000 of the number being *Vicomtesse Héricart de Thury*. The past winter was peculiarly fitted for proving the merits of an early Strawberry, for during a period of ten weeks, while the plants passed through the critical time of setting their fruit, we had no sun (I refer to *Vicomtesse Héricart de Thury*), with an outside temperature very seldom above 32°, and on two occasions the thermometer stood at 9°. Under circumstances so antagon-

istic to early forcing they set and ripened their fruit well. At this date (March 18) I have over a thousand plants a perfect mass of set fruit, averaging from ten to twelve fruit to a pot; and my whole experience of this variety only tends to prove that it is a very free setter and a prolific bearer. Keens' Seedling as a second early sort is one mass of bloom. *W. Masson, Gr. to Alfred Meadows, Esq., Boyle Park, Colnbrook, Bucks.*

Dendrobium crassinode album.—This variety of *D. crassinode* is somewhat rare. I have a small plant with fourteen flowers as per enclosed. It forms a beautiful contrast with *D. crassinode*, and flowered here last season. We received it from Messrs. Hugh Low & Co.'s nursery. It was collected by Mr. Boxall, who has so often crowned his enthusiasm with success, and to whom we are greatly indebted for many gay flowering *Dendrobes*. *J. D. Richards, Oakley House, Gledhow, Leeds.*

Dendrobium crassinode, var.—I enclose for your inspection two flowers of a white variety of *Dendrobium crassinode*. Is it the same as the one flowered at Messrs. Low's, and described in Mr. B. S. Williams' book on Orchids? It was bought at Stevens' Rooms last year amongst some imported plants. It is rather a weak plant (four flowers), but is breaking much stronger this spring. The growth has the same appearance as the ordinary *crassinode*. *T. D. M.* [The flowers are exactly the same in colour as those alluded to above by Mr. J. D. Richards, but differ in form, having a broader, rounder labellum, and rounder pointed sepals. Eds.]

Opuntia Rafinesquiana.—It may interest some of your readers to know that a large plant of this *Opuntia*, about 2 feet across, has stood this exceptionally severe winter without any protection. It is planted in a Vine border facing S.W., and has now been there for about three years. It was raised from a cutting which I put in to take its chance. At first the slugs worked sad havoc with it, but by dint of care it has now grown too large to be much injured by them. Last year it made a great growth, but it has not as yet blossomed out-of-doors. I enclose a piece of the same *Opuntia*, only from a plant in the greenhouse, that you may be able to identify it. Its blossom is a straw yellow. Of the two plants, in the winter, that out-of-doors always looks much the healthiest, as those indoors are always put on short commons as regards water. *S. C. C., Henbury, Bristol.* [It is *O. Rafinesquiana*, so far as we can tell from the flowerless sample sent. Eds.]

An Improved Method of Striking Cuttings.—A short notice has appeared in a St. Petersburg journal of my paper on the absorption of water by the green parts of plants; and it appears to have suggested to Mr. G. Weidenberg a method of striking cuttings. After inferring that the frequent fading of cuttings before they have struck root may be accounted for by a too great transpiration, he proposes making the cuttings longer than usual, and burying some of the leaves as well as the stalk, so that about a third remain above out of the earth. Those leaves in the ground may thus undertake the function of absorbing moisture, and so help to balance the loss of water from the exposed leaves. The ground, he adds, in which cuttings stand should be, if possible, porous, in order that the air may have access, and that the rotting of the leaves may be prevented. This process enables the cutting to make roots before the leaves decay. Weidenberg appears to have found that *Roses* of all sorts, *Pinks*, and other cuttings of plants thus make very good roots, which are usually hard to grow. In my paper I only alluded to cut flowers having leaves attached to the stalk and plunged into water, but the principle is the same as for striking cuttings, and it is so easy to try that gardeners can readily put it to the test and see if their results will accord with Weidenberg's experience. *George Henslow.*

Cœlogyne cristata alba.—This pure white variety flowers later than *C. cristata* under precisely the same treatment. I have two large plants in flower (March 18), which quite enliven the Cattleya House. *J. D. Richards, Oakley House, Gledhow, Leeds.*

Experiments in Chrysanthemum Culture.—Having paid considerable attention to the cultivation of the *Chrysanthemum* for the past seven years, and seeing that there is a spirit of friendly rivalry abroad as to the best system of cultivating large flowers, I propose to offer a few condensed remarks which may be of interest at this season to many who are about to try the improved cultivation of this lovely winter flower. A discussion which arose in the early part of last year resulted in our trying several experiments with a view of testing the merits of several systems of growing them, with the following results:—Propagating was commenced early in December and continued up

to the end of March, each batch of cuttings being dated as they were put in. The cuttings were rooted on the cool system, there being no heat used beyond the protection of a portable frame in a greenhouse: many of the best varieties were rooted singly in small pots in order to avoid checks and were removed immediately to a shelf near the glass and kept well watered till the weather was favourable for their being turned out-of-doors into a cold frame. The first shift was not given before the plants showed symptoms of want of root-run, and they were then shifted into 6-inch pots, in a compost of stacked loam which had been mixed with layers of solid cow-dung and drenched with cow-urine the autumn before. The soil was chopped up rather fine for the first potting and a little addition of leaf-mould run through a $\frac{1}{2}$ -inch riddle and a dash of yellow sand mixed with

rubbed fine through the hands was scattered over the surface of the pots to prevent evaporation, and water was always given through a rough rose to avoid "boring" the soil and to keep an equable surface. The second batch was treated similarly, and the third batch, which were propagated about the third week in March, were also treated in the same way until after they were potted into 6-inch pots and had taken with their shift when the "point" of the shoot was coiled round the rim of the pot and pegged there, from one to three breaks were taken from the soft wood nearest to the "point of the shoot" and staked upright. These plants were grown in 10-inch pots, and were placed by themselves side by side with the others through the season. The difference was most striking, for although the stems were not nearly so long nor so thick as those of

to take the proper bud in the different kinds, that is if the cultivator is in possession of the right varieties, of which no less than six duplicates of each should be grown. I have read a good deal of contending opinions between rival growers, some of which is amusing if not instructive. The real fact of the case is this:—In the South the flowers for exhibition are taken from the "terminal bud" North Country growers take the "crown terminal," and have flowers of much larger size, for if they waited for the development of the terminal bud they would have few flowers before December—I mean of exhibition varieties. In the South the standard rule for exhibition is taken from the "florist's standpoint," which answers nicely for the compact balls grown about London. Provincial growers, propagate later in the season, and feed less during the summer, and then you will render a good account of yourselves either at home or abroad next November. *W. Hinds.*

Oncidium cryptocopis.—This rare Orchid is in flower now, producing a spike with thirty flowers. I grow it in the Mexican-house; it is like *O. serratum*, and very rare. *J. D. Richards, Oakley House, Gledhow, Leeds.*

The Effect of the Winter on Trees and Shrubs.—It is singular to note what effect the severity of the weather has had on hardy trees and shrubs in some districts. At Brougham Hall, Westmoreland, the Portugal Laurel is cut to pieces on the south side, while it has escaped comparatively unscathed on the north side. This, I suppose, must be accounted for in the fact that the branches on the north side were not exposed to fluctuations of temperature like those on the south, nor to the action of the sun through the day, when it had much power through its action on the frozen leaves. Wellingtonias are, I fear, sadly cut up, if not killed, and Pampas-grass (*Gynerium argenteum*) is killed outright. *Visitor.*

Reports of Societies.

Manchester Botanical and Horticultural: *March 8.*—The first exhibition of plants and flowers for the current year, held in the large room of the Town Hall, was a thorough success in regard alike to the quality of the specimens and the attendance of company.

Through the generosity of those who have been generous before, and the coming in strength of several new exhibitors, a most charming general effect was produced, three sides of the noble apartment being converted for the time being into a picturesque romance of leaf and blossom. Occupying beyond all dispute the place of chief honour stood a group of Mr. William Leach's incomparable Orchids, the subtle refinement of form and colour which the orchideous race always declares so well being perfectly set forth in every one of them. Where these plants come from there must indeed be a princely store. The most striking out of a total of about twenty was a *Dendrobium crassinode*, the principal stem exceeding 3 feet in length, throwing out blossoms from eighteen of the joints, the aggregate of flowers being fifty-one, and the double curve exactly resembling that of the Hogarthian "line of beauty." We do not remember having to congratulate even Mr. Swan upon a more admirable achievement in Orchid culture. Another plant of the same species has at this moment 143 open flowers; and upon five examples of the *Dendrobium Wardianum*, standing alongside, it was easy to see that there was a near approach to a total of 350, all fresh, clean, and perfect. Very worthily abreast of them stood several superb varieties of the *Phalenopsis Schilleriana*, and one of those lovely little wild flowers of the Philippine Islands, *Dendrochilum glumaceum*. Mr. Leach's contribution included also a very beautiful *Odontoglossum Pescatorei maculatum*, a *Zygopetalum rostratum*, nearly pure white, and, by way of supplement, a well-flowered *Azalea amœna Caldwellii*; and one of those pleasing forms of white *Cytisus*, which in the shrubbery is represented in the common Portugal Broom. Mr. Leach's variety is surely very desirable for the spring conservatory, the contour of the plant being peculiarly its own. To compete with Mr. Leach in the matter of Orchids is itself a distinction. The rivalry lay this time with Mr. George Hardy, of Timperley, one of the three new comers, who sent up a considerable quantity, every plant a good one of its kind. Conspicuous among these Timperley plants were a capital *Dendrobium Wardianum*, several good varieties of the *Lycaste Skinneri*; a *Cypripedium Lowii*, tall and weird-looking in its quaint mixture of yellow, purple, and violet, shaded with green and dabbled with black; a blood-red *Masdevallia amabilis*, and a very lovely *Dendrobe* with flowers of a soft light primrose colour called *D. luteolum*. In well-chosen contrast with the Orchids stood green Palms and fiery *Amaryllids*, a basketful of cut Orchid blooms occupying the centre of all. Mr. Joseph Broome was to the front as usual, again bringing many beautiful Orchids,

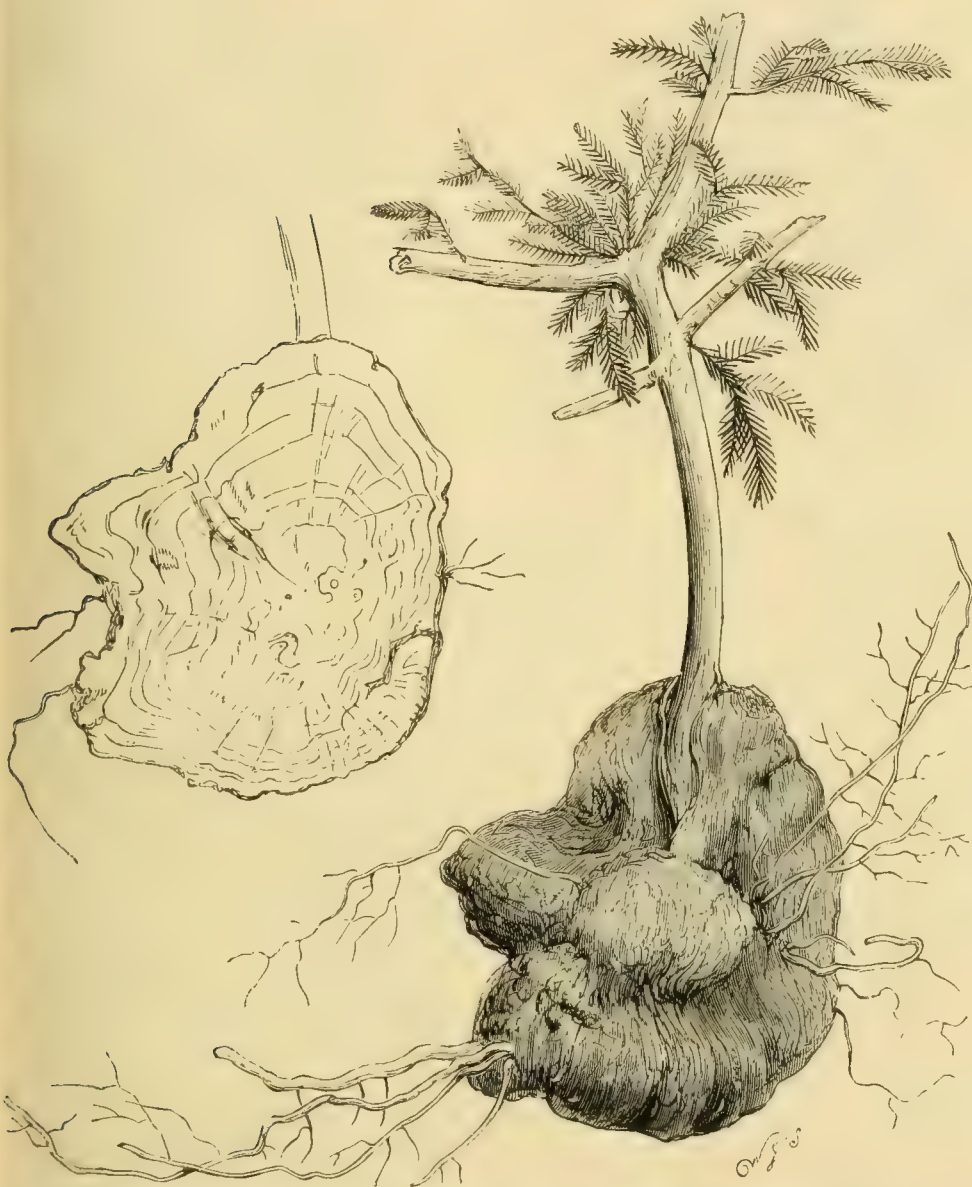


FIG. 53.—EXCRESCENCE FROM STEM OF SEQUOIA SEMPERVIRENS. $\frac{1}{2}$ NAT. SIZE. (SEE P. 372.)

it; into this the plants were potted, each variety being kept by itself and marked for the purpose for which it was intended to be grown, so as to prevent confusion at the next potting. An extra number of 12-inch pots were purchased specially for growing some of the large sorts singly, and at the last potting these pots were carefully drained with broken crocks and a layer of oyster-shells placed over them. The compost used was the same as that recommended for the first potting, except that the sod was broken up into rougher pieces, the soil, being in excellent working condition, was made firmer in the pots than usual for the purpose of inducing a better quality of fibrous roots than those which are formed in a loose compost. After potting the plants had no water except through a syringe for some days, and a temporary protective structure was raised over them to make doubly sure against change of weather as long as there was any danger from cold. A thin layer of horse-droppings

their neighbours, the rich broad green leaf was conspicuous up to the last, and the flowers were the finest at the finish. The result of last years' experiments would dictate a different course to us in the future: for instance, the larger and coarser growing kinds, such as Alfred Salter, Empress of India, and Queen of England, I would grow in smaller pots, or if I did use 12-inch pots, I would have three plants in each pot. These sorts should also be kept by themselves, and have less liquid manure given to them than the more compact growing kinds; if they are over-potted or over-fed they have the tendency to produce loose flowers with irregularly set petals. The plants should have an open situation, but yet a shelter one, say, by having the sun's rays broken at mid-day by a high wall or some other object, and be syringed overhead twice a day, but always once in the "afternoon" in hot weather. The vital point in *Chrysanthemum* culture is, however, in knowing how

Vandas, Phalenopsis, and Dendrobies most particularly; and, above all, for the curious, a new *Odontoglossum*, fashioned like *O. angustatum*, but quite different in colour. In this charming collection we noted also the comparatively new primrose-tinted *Anthurium Williamsi*, in its way quite a gem. The whole of the upper extremity of the room was occupied by Mr. John Rylands, Longford; Crotons, Azaleas, Palms, Ferns, Callas, and other favourite greenhouse plants uniting to form a magnificent bank of verdure and colour, though not presenting any special feature, unless in the *Sarracenia*s, several of which were in flower-bud. In Chinese Primulas there was an even race between two more of the new comers—Mr. J. P. Cross, of Bolton, and Mr. E. C. Botter, of Rusholme House. Both lots were very good, the former, perhaps, on the whole rather superior, the bloom being better lifted above the foliage. Hardy Primulas of exquisite beauty, with some equally charming Hepaticas, of various hues, including the single white, were shown by Mr. S. Barlow, of Chadderton, who also had a boxful of rare and lovely cut blooms of uncommon species of *Helleborus*, mingled with Orchids, conspicuous among which was the empurpled and always so proudly wreathed lip of the *Cattleya*, and in the corner some sprays of snow-white *Aponogeton*.

The nurserymen who exhibited were Mr. B. S. Williams, of Holloway, London; Messrs. Standish, of Ascot; Messrs. G. & W. Yates, of Heaton Norris; and Messrs. Dickson, Brown & Tait. Mr. Williams excelled in two directions, showing on the one hand a set of splendid Cyclamens, an exceedingly desirable new rose-coloured hybrid Azalea, raised from *amœna*, his very remarkable *Echmea Mariæ* Regine, which attracted much attention; and on the other hand a number of his choicest new Crotons and Dracenas, the names of which will be found in the list of awards. Messrs. Standish's contribution was made up principally of beautiful little bushes of the *Guelldres Rose*, in full flower, alternating with Azaleas, and flanked with cut Roses, Neapolitan Violets, and Lily of the Valley, fifty large pots of each. Messrs. G. & W. Yates sent three very handsome masses of *Cœlogyne cristata*, and Messrs. Dickson & Co. abundance of Hyacinths, the colours excellent, though the season has been rather against the development of the best properties of this priceless flower.

The following awards were made by the committee:—The Society's Silver Medal: Collection of Orchids, Mr. William Leach, Fallowfield; Collection of Orchids, Mr. George Hardy, Timperley. Cultural Certificates: Azalea *amœna*, Mr. John Rylands, Longford; Croton *variegatus*, Mr. John Rylands; Chinese Primulas, Mr. W. Cross, Bolton; Chinese Primulas, Mr. J. C. Potter, Rusholme House; Black Alicante Grapes, Mr. John Heywood, Stretford; Lily of the Valley, Messrs. John Standish & Co., Ascot; Neapolitan Violets, Messrs. John Standish & Co.; Guelldres Roses, Messrs. John Standish & Co.; Cyclamens, Mr. B. S. Williams, Holloway, London; hardy Primulas, Mr. Samuel Barlow, Chadderton; miscellaneous plants, Mr. Joseph Broome, Didsbury. First-class Certificates: Croton Williamsi, Mr. B. S. Williams; Croton Prince of Wales, Mr. B. S. Williams; *Dracæna superba*, Mr. B. S. Williams; *Dracæna Bausei*, Mr. B. S. Williams; *Dracæna Renardii*, Mr. B. S. Williams; *Dracæna Frederici*, Mr. B. S. Williams; *Odontoglossum* (unnamed), Mr. Joseph Broome. Commendation: *Cœlogyne cristata*, Messrs. G. & W. Yates, Heaton Norris; Hyacinths, Messrs. Dickson, Brown & Tait. (Condensed from the "*Manchester Guardian*.")

The Weather.

LONDON: Barometer.—During the week ending Saturday, March 15, in the vicinity of London the readings of the barometer at the level of the sea decreased from 30.50 inches at the beginning of the week to 29.29 inches by the evening of the 10th, increased to 29.39 inches by noon on the 11th, decreased to 29.91 inches by the afternoon of the 12th, increased to 30.39 inches by noon on the 13th, and decreased to 29.70 inches by the end of the week. The mean reading for the week at sea level was 30.21 inches, being 0.02 inch below that of the preceding week, and 0.12 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 60½° on the 9th, to 39½° on the 14th; the mean value for the week was 51°. The lowest temperatures of the air observed by night varied from 28½° on the 13th and 29½° on the 14th to 40½° on the 11th; the mean value for the week was 34½°. The mean daily range of temperature in the week was 16½°, the least range in the day being 10°, on the 11th and 14th, and the greatest 24½°, on the 9th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—9th, 47°.8, +7°.3; 10th, 42°.8, +2°.2; 11th, 43°.9, +3°.2; 12th, 44°.7, +3°.9; 13th, 35°.7, -5°.3; 14th, 33°.7, -7°.5; 15th, 42°.9, +1°.5. The mean temperature of the air for the week was 41.6°, being 0.8 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 126° on the 9th, 128° on the 13th, 113° on the 10th, and 110° on the 11th; on the 14th the reading did not rise above 46°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 25° on the 13th, 27¼° on the 14th, and 27¼° on the 9th; the mean of the seven lowest readings was 31°.

Wind.—The direction of the wind was W.S.W., and its strength moderately strong. The weather during the week was fine and bright, the air was warm on every day, except the 13th and 14th, when it was very cold. Slight snow fell on the 14th, and fog prevailed on the 9th and 10th.

Rain fell on three days during the week; the amount measured was 0.20 inch.

ENGLAND: Temperature.—During the week ending Saturday, March 15, the highest temperatures of the air observed by day were 61¼° at Cambridge, 60½° at both Blackheath and Nottingham, and 60° at Truro; the highest temperature of the air at Brighton and Leeds was 51°; the mean value from all places was 56½°. The lowest temperatures of the air observed by night were 22½° at Wolverhampton, 23° at Hull, 24° at Truro, 26° at both Nottingham and Sunderland, and 26½° at Plymouth, Sheffield and Bradford; the lowest temperature of the air at Brighton was 31°, and at Norwich was 29½°; the mean value from all stations was 27°. The extreme range of temperature in the week was the greatest at Truro, 36°, and the least at Brighton, 20°; the mean range of temperature from all places was 29½°.

The mean of the seven high day temperatures of the air was the highest at Truro, 54½°, Nottingham 52½°, Sheffield 51½°, and Plymouth 51¼°, and the lowest at Leeds 47°, and Brighton 47¼°; the mean value from all stations was 49½°. The mean of the seven low night temperatures of the air was the lowest at Nottingham, 31¼°, Wolverhampton and Hull, 32¼°, and Plymouth and Bradford, 33°; and the highest at Liverpool, 36½°, and Brighton, 36°; the mean from all places was 34°. The mean daily range of temperature in the week was the least at both Brighton and Liverpool, 11¾°; and the greatest at Nottingham, 21¼°; the mean daily range of temperature from all places was 15¾°.

The mean temperature of the air for the week from all stations was 41°, being ½° lower than the value for the corresponding week in 1878. The mean temperature of the air was the highest at Truro, 43°, Sheffield 42°, and Blackheath and Liverpool, both 41¾°; and the lowest at Leeds, 39¼°, and Hull, 39½°.

Rain.—The heaviest falls of rain in the week were 0.41 inch at Sheffield, 0.40 inch at Liverpool, and 0.34 inch at Hull, and the least falls were 0.04 at Norwich, and 0.05 inch at Brighton; at Plymouth no rain was measured; the average fall over the country was 0.19 inch.

The weather during the week was generally fine and bright.

Slight falls of snow occurred on Thursday and Friday, and on these days the air was very cold.

SCOTLAND: Temperature.—During the week ending Saturday, March 15, the highest temperatures of the air varied from 53° at both Dundee and Perth, and 52° at Leith, to 49½° at Aberdeen; mean value from all stations was 51¼°. The lowest temperatures of the air varied from 17° at Edinburgh, and 18° at Leith, to 26¼° at Aberdeen; the mean value from all places was 21°. The mean range of temperature in the week from all places was 30¼°.

The mean temperature of the air for the week from all stations was 37¼°, being 2¼° lower than the value for the corresponding week in 1878. The highest was 39° at Glasgow, and the lowest was 35¼° at Aberdeen.

Rain.—The amounts of rain and melted snow measured during the week were the heaviest at Dundee, 1.25 inch, Aberdeen 1.11 inch, Greenock 1.05 inch, and Edinburgh 1.01 inch, at Glasgow only 0.04 inch was measured. The average amount over the country was 0.91 inch.

DUBLIN.—The highest temperature of the air was 56½°, the lowest 24½°, the extreme range 32½°, the mean 44°, and the amount of rain measured was 0.50 inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, March 19, 1879.

| MONTH AND DAY | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|---------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|-------|---------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 48 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | | | |
| Mar. 13 | In. 30.15 | +0.25 | 46.8 | 28.2 | 18.6 | 35.7 | -5.3 | 26.4 | 68 | N.W. } 0.00 |
| 14 | 29.95 | +0.07 | 39.5 | 29.5 | 10.0 | 33.7 | -7.5 | 32.3 | 94 | N.N.E. } 0.07 |
| 15 | 29.57 | -0.30 | 51.0 | 36.4 | 14.6 | 42.9 | +1.5 | 35.6 | 76 | S.W. } 0.02 |
| 16 | 29.62 | -0.24 | 53.5 | 41.3 | 12.2 | 47.8 | +6.3 | 40.9 | 78 | S.S.W. } 0.02 |
| 17 | 29.91 | +0.05 | 44.5 | 36.5 | 8.0 | 39.9 | -1.7 | 37.8 | 93 | E.S.E. } 0.01 |
| 18 | 29.65 | -0.18 | 52.9 | 37.1 | 15.8 | 44.1 | +2.4 | 41.3 | 90 | N.E. } 0.00 |
| 19 | 29.56 | -0.26 | 61.9 | 39.0 | 25.9 | 50.3 | +8.6 | 45.6 | 84 | WSW } 0.02 |
| Mean | 29.77 | -0.09 | 50.4 | 35.4 | 15.0 | 42.1 | +0.6 | 37.1 | 83 | variable } sum 0.14 |

- March 13.—A very fine bright day. Cold. Overcast at night.
 14.—Overcast, dull day. Very cold. Slight snow till 3 P.M., thin rain after.
 15.—A very fine bright day. Windy. Rain in early morning.
 16.—Generally dull and cloudy till 2 P.M. Fine after. Little rain fell between 11 A.M. and 1 P.M.
 17.—Overcast till evening, then fine. Slight rain at times. Cool.
 18.—Generally fine, though very cloudy at times. Occasional drops of rain.
 19.—Very fine, bright and clear till evening, then overcast. Little rain in early morning. Warm.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

BOOKS: *E. L. S. D. Wrightson's Handbook of Agriculture*, published by William Collins, Sons & Co. (London and Glasgow), contains a chapter on manures which we think would meet your requirements. You would also do well to get *How Crops Grow*, published by Messrs. Macmillan & Co.; and *Elements of Agricultural Chemistry*, by the late Prof. Johnstone (Blackwood).—*A. B. My Garden* is published by G. Bell & Sons, York Street, Covent Garden.

BROCCOLI: *A Beginner.* The Italian word from which ours is derived is *Broccolo*, a sprout; so that the "costers" are right in their spelling.

CINERARIA: *E. S.* The stem appears to be affected by some disease with which we are not acquainted, and which your specimen is quite insufficient to illustrate. The leaf of the *Asplenium* may have been injured by a bruise while very young. The treatment of *Eucharis* has been frequently explained in our columns.

CRIMEAN SNOWDROP: *A. F.* The plant you send under this name is the Snowflake (*Leucojum vernum*).

GRAFTING PLUMS: *Old Subscriber.* The best way is to whip-graft them. This is sometimes termed splice-grafting; also tongue-grafting.

HOW TO FORM A ROOKERY: *A Young Naturalist.* Cut some branches from trees in an established rookery in the forks of which are nests of young rooks which cannot fly, and fix them securely in the tops of the trees which you wish the rooks to take to. To hatch the eggs as you suggest would do no good at all.

INSECTS: *J. Phillips.* The weevil (*Otiorhynchus sulcatus*), a well-known garden pest.

LEAF-MOULD: *T. A. C.* The best mode of facilitating the decay of leaves for the purpose of forming leaf-mould, is to throw them in a heap to ferment, which they will do when fresh if moderately moistened. We should not use lime, as some plants do not like it.

NAMES OF PLANTS: *F. S.* *Dendrobium speciosum*.—*H. T.* *Chimonanthus præcox*.—*H. S.* *Helleborus foetidus*.—*P. B. C.* A species of *Bryanthus*; specimen insufficient to determine which. *Cranston & Co.* Your plant is a *Hoya*, but we cannot name the species without leaves and stem.

PANSIES FOR EXHIBITION: *E. Barkinson.* Amy, Beacon, Rob Roy, Janet Lees, Flag of Truce, Leah, Miss Todd, Alexander M'Nab, Cherub, Helen Douglas, Ophir, Miss Rogers.

PHILOXERAS: *H. C.* Twelve of the best for exhibition are—Countess of Minto, Coccinea, Dr. Masters, Lothair, John Anderson, Mrs. D. Croal, Jessie Laird, Mons. Linden, Lilacina, Mrs. Aberdeen, La Candeur, George Grieve.

PORTUGAL LAUREL: *G. S.* There are two causes for the spots on the leaves. The greater part of the spots are diseased from the effect of drops of moisture settling on the leaves and affecting the subjacent tissues, sometimes from cold, sometimes from the drops acting as lenses; the other spots are due to an obscure fungus belonging to the genus *Depazea*. *M. F. B.*

SCENTED-LEAVED PELARGONIUMS: *Florist.* The following would probably serve your purpose:—Prince of Orange, Crispum, Graveolens, Quercifolia, Fair Helen, Odoratissimum, and Fragrans.

SUMMER-HOUSE, &c.: *Rusticus.* Apply to Mr. J. Caven Fox, Royal Horticultural Society, South Kensington; Messrs. John Edgington & Co., 48, Long Lane, West Smithfield, E.C.; and Messrs. Benjamin

Edgington & Co., 2, Duke Street, London Bridge, for their catalogues.

TENANT'S FIXTURES: C. B. N. N. If your agreement is properly drawn out and stamped, and it contains a clause to the effect "that all sheds, &c., built by the tenant, shall not be sold with the property, but shall be the tenant's property in all cases," we should think you could build the sheds, &c., as you pleased. But the question is one which, perhaps, admits of much legal straw-splitting, and you would best consult your own interests by obtaining the advice of a respectable solicitor before building at all.

VANILLA: F. W. S. The details of the process of artificially fertilising the flowers of this plant are too long to be given in a brief answer to correspondents. You will find full particulars, with illustration, in our number for September 28, 1867, which may be obtained from the publisher.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED:—Messrs. Pounce & Sons (18, Westbourne Grove, London, W.), Illustrated Price List of Artistic Floral Decorations, Ferneries, and Rustic Cork Decorations.—James Lye (Market Lavington, Wilts), List of New Exhibition and Decorative Fuchsias, Bedding Pelargoniums, &c.—Thomas S. Ware (Hale Farm Nurseries, Tottenham, London), Illustrated Catalogue of Choice Hardy Perennials, Aquatics, Orchids, Grasses, &c.—Messrs. Dicksons & Co. (1, Waterloo Place, Edinburgh), Catalogue of Hardy Herbaceous and Alpine Plants.

COMMUNICATIONS RECEIVED:—J. G. B.—H. J. E.—J. G.—J. V. & S.—J. S. C.—C. R. (many thanks).—Foreman (you have not complied with our rules, by forwarding your name and address).—H. L. & Co.—N. F.—W. H.—W. R.—A. D.—W. H. D.—James Fairman's Son & Co. (wonderful, if true).—B. P.—J. B.—M. D.—J. S.—J. M., New Zealand.—R. D. B.—J. W.—C. L.

DIED.—On the 17th inst., Mrs. Laird, 17, Coates Gardens, Edinburgh.

Markets.

COVENT GARDEN, March 20.

There have been no alterations during the past week. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|--------------------------|-------------|-------------------------|-------------|
| Apples, 1/2-basket .. | 1 6-5 0 | Oranges, per 100 .. | 4 0-8 0 |
| Cobs and Filberts, lb. 0 | 9-1 0 | Pears, per doz. .. | 4 0-8 0 |
| Grapes, per lb. .. | 3 0-12 0 | Pine-apples, per lb. 1 | 0-2 6 |
| Lemons, per 100 .. | 3 0-10 0 | Strawberries, per oz. 1 | 0-1 6 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|--------------------------|-------------|---------------------------|-------------|
| Artichokes, English | | Herbs, per bunch .. | 0 2-0 4 |
| Globe, doz. .. | 2 0-4 0 | Horse Radish, p. bun. 4 | 0-.. |
| Jerusalem, bush. 6 | 0-.. | Lettuces, Cabbage, | |
| Asparagus, Fr. sprue, | | per doz. .. | 1 6-.. |
| per bundle .. | 1 6-.. | Mint, green, bunch. 1 | 6-.. |
| Eng., per 100 .. | 10-15 0 | Onions, per bushel. 4 | 0-.. |
| Fr. giant, p. bun. 30 | 0-.. | — young, per bun. 0 | 4-0 6 |
| Toulouse, bun. 5 | 0-7 0 | Parsley, per lb. .. | 2 0-3 0 |
| Beans, French, p. 100 | 3 0-4 0 | Peas, per quart .. | 12 0-3 0 |
| Beet, per doz. .. | 1 0-2 0 | Potatoes, new, basket 1 | 0-.. |
| Brus. sprouts, bush. 10 | 0-.. | Radishes, Fr., bunch 0 | 6-.. |
| Cabbages, per doz. .. | 1 0-2 0 | — New Jersey, doz. 2 | 0-.. |
| Carrots, per bunch .. | 0 4-0 6 | Rhubarb, doz. .. | 6 0-8 0 |
| Cauliflowers, per doz. 2 | 0-5 0 | Shallots, per lb. .. | 0 6-.. |
| Celery, per bundle .. | 1 6-2 0 | Seakale, per punnet 2 | 6-.. |
| Chilis, per 100 .. | 2 0-.. | Spinach, per bushel 5 | 0-10 0 |
| Cucumbers, each .. | 0 9-1 6 | Sweet Potatoes, per lb. 0 | 6-.. |
| Endive, Batav. dozen 1 | 6-.. | Tomatos, per dozen 2 | 6-3 0 |
| Garlic, per lb. .. | 0 6-.. | Turnips, p. 12 bunch. 3 | 0-6 0 |

Potatoes: — Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|---------------------------|-------------|------------------------|-------------|
| Arum Lily, or Rich- | | Foliage Plants, vari- | |
| ardia aethiop., doz. 9 | 0-18 0 | ouse, each .. | 2 0-10 6 |
| Azaleas, per dozen .. | 18 0-60 0 | Fuchsias, per dozen 9 | 0-18 0 |
| Begonias, per doz. .. | 6 0-12 0 | Genista, per dozen .. | 9 0-24 0 |
| Bouvardias, per doz. 18 | 0-24 0 | Hyacinths, per doz. 6 | 0-18 0 |
| Camellias, per dozen 18 | 0-60 0 | Mignonette, per doz. 6 | 0-9 0 |
| Cinerarias, per doz. 9 | 0-18 0 | Myrtles, per doz. .. | 6 0-12 0 |
| Cyclamens, per doz. 9 | 0-30 0 | Palms in variety, | |
| Cyperus, per dozen 6 | 0-12 0 | each .. | 2 6-21 0 |
| Dielytra, per dozen 9 | 0-18 0 | Pelargoniums, scar- | |
| Dracæna terminalis 30 | 0-60 0 | lets, zonal, doz. .. | 6 0-12 0 |
| — viridis, per doz. .. | 18 0-24 0 | Primulas, per dozen 4 | 0-12 0 |
| Erica hyemalis, doz. 9 | 0-30 0 | Solanums, per doz. 6 | 0-12 0 |
| Euonymus, var., doz. 6 | 0-18 0 | Spiræa, per dozen .. | 12 0-30 0 |
| Ferns, in var., p. doz. 4 | 0-18 0 | Tulips, per dozen .. | 8 0-12 0 |
| Ficus elastica, each 2 | 6-15 0 | | |

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|---------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Lily of Val., 12 sprays 1 | 0-3 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Mignonette, 12 bun. 6 | 0-12 0 |
| Azaleas, 12 sprays .. | 0 6-1 6 | Narcissus, paper- | |
| Bouvardias, per bun. | 1 0-4 0 | white, 12 sprays .. | 1 0-2 0 |
| Camellias, per dozen 1 | 0-6 0 | Pelargoniums, 12 spr. 1 | 0-2 0 |
| Carnations, per dozen 1 | 6-4 0 | — zonal, 12 sprays 1 | 0-2 0 |
| Cineraria, 12 blooms 9 | 0-18 0 | Primula, double, per | |
| Cyclamen, 12 blooms 0 | 3-1 0 | bunch .. | 0 9-1 6 |
| Deutzia, 12 bunches 6 | 0-12 0 | — single, 12 bunch. 6 | 0-12 0 |
| Euphyllium, 12 blms. | 1 0-3 0 | Roses (indoor), doz. 1 | 6-9 0 |
| Eucharis, per doz. .. | 4 0-12 0 | Snowdrops, 12 bun. 1 | 0-6 0 |
| Euphorbia, 12 sprays 3 | 0-6 0 | Tropæolum, 12 bun. 2 | 0-6 0 |
| Gardenias, 12 blms. 6 | 0-18 0 | Tuberose, per dozen 3 | 0-6 0 |
| Heliotropes, 12 sp. .. | 0 6-1 0 | Tulips, 12 blooms .. | 1 0-3 0 |
| Hyacinths, 12 spks. 4 | 0-12 0 | Violets, 12 bunches 0 | 9-2 0 |
| — Roman, 12 spks. 0 | 6-2 0 | | |

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|----------------------------|--------------------------|
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| WEBBS' Superb Cineraria .. | 1 6 .. 2 6 |
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| WEBBS' Miniature Aster .. | 1 0 .. 2 0 |
| WEBBS' Choice Auricula .. | 1 0 .. 2 6 |
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5000 **LAURELS**, Portugal, 3 to 4 feet.
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| " Harrisianum .. 7 6 | " flexuosum 3 6 |
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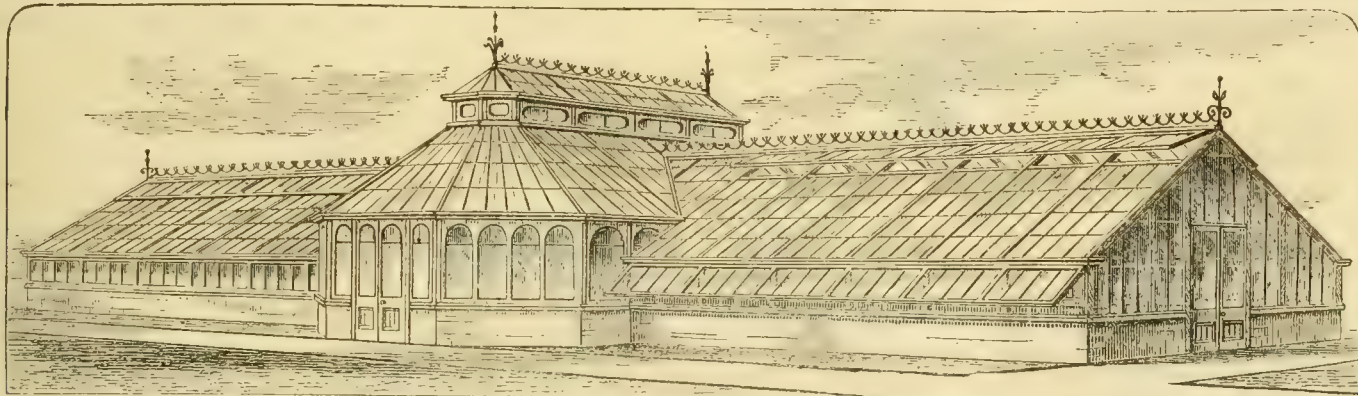
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GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d. Wholesale by **PRICE'S PATENT CANDLE COMPANY** (Limited).

CLAY'S FERTILISER, Or PLANT FOOD,

Is now respectfully offered to the Public, after having been thoroughly tested and approved, during the last three years, by the principal Market Growers and Gardeners. It is a powerful and lasting Manure, quick in action, and clean and safe to use. See correspondence in *Gardeners' Chronicle*, Oct. 5, 12, 19, and 26. To be had of Seedsmen, Nurserymen, and Florists, in packets, 1s.; and in bags, ¼ cwt., 7s. 6d.; ½ cwt., 12s. 6d.; 1 cwt., 20s.; or by letter addressed to 174, High Street, Homerton, London, E. References can be given to over 200 of the principal Nurserymen and Florists.

For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER. Established 40 Years.

This Manure is unequalled in effect for speedy and certain action in producing desired results, the strength and quality being highly concentrated. (Should be used by every one.)

For the convenience of consumers our Manure is packed in bags containing:—

1 cwt., 16s.; ¼ cwt., 9s. 6d.; ½ cwt., 7s.; 14 lb., 5s.; 7 lb., 3s. 6d.; 3½ lb., 2s. 4d.; Tin, 1s.

And may be obtained of all principal Nurserymen, Florists, and Seedsmen; or direct from the Works, by application to **W. TRINDER,** Chemical Manure Works, Stroud, Gloucestershire; or, **T. HARDY,** 27, Crosby Hall Chambers, Bishopgate, London, E.C.

Agents wanted.

GENUINE TOBACCO CLOTH and **PAPER,** for fumigating Greenhouses and Destroying the Fly, 1s. per pound, in dry condition and ready for use. Special rates to large consumers. P.O.O. payable 16s, Blackfriars Road. (Established 1834)
JOSEPH BAKER, 14, Nelson Square, S.E.

A. JAMES' Genuine Roll-made TOBACCO RAG and PAPER, for fumigating Greenhouses, has always given great satisfaction to those who use it. Read testimonials, post-free. 10d. per pound; to the trade, 5 per cent. reduction.—44, Hampton Street, Walworth Road, London, S.E.

To Nurserymen and Seedsmen.
GENUINE ROLL TOBACCO PAPER in packets; also **CLOTH,** as supplied to most of the London Nurserymen and Seedsmen. Trade price very low.
J. GEORGE, Putney Heath, London.

GARDEN BROOMS, at 2s., 3s., 4s. and 5s. per dozen (not less than 2 dozen). Sent to any part on receipt of Post-office Order by
GEO. MANLEY AND CO., Manufacturers of every description of Brushes and Brooms, South Street, Long Lane, Borough, S.E. Established 1759.

ANDERSON'S RUSSIA MATS

For COVERING, TYING, and PACKING, are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. **SACKS and BAGS** of every description. **TARPAULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.**—**JAMES T. ANDERSON,** 149, Commercial Street, Shoreditch, London, E.

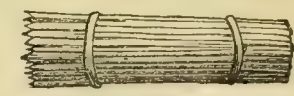
ARCHANGEL AND PETERSBURG MAT MERCHANTS and IMPORTERS.

All the usual kinds at reduced rates. **SACKS and SEED BAGS,** new and second-hand, of every description, **RAFFIA FIBRE, NETTING and TIFFANY, TARPAULINS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES.** Price LIST on application to
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CREVECŒUR—SITTING of EGGS.—Four shillings per Sitting.
LA NORMANDE AND CO., 23, Rathbone Place, W.

FOR SALE, less than half cost, a **GREEN-HOUSE** complete, Hot-water Pipes, &c., nearly new. Owner going to live in London. Can be seen at Ealing near station.
RURAL, 1, Ealing Terrace, Ealing.

Wholesale Russia Mat Merchants.
MARENDAZ AND FISHER, Importers of **ARCHANGEL and ST. PETERSBURG MATS, RAFFIA FIBRE, &c.** Manufacturers of **TANNED NETTING, TIFFANY,** and other Garden Requisites.
 9, James Street, Covent Garden, W.C.



WOOD TRAINING STICKS and **TALLIES,** commended by Royal Horticultural Society; **BAMBOO CANES, RAFFIA** for tying, **VIRGIN CORK, ARCHANGEL** and other **MATS, PACKING MATS, &c.** Wholesale prices on application to
C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post-free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Bentham Works, Broseley.

Accidents Occur Daily—Accidents of all Kinds
 Provided against by a Policy of the
RAILWAY PASSENGERS ASSURANCE COMPANY.—The Oldest and Largest Accidental Assurance Company. The Right Hon. Lord KINNAIRD, Chairman. Subscribed Capital, £1,000,000. Annual Income, £214,000. A fixed sum in case of Death by Accident, and a Weekly Allowance in the event of Injury, may be secured at moderate Premiums. Bonus allowed to Insurers of five years' standing. £1,350,000 have been paid as compensation. Apply to the Clerks at the Railway Stations, the Local Agents, or 64, Cornhill, London. **WILLIAM J. VIAN,** Secretary.

**THE
IMPROVEMENT OF LANDED ESTATES,**
 By DRAINAGE, ENCLOSING, CLEARING,
 The ERECTION of FARM BUILDINGS and COTTAGES,
 WATER SUPPLY, &c.

The Land Loan and Enfranchisement Co.
 (Incorporated by Special Act of Parliament)

ADVANCES MONEY:
 1st.—To the **OWNERS of SETTLED and OTHER ESTATES,** for the Erection of Farm Buildings and Cottages, and for the Drainage, Irrigation, Enclosing, Clearing and General Improvement of Landed Property in any part of the United Kingdom.
 2d.—To the **OWNERS of SETTLED ESTATES in ENGLAND,** for the Erection or Completion of Mansions, Stables, and Outbuildings, and for the Construction or Erection of Reservoirs, and other Works of a permanent nature, to supply Water for the use of the Estate, or for any other purpose.
 3d.—To **LANDOWNERS** generally, to enable them to subscribe for Shares in Companies for the Construction of Railways and Navigable Canals, which will beneficially affect their Estates.
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 5th.—To **COPYHOLDERS,** for the Enfranchisement of Copyhold Lands.
 The amount borrowed, with the expenses, would be charged on the Estate benefited, and repaid by a rent-charge, terminating in twenty-five years.
 No Investigation of the Landowner's Title is necessary.
 Forms of application, and all further particulars may be obtained of
Messrs. RAWLANCE AND SQUIREY, 22, Great George Street, Westminster, S.W. and Salisbury; of Messrs. **ASHURST, MORRIS, CRISP AND CO.,** 6, Old Jewry, London, E.C.; of Messrs. **GILESPIE AND PATERSON,** W.S., 81A, George Street, Edinburgh. Agents for the Company in Scotland; and at the Offices of the Company, as below.
T. PAIN, Managing Director.
EDWIN GARROD, Secretary.

Land Loan and Enfranchisement Company.
 22, Great George Street, Westminster, S.W.

THE GARDEN POTTERY,
 Old Down, Shepton Mallet.
 I have not advertised my Flower-pots lately, for I have been selling faster than I could make. I have some in hand now, and none can please better.
T. J. HICKES.

DOULTON AND CO.,
 Manufacturers of
IMPERISHABLE GARDEN EDGING,
 Of various patterns, in
Terra Cotta, Stoneware, & Blue Staffordshire Ware.
VASES, PEDESTALS, PENDANTS, &c.,
 In Terra Cotta and Doulton Ware.

Illustrated LISTS and Special Prices on application.
 Chief Offices: High Street, Lambeth, S.E.
 Depots: Wood Street, Birmingham; 100, Soho Street, Liverpool; and Hope Street, Salford.
 Manufactories: Lambeth, Staffordshire, and Lancashire.

GARDEN BORDER TILES and **STABLE and COACH-HOUSE PAVINGS** in every variety. **Terra Cotta,** Earthenware Pipes, Encaustic Tiles (any colour), Roofing and Ridge Tiles, Gutters, Chimney Pots, Sanitary Ware, String Courses, and Bricks of all descriptions. Large Stock at Maiden Lane, L. & N.W.R., York Road, King's Cross, N.W. Price Lists free.
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Rosher's Garden Edging Tiles.



THE ABOVE and many other PATTERNS are made in materials of great durability. The plain sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper. GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design. F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability. Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety. Slates, Cement, &c. T. ROSHER AND CO., Brick and Tile Merchants. See Addresses above.

SILVER SAND, fine or coarse grain as desired. Price by Post per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above. N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

BETHAM & SON,

9, LOWER THAMES STREET, LONDON, E.C.

B. & Son have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. & 21-oz.

HORTICULTURAL WINDOW GLASS.

A large variety of sizes, 15-oz., 12s. 6d.; 21-oz., 16s. 6d., per 100 feet. Large sizes, in Cases, for Cutting up—15-oz. 4ths, 30s.; 3ds, 40s. per 100 feet; 21-oz. 4ths, 30s.; 3ds., 40s. per 200 feet.—ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 8, Pentonville Road, London, N.

HELLIWELL'S PATENTED NEW SYSTEM of AIR and WATER-TIGHT IMPERISHABLE GLAZING. All Woodwork is covered, and no outside Painting is required. Old Roofs Reglazed. Any one can repair or take in pieces.

It is suitable for Railway Stations, Mills, Weaving Sheds, &c., but is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."—The Builder.

"And will, in our opinion, supersede any other similar system before the public."—Building News.

"It seems to meet the end in view more nearly than anything we have seen yet."—The Field.

7, Mark Lane, London, Nov. 14, 1878.

"DEAR SIR,—I cannot see what Testimonial you can require from me, than the fact that I have taken off all my putty glazings, and removed Rendle's work to replace it with yours. Any one seeing the two systems would say that yours is far the superior, and that nothing yet out can touch it.—Yours,

T. W. Helliwell, Esq., Brighouse. "W. R. PRESTON."

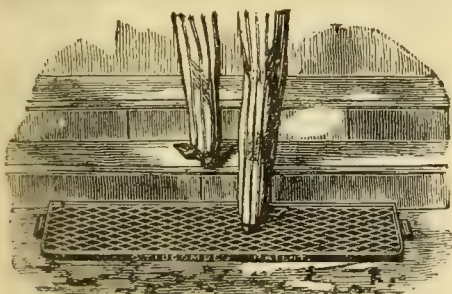
For Estimates, Drawings, or Particulars, apply to the Patentee,

T. W. HELLIWELL,

Brighouse, Yorkshire; or, 19, Parliament Street, London, W.C.

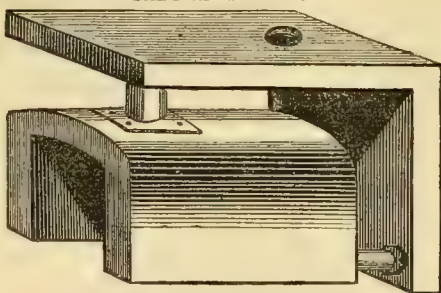
THE GRAVEL-WALK METAL

SCRAPER MATS.—They improve the appearance of Entrances, are suitable for all kinds of Gravel-walk Entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step. They are the width of an ordinary step, and being directly in the path cannot escape use, save much wear in other mats, floorcloths, and carpets, and their endurance is incalculable. Lengths, 2 feet 3 inches, price 10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.; 3 feet 8 inches, 18s.; 4 feet, 20s. All 12 inches wide.



Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

| Sizes. | | | To heat of 4-in. Pipe. | Price. | | |
|--------|--------|--------|------------------------|--------|----|----|
| High. | Wide. | Long. | Feet. | £ | s. | d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 | 0 | 0 |
| 20 " | 18 " | 24 " | 400 | 8 | 0 | 0 |
| 20 " | 18 " | 30 " | 500 | 9 | 0 | 0 |
| 24 " | 24 " | 24 " | 700 | 12 | 0 | 0 |
| 24 " | 24 " | 30 " | 850 | 14 | 0 | 0 |
| 24 " | 24 " | 36 " | 1000 | 16 | 0 | 0 |
| 24 " | 24 " | 48 " | 1400 | 20 | 0 | 0 |
| 28 " | 28 " | 60 " | 1800 | 25 | 0 | 0 |

Larger sizes if required.

From Mr. CHARLES YOUNG, Nurseries, Balham Hill, S.W., May 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

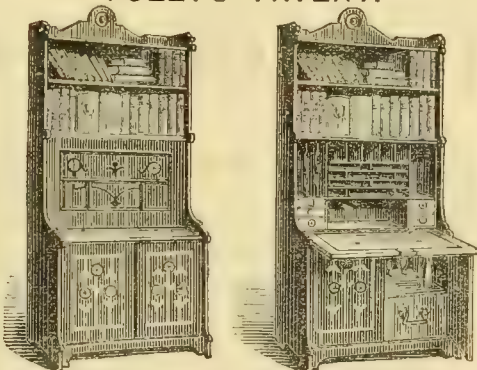
PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

When ordering Boilers please refer to the above advertisement.

THE

Salisbury Combination Secretaires. FOLEY'S PATENT.



No. 2 D. 6 ft. 9 in. by 3 ft. 3 in.

THE SALISBURY COMBINATION SECRETAIRES are adapted to all purposes and classes of society.

Combine the uses of Bookcases, Bureaus, China Cabinets, Cellaret, Sideboards, Escritaires, Secretaires, &c.

Every part is utilised, the floor space is the same, whether open or closed.

These Secretaires are elegant and original in design and construction, and destined to become the Cabinet of the age.

List of Prices and Illustrations of other Combinations can be obtained of the Patentee and Manufacturer.

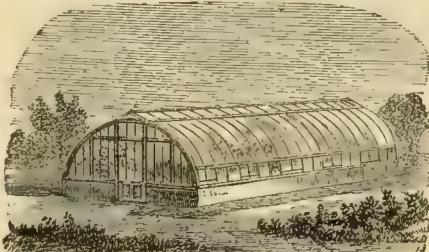
ARTHUR FOLEY,

FISHERTON MACHINE CABINET WORKS, SALISBURY.

Legion of Honour (Paris Exhibition): Gold Medal.

W. H. LASCELLES,

HORTICULTURAL BUILDER, 121, BUNHILL ROW, LONDON, E.C.



Patent Bent Wood Curved Greenhouses and Conservatories.

ILLUSTRATED SHEETS sent post-free, and Estimates given for all kinds of Horticultural Work, without charge.

Glasshouses.

B. W. WARHURST (late Hereman & Morton) will give Prices for all kinds of HORTICULTURAL BUILDINGS IN WOOD on receipt of particulars.

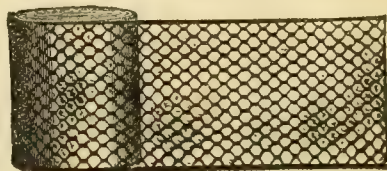
Price Lists free. A Pamphlet for three stamps.

B. W. WARHURST, 43, Highgate Road, London, N.W.

MAIN'S GALVANISED WIRE NETTING.

REDUCED PRICES.

COMPARE PRICES and QUALITY.



Price Lists Free.

PEA AND SEED PROTECTORS.



Diamond Mesh.

8s. per doz.

Including Two Ends.

3 feet long, 6 inches wide, 6 inches high.

A. & J. MAIN & CO.,

108, QUEEN VICTORIA STREET, LONDON, E.C., And at Glasgow, Edinburgh, and London.

FRIGI DOMO.—FRIGI DOMO.

Registered.

Registered.

MADE FROM PREPARED HAIR AND WOOL.

A perfect Non-conductor of Heat, keeping, wherever it is applied, an even temperature.

Patronised by HER MAJESTY THE QUEEN, for Windsor Castle and Frogmore Gardens; the DUKE OF NORTHUMBERLAND; DUKE OF DEVONSHIRE; the late SIR J. PAXTON, for the Crystal Palace; late Dr. LINDLEY, for the Horticultural Gardens, &c. Mr. J. WILLARD, Gardener to the Baroness Burdett Courts, writes:—

"With respect to the 'Frigi Domo,' I consider it one of the best covering materials we have. It is light and warm, and not injured by wet to the extent of most other covering materials—in fact I have a roll at the present time which has been in use three winters. I find it especially useful in low heated structures, as it is readily put on, and proves a great saving in the way of artificial heat. For this purpose, in my opinion, it is preferable to mats, and will last more than twice as long."—Holly Lodge Garden, December 16, 1878.

Introduced by the late ELISHA T. ARCHER, more than Twenty Years ago.

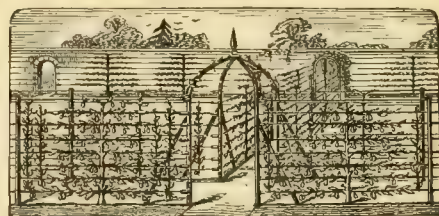
Cut in any Lengths required.

To be had of all Nurserymen and Florists.

FOR PRICE LIST & PARTICULARS ADDRESS—

BENJAMIN EDGINGTON 2 DUKE ST. LONDON BRIDGE

BOULTON & PAUL, NORWICH.



IMPROVED ESPALIER FENCING AND WALL TRAINERS.

Estimates given free of charge for Espalier Trainers for Fruit Trees, &c. The Espalier can be easily fixed, wood or stone blocks being unnecessary. In writing for Estimates please give exact lengths required, with a rough sketch showing angles, if any.

FITTINGS for WIRING FRUIT WALLS.—Having a large stock, orders can be executed on receipt at reduced prices. Carriage Paid on Orders of 40s. value. Illustrated Lists, with full particulars, free on application.

WROUGHT IRON GARDEN ARCHES.

No. 1.

No. 3.



No. 1.—This Arch is very strong, and suitable for training Creepers of any kind. Wrought Iron Frame, covered with stout galvanised Wire Netting, 7 feet high, 4 feet span, 2 feet wide, frame painted green, 15s. each.

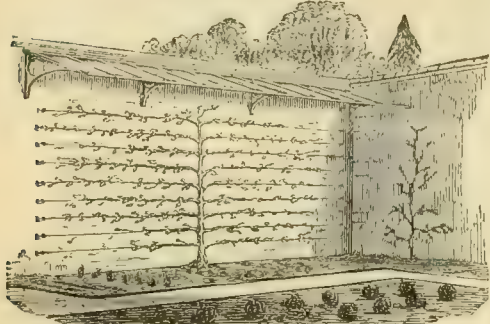
No. 3.—7 feet high, 4 feet span, 1 foot 6 inches wide, painted green, 16s. 6d. each.

Orders executed on receipt. Carriage Paid when Orders amount to 40s.

BOULTON & PAUL, NORWICH.

BOULTON & PAUL, HORTICULTURAL BUILDERS, NORWICH.

WALL FRUIT TREE PROTECTORS.



Our Protectors for Wall Fruit Trees are supported on iron brackets, secured to the wall by bolts. The lights slide in grooves formed in the brackets, and are held firmly in position by a clamp; the lights are of a uniform length of 6 feet each, by 2 feet and 2 feet 6 inches projection when in position. The lights can be removed in a few minutes from a long length when desired, as no bolts or screws are used to secure them. This is often a great advantage during a shower, as the rain saves syringing, which at the best cannot be done so well or efficiently by artificial means.

Our prices include the lights, which are 2 inches thick and made of selected red deal, glazed with 21-oz. English sheet glass, also brackets, bolts, &c., for fixing, all painted three times of best oil-colour, and also rods and hooks for scrim canvas or tiffany for protecting the trees from frost (but does not include the screens).

Any Length supplied at a Day's Notice.

Length 30 feet, width 2 feet, £4 2s. 6d.

Length 60 feet, width 2 feet, £8.

Length 30 feet, width 2 feet 6 inches, £4 13s.

Length 60 feet, width 2 feet 6 inches, £9 13s.

For prices of other lengths see new List, now ready. Our Improved Wall Copping is made to project the width stated. The goods are all carriage-paid to any railway station in England, also to Dublin and Belfast, on orders amounting to 40s. and upwards. When ordering give the thickness of the wall where the Brackets are to be fixed. Packing Cases are charged, and half-price allowed for if they are returned in good order, carriage-paid, to our Works, within fourteen days of delivery of the goods. Kindly give reference with first order.

PHEASANTRY WIREWORKS.



Gardens and Conservatories fitted up with Wirework, &c.
Flower Stands.
Hanging Baskets.
Trellis Wirework.
Balloon Trainers.
Aviaries, &c.
Slate Boxes.
Tile Boxes, &c.
Garden Arches.
Roses.
Screens.
Summer Houses.
Garden Fencing.
Strained Wire Fencing.
Pheasantries, &c.

See Illustrated CATALOGUE.

R. HOLLIDAY,

HORTICULTURAL IRON AND WIRE WORKS.

"The Pheasantry," Beaufort Street, Chelsea,
London, S.W.



BAYLISS, JONES & BAYLISS,

Patentees and Manufacturers of Wrought Iron

CONTINUOUS BAR FENCING,

Iron Hurdles, Strained Wire Fencing,
Field and Entrance Gates, Tree Guards, &c.,

VICTORIA WORKS, WOLVERHAMPTON,
and 3, Crooked Lane, King William Street, London, E.C.

Catalogues free on application.

Under the Patronage of the Queen.

J. SMITH'S IMPERISHABLE
STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give the palm before all other plant labels, as the very first in merit."

Samples and Price Lists free.

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

RALPH WALLER AND CO., 45, Dale Street,
Manchester, Manufacturer of all kinds of GARDEN
NETTING, &c., for protecting Fruit Trees from Frost; also
HOTHOUSE SHADINGS of various thicknesses, superior
to any other yet discovered for Lightness, Strength, and
Durability, standing, as they do, all weathers.

TIFFANY of various kinds always on hand. Netting and
Shading in pieces 30 yards long, by 1½ yard wide. Tiffany in
pieces 20 yards long, 38 inches wide. Also Tiffany mineralised.

NETTING, No. 1, 4d. per square yard; No. 2, 3½d.;
No. 3, 4½d.

HOTHOUSE SHADINGS.

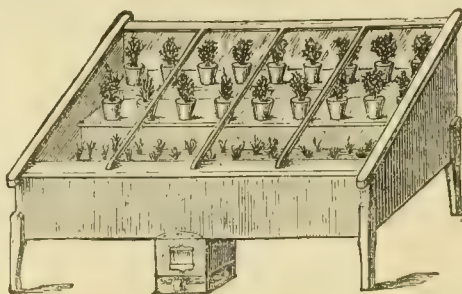
FINE NETTING, 5d. per square yard; No. 6A, 8d.;
No. 6, 9d.; No. 6, improved, 9½d.

TIFFANY, No. 1, 3s. 6d. per piece, Mineralised, 4s.;
No. 2, 4s. 6d. per piece, Mineralised, 5s.

Samples on application.

RIPPINGILLE'S PROPAGATING PLANT FRAME, HEATED BY PATENT STOVE.

The simplest and best ever introduced for Raising Seeds,
Striking Cuttings, &c.



The *Gardeners' Magazine* says:—"A most valuable invention."
(Copy of Testimonial.)

"Yardley, near Birmingham, May 23, 1878.

"DEAR SIR,—I am much pleased with the new Propagating
Plant Frame which you supplied two or three months ago,
heated by Ripplingille's Patent Stove. The frame does its work
in the most perfect manner, and at a very trifling cost for oil.
I have used it with great advantage in raising plants from
seeds, and in propagating trees from cuttings, and I think the
apparatus just the thing for amateur gardeners who do not
happen to possess luxurious and costly forcing houses.

Yours obediently,
"GEORGE LINDSEY."

Sent packed free and carriage paid to any railway station in
England.

Write for Price List and particulars to—

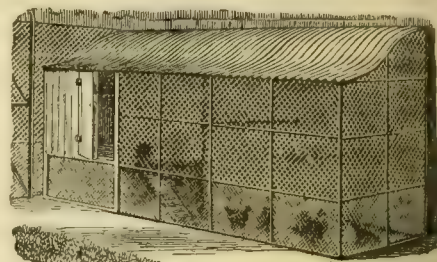
THE ALBION LAMP COMPANY,

118, HOLBORN, LONDON, E.C.,

And say where you saw this advertisement.

BOULTON & PAUL, NORWICH.

NEW PORTABLE LEAN-TO POULTRY HOUSE.



The Night House is made of wood, painted green outside
and lime-whited inside, with run underneath for shade and
shelter; new O.G.-shaped galvanised roof, which is very orna-
mental, and affords good ventilation; fitted with shifting
perches, sliding window, large door and lock for attendant,
small door for fowls, and hen ladder, no nest boxes. Strong
galvanised Wire Run, with corrugated iron roof, door, and lock,
and all necessary bolts and nuts complete.

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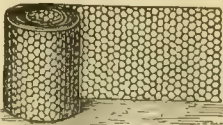
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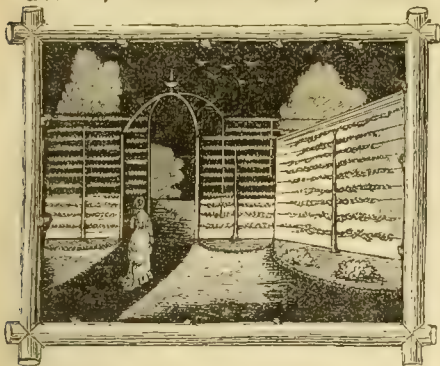
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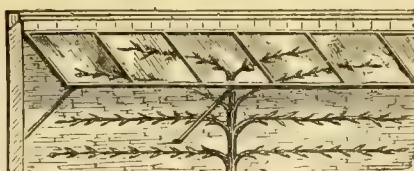
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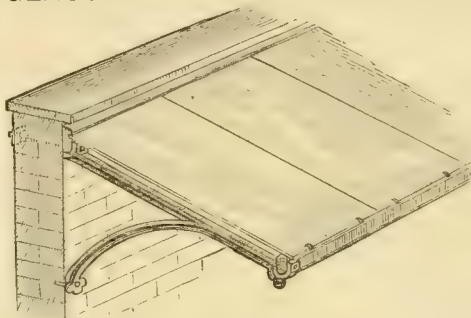


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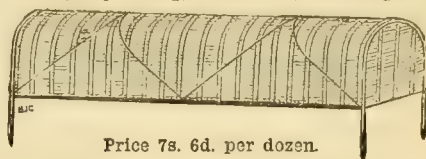
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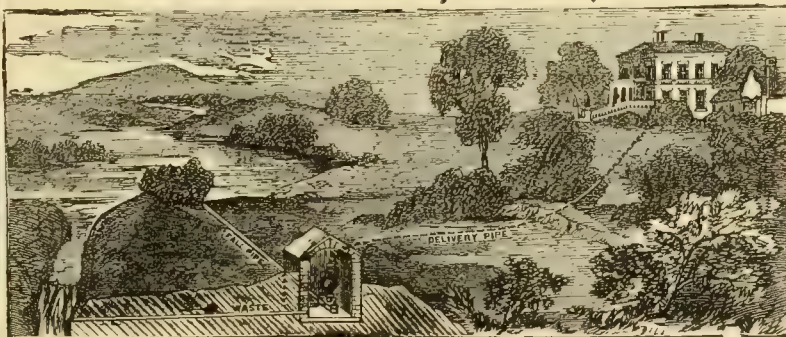
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THE

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CARNATIONS and PICOTEEs, fine named sorts and good plants, 12s. per dozen pairs; PINKS, 6s. per dozen pairs. Discount 1 th. trade. SAMUEL HARTLEY, Headingley Nursery, near Leeds.

LILIAM AURATUM, fine healthy roots, 6s. per dozen; a size smaller, for 5½ inch pots or bedding, 3s. per dozen. LILIAM THUNBERGIANUM STAMINOSUM, 3s. and 6s. per dozen. Double TUBEROSES, 1s. 6d. per dozen. For cash. W. F. BOFF, 203, Upper Street, Islington, N.

To the Trade. ROLLISSON'S TELEGRAPH CUCUMBER (true). J. GEO. HILL has a quantity of above, true stock, and offers it at a low rate considering the quality. Also GOLDEN PERFECTION MELON—no other varieties grown. Price on application to J. GEO. HILL (late Scott), The Royal Seed Stores, Yeovil.

Gentlemen's Gardeners, Amateurs, and Others REQUIRING GARDEN POTS of best quality, are requested to send their orders to J. MATTHEWS, Royal Pottery, Weston-super-Mare. Price List on application.

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

Now Ready, in cloth, 16s., THE GARDENERS' CHRONICLE VOLUME for JULY to DECEMBER, 1878. W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE INTERNATIONAL POTATO EXHIBITION will be held at the CRYSTAL PALACE, SYDENHAM, on September 17 and 18. Schedules and all particulars may be obtained on application to J. A. MCKENZIE, Tower Chambers, Moorgate Street, E.C.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER. The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1879 will be opened by the President of the Society, the Right Hon. the Earl of Derby, on MAY 30. ONE THOUSAND POUNDS in PRIZES. Schedules may be had from the undersigned. BRUCE FINDLAY, Curator and Secretary. Royal Botanic Gardens, Manchester.

BURTON-ON-TRENT FLORAL and HORTICULTURAL SOCIETY.—The FIRST EXHIBITION of the SEASON of PLANTS, FLOWERS, FRUITS and VEGETABLES, will be held in the Hay, Burton-on-Trent, on WEDNESDAY, June 25, 1879. TWENTY POUNDS, TEN POUNDS, FIVE POUNDS for the best Twelve STOVE or GREENHOUSE PLANTS, &c. Schedules of Prizes, and any information may be obtained from the Secretary, to whom nurserymen and others wishing to become subscribers should apply. R. B. BARRAT, Sec. Abbey Cottage, Horninglow Street, Burton-on-Trent.

CLAY CROSS HORTICULTURAL SOCIETY. Twenty-second Annual Exhibition, AUGUST 12, 1879. Prizes THREE HUNDRED and FIFTY POUNDS. Twenty Plants, £25, £20, £15, £10, and £5. Other Prizes in proportion. Schedules will be ready March 29. J. STOLLARD, Secretary, Clay Cross, near Chesterfield.

THUJOPSIS BOREALIS, fol. var.—One of the best and finest hardy Conifers, fine strong plants, about 3 feet high, 6s. each, 48s. per dozen. Apply to JEAN N. VERSCHAFFELT, The Nurseries, Ghent, Belgium.

BEGONIAS (Gold Medal Collection), Seedlings, flowering tubers, 6s. and 9s. per dozen, post-free. Descriptive Priced LIST of our unrivalled Collection free on application. JOHN LAING AND CO., Forest Hill, S.E.

Hollyhocks.—Lists of varieties and price on application. L. WOODTHORPE, Glazenwood Nursery, Braintree.

SPECIAL TRADE OFFER for cash. BEANS, finest Broad Windsor, 8s. 6d. per bushel; Early Longpods, 6s. per bushel; Scarlet Runner, fine English, 30s. per bushel. MANGEL, Yellow Globe, all new and good, 30s. per cwt. CABBAGE PLANTS, fine Drumhead and Thousand-head, at 4s. per 1000; splendid Reds at 5s. Sacks, Bags, and other packages charged cost price. CATALOGUES of other seeds, Plants, Roots, &c., on application to FREDK. GEE, Seed and Plant Grower, Biggleswade, Beds.

SALES BY AUCTION.

Important Sale of a First-class Collection of CARNATIONS and PICOTEES of fine growth, the superfluous stock of a celebrated grower; a superb assortment of 450 handsome Standard and Dwarf ROSES; selected FRUIT TREES, hardy CONIFERAE, SHRUBS; and AMERICAN PLANTS; choice Double CAMELLIAS, AZALEAS, and other GREENHOUSE PLANTS, SEEDS, DAHLIAS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY, April 3, at 12 o'clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Cymbidium eburneum, Best Variety.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, about 100 good strong established plants of this charmingly beautiful ORCHID. As is well known there are two or three varieties of this Orchid, but these plants are all of the most handsome kind; see plant in blossom.

On view morning of Sale, and Catalogues had.

Lælia anceps alba.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at half-past 12 o'clock precisely, some good established plants of the new and beautiful white-flowered Lælia, LÆLIA ANCEPS ALBA. The *Gardeners' Chronicle*, at p. 756, remarks of this new Lælia:—"Its peculiar characteristic is the purity of its white flowers, which equal those of a Phalenopsis, and whose texture may be compared to that of *Lapageria alba*; it must be seen to be appreciated, there is something so captivating in its dazzling whiteness."

On view morning of Sale, and Catalogues had.

Ipseia speciosa.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at 4 o'clock good plants of the above. This pretty terrestrial ORCHID was exhibited in blossom at the exhibition on March 11 of the Royal Horticultural Society, and was awarded a First-class Certificate. The plants offered have been introduced from Ceylon. It gives large bright yellow Dendrobium-like flowers, and is handsome and attractive.

On view morning of Sale, and Catalogues had.

Vanda Parishii, Vanda cœrulea, Cymbidium LOWIANUM, AND OTHER CHOICE ORCHIDS

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, by order of Messrs. Hugh Low & Co., imported ORCHIDS from Burmah, consisting of fine plants, in the best possible condition, of the rare and lovely *Vanda Parishii*, *Vanda cœrulea*, very fine plants; *Vanda cœrulescens*, V. Bensoni, *Aerides crassifolium*, *Dendrobium lituitorum*, D. alba sanguinea, D. tortile, best variety; D. Dalhousianum, D. primuminum giganteum, D. crystallinum, D. eburneum, D. Devonianum, D. formosum giganteum, D. Fitchianum, *Saccolabium giganteum*, &c. At the same time will be offered sixteen strong established plants of *CYMBIDIUM LOWIANUM*.

On view morning of Sale, and Catalogues had.

Bulbophyllum Beccarii

MR. J. C. STEVENS has received instructions from Mr. William Bull, of Chelsea, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, at half-past 12 o'clock precisely, some good plants of the above very extraordinary NEW ORCHID, introduced from Borneo, unquestionably one of the most remarkable plants of recent introduction. A description of it, from the pen of Professor Reichenbach, appeared in the *Gardeners' Chronicle*, January 11, 1879. It has grand broadly ovate leaves something like 18 inches long by 12 inches broad, and as "thick as a board." The flowers are very remarkable, handsome and highly attractive, of a light brownish colour painted with violet, with rich violet-coloured labellum.

On view morning of Sale, and Catalogues had.

Orchids and Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 3, an importation of ORCHIDS, just arrived ex R.M.S. "Mondego" from Brazil, collected by Mr. Henry Bull, including fine masses of *Lælia purpurata* and elegans, *Cattleya Leopoldi* and Schilleriana, *Oncidium curtum* and *phymatichilum*, and various other choice ORCHIDS, in the best possible condition. A quantity of SPECIMEN ESTABLISHED ORCHIDS from a well-known Collection in the Midland Counties; 200 fine imported plants of *Aerides japonicum*, 5000 *Lilium auratum*, and 500 L. *Kramerii* from Japan, 100 *Araucaria excelsa*, consignment from New Jersey of *Dionaea muscipula*, *Sarracenia flava rubra*, &c.

On view morning of Sale, and Catalogues had.

The Queen of Orchids.

ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS has received instructions from Mr. B. S. Williams to SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 3, at half-past 12 o'clock precisely, several hundred Plants of this most lovely ORCHID. The plants are in the finest possible condition, just starting into growth, and having been imported for several weeks purchasers may rely upon the Bulbs being sound and good and not likely now to rot off.

On view morning of Sale, and Catalogues had.

First portion of the Magnificent Collection of Orchids at Edgeware.

MR. J. C. STEVENS has received instructions from the Rev. J. B. Norman to offer for SALE by AUCTION, without the least reserve, on TUESDAY, WEDNESDAY, and THURSDAY, April 29 and 30, and May 1, at half-past 12 o'clock precisely each day, the first portion of this celebrated COLLECTION. Amongst other things will be found some of the finest *CATTLEYAS* in cultivation.

As from ill-health Mr. Norman is entirely giving up collecting, every plant will be absolutely sold to the highest bidder.

On view the morning of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

3000 Odonoglossum Alexandræ.

MR. J. C. STEVENS will SELL by AUCTION, without the least reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 7, at half-past 12 o'clock precisely, a magnificent consignment of *ODONTOGLOSSUM ALEXANDRÆ*, in lots to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

To Nurserymen, Gardeners, and Others.

TO BE SOLD BY AUCTION, on TUESDAY, April 1, at 12 o'clock, at the Brokers' Salesroom, 1, Old Hall Street, Liverpool, Ten Bales CUBA EAST, ex "Enrique," from Havana.

For particulars and samples apply to Messrs. BERNARD HALL and CO., Merchants, 10, Cock Street, or to N. WATERHOUSE and SONS, Brokers, Liverpool.

Harlington and Cranford, Middlesex.

About 13 miles from Covent Garden Market.

TO MARKET GARDENERS, FRUIT GROWERS, and OTHERS.

MR. E. P. NEWMAN, will SELL by AUCTION, at the "Coach and Horses" Inn, Harlington, near Hounslow, on WEDNESDAY, April 9, at 2 o'clock, the LEASE and INTEREST in 20 acres of thriving young FRUIT PLANTATION and 3 acres of open MARKET GARDEN GROUND, the whole in good heart and condition. The Lease has several years to run, and is held at a low rental.

Particulars can be obtained of R. H. HARRIS, Esq., 46, Finsbury Circus, E.C.; and of the Auctioneer and Market Garden Valuer, High Street, Uxbridge, and Hillingdon, Middlesex.

MESSRS. CAPES, DUNN AND PILCHER, of Manchester, have the honour to announce that in pursuance of instructions from T. M. Shuttleworth, Esq., they will SELL by AUCTION, at Howick House, Preston, on TUESDAY and WEDNESDAY, April 15 and 16, without the slightest reserve, punctually at 12 o'clock each day, the unique and valuable COLLECTION of STOVE and GREENHOUSE SPECIMEN EXHIBITION PLANTS, comprising fine-foliated plants, Azaleas, Gleichenias, Tree and other Ferns (British and Exotic), Orchids, Ericas, Crotons, Palms, and Cycads, embracing many noble and matchless specimens. Also three Exhibition Vans, in perfect condition.

Catalogues may be now had from the Auctioneers. The Plants will be on view on Wednesday and Thursday, April 9 and 10, between the hours of 10 A.M. and 6 P.M., by card only, obtainable from the Auctioneers or from Mr. Shuttleworth. Refreshment tent on the ground each day. Stable accommodation at the Fleecy Inn, within five minutes' walk of Howick House. Omnibuses each morning and evening to and from the Sale, starting from W. Harding & Co.'s Yard, Fishergate, Preston, facing the Railway Station.

The Public will be admitted to the Grounds and Gardens on the days of Sale at 9 A.M. by the Farm entrance, beyond the Lodge Gate.

Mr. Shuttleworth will be happy to recommend H. THORNBURGH, his HEAD GARDENER, to any Gentleman requiring a first-class Stove and Greenhouse Plantsman.

WANTED, a HOUSE, Unfurnished or

Partially Furnished, on a short Term or Lease, with not less than nine Bedrooms, Conservatory, Hothouse, good Out-houses, and 4 to 10 Acres of Land. Within about thirty minutes by rail from any City Terminus. Apply

T. CHRISTY, 155, Fenchurch Street, London, E.C.

TO BE SOLD, a SMALL NURSERY,

well Stocked, and in good working order. Good neighbourhood for Jobbing. With immediate possession.

Apply to C. FAIRNINGTON, 16, Maida Vale, Edgware Road, London, N.W.

THE SCOTTISH SEED AND NURSERY TRADE ASSOCIATION.

In connection with what may be considered the primary object of the Association, viz., the prevention and exposure of attempts to vend Adulterated Seeds, it has been agreed to offer to SEEDSMEN'S and NURSERYMEN'S ASSISTANTS a PRIZE OF FIVE POUNDS for an "Essay on the Best Means of Discovering the Various Forms of Adulteration and Admixtures in Clover Seeds, stating particulars of all Foreign Substances found in any Questionable Samples offered for Sale." Competitors for this Prize must lodge their Essays with DAVID HUNTER, Esq., S.S.C., Secretary of the Association, 20, Dundas Street, Edinburgh, on or before NOVEMBER 1 NEXT, for adjudication of the Judges to be appointed by the Committee.

It has been resolved to press upon the attention of Members and others the importance of Arbitration in all cases of dispute between Buyers and Sellers of Seeds and Plants, thus preventing expensive and too often vexatious as well as unsatisfactory litigation. For this purpose the services of the Committee are at the disposal of all disputants upon the payment of One Guinea towards the funds of the Association; besides all expenses incurred in connection with each case brought forward. All further information on this most important arrangement may be had upon application to the Secretary.

All desiring to join the Association may remit the Annual Subscription of One Guinea to the Secretary.

Edinburgh, March 26.

DAVID SYME, Chairman.

Borough of Wolverhampton.

TO LANDSCAPE GARDENERS.

THE PARK and BATHS COMMITTEE of the Corporation of Wolverhampton invite DESIGNS for Laying-out the Interior of a proposed PUBLIC PARK, about 47 acres in extent, at an expenditure not exceeding £5000.

A Lithograph Plan and printed General Instructions and Conditions may be obtained from Mr. G. Eastlake Thoms, C.E., the Borough Engineer, at his Offices, Town Hall, on and after the 20th inst., on payment of One Guinea, which will be returned on receipt of bona fide Design.

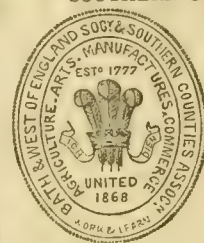
The Committee offer Premiums of £50 and £25 for the best and second best Designs respectively. No premiums will be paid unless the works can be carried out for the sum named—£5000. If the competitor obtaining such first-named premium is employed to carry out the work the premium shall merge in his commission, the rate of such commission to be hereafter agreed upon by the Committee.

Designs, accompanied in each case by specification and detailed estimate, under Motto, must be left at the said Offices not later than 12 noon, on SATURDAY, May 3, next, addressed to "The Chairman of the Park and Baths Committee."

H. UNDERHILL, Town Clerk.

Town Hall, Wolverhampton, March 12.

BATH and WEST of ENGLAND SOCIETY (Established 1777) and SOUTHERN COUNTIES ASSOCIATION.



EXETER MEETING, JUNE 2, 4, 5 and 6.

ENTRIES of LIVE STOCK, IMPLEMENTS, &c., CLOSE APRIL 16, after which date no Fees or Entries can be received.

POULTRY ENTRIES CLOSE MAY 1.

Forms and all information supplied on application to

JOSIAH GOODWIN, Sec.

4, Terrace Walk, Bath.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE have still in stock most of the best varieties of SEED POTATOS, and are prepared to take reduced prices to clear out. Special offers on application.

Seed Growing Establishment, Wisbeach.

To Florists and the Trade.

CAMELLIAS, Double White, and Red do.; LILY OF THE VALLEY, SPIRÆA JAPONICA, ROSES, White AZALEA, Scarlet GERANIUM, MAIDEN-HAIR FERN, &c. Prices on application.

C. WILSON, The Nurseries, Summerhow, Kendal.

Roses, Roses, Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100. Price to the Trade on application.

Cabbage Plants, Cabbage Plants.

W. VIRGO, Wonersh Nurseries, can still supply RED PICKLING PLANTS at 7s. 6d. per 1000 for cash, all good strong healthy plants.

SEED POTATOS, &c.—Late Rose, 10s. per

cwt.; Red-kinned Flourball, 9s. per cwt.; Ruby, 9s.; Sutton's Magnum Bonum, 12s. 6d.; White Emperor, 12s. 6d.; Porter's Excelsior, 12s. 6d.; Salmon Kidney, 12s. 6d., &c. Laxton's Standard PEAS, 8s. per peck. Hardy's Pedigree Windsor BEAN, 12s. 6d. per bushel. Terms cash.

HY. MINCHIN, The Nurseries, Hook Norton, Oxon.

To the Trade.

POTATOS.—Rivers' Royal Ashleaf and Myatt's Prolific, cheap. Price on application.

W. CROWDER, Thimbleby Nursery, Horncastle.

Season 1879.

VEGETABLE and FLOWER SEEDS

of Superior Quality. Carriage Free.

Priced Descriptive CATALOGUE, containing select Lists of these, also Potatos for planting, Hybrid Gladioli, and other Garden Requisites, is now published, and will be sent post-free on application.

DICKSON and ROBINSON,

Seed Merchants and Nurserymen, 12, Old Millgate, Manchester

To the Trade.

SCARLET RUNNERS and CANADIAN WONDER BEANS.

H. and F. SHARPE can offer the above, of English growth, and very fine samples, at moderate prices.

Seed Growing Establishment, Wisbech.

NORTH AMERICAN PLANTS—

including Hardy Bulbs, Orchids, Ferns, and Hardy Herbaceous Perennials generally; also Climbers and Small Shrubs, from both sides of the continent, the Rocky and other Mountain ranges, &c. Our new Descriptive CATALOGUE, Wholesale and Retail, is now ready, and will be sent free by post. By far the largest collection in the country. Many rare species never before offered for sale, and some entirely new.

WOOLSON and CO., Passaic, N.J., United States, America.

Hardy Florists' Flowers.

THOMAS S. WARE'S SPRING CATALOGUE of the above for the present year is now ready, containing a good list of Novelties, and including selections of choicest varieties of Carnations and Picotees, Chrysanthemums, Delphiniums, Pansies, Phloxes, Pyrethrums, and other families. Free on application.

Hale Farm Nurseries, Tottenham, London.

STANDARD ROSES.—Clean, straight stems, with good heads and well rooted, of leading varieties only. List of sorts and prices on application to

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

Green and Variegated Ivies of Sorts.

Large and small-leaved, in eight kinds.

ROBERT PARKER, having a surplus stock of fine plants in pots of the above-named, will be pleased to dispose of them in quantities, at very low prices. Names, sizes, and prices per dozen, 100 or 1000, will be given on application.

Exotic Nursery, Tooting, Surrey, S.W.

TUBEROUS BEGONIAS.—Twelve grand varieties, including double and semi-double, 30s. and 45s. twelve fine varieties, 15s.; mixed Hybrids, 9s. per dozen. Seedlings from carefully hybridised seed, from the best variety in cultivation, 6s. per dozen; mixed seeds, 1s. and 2s. 6d. per packet. See special list of Begonias, post-free.

All goods carriage-free for prepayment.

T. H. HARE, Bulb and Fern Grower, Sittingbourne.

Aucuba japonica.

W. FROMOW and SONS beg to announce that they have taken Mr. Riddy's well-stocked Nursery, Hamworth Road, Hounslow, and can therefore offer perhaps the finest stock of AUCUBAS in the trade, good bush stuff and beautifully rooted, at low prices for cash, delivered within 6 miles of Sutton Court Nursery.

Turnham Green, London, W.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alwicks Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year. Victoria and Paradise Nurseries, Upper Holloway, London, N.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade. SANDER AND CO., Seed Growers, St. Albans.

Good Things.

JOHN MOGFORD, Exporter of CAPE BULBS, can supply the Trade with all the leading kinds, DISA GRANDIFLORA, &c. 10, Camp Street Gardens, Cape Town.

Florists' Flowers.

J. FORBES' CATALOGUE for 1879 (50 pages) of all the newest and best Carnations, Picotees, Pinks, Geraniums, Fuchsias, Pansies, Phloxes, Penstemons, Antirrhinums, Begonias, Verbenas, &c., is now ready, and may be had free on application. The Nurseries, Hawick, N.B.

Special Cheap Offer.

To **SEEDSMEN, MARKET GARDENERS, and OTHERS** **PEA, Jeyes' or Payne's Conqueror.** About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to W. BALL AND CO., Bedford Road Nursery, Northampton

FOREST TREES, Seedling and Trans- planted.—The very extensive stock of the above is this season in splendid condition. CATALOGUES on application. The Lawson Seed and Nursery Company (Limited) Edinburgh.

Now Ready.

CRANSTON AND CO.'S TRADE LIST of NEW ROSES for 1879. King's Acre Nurseries, near Hereford.

Paul's Roses.

WM. PAUL and SON'S stock of ROSES is large, of excellent quality, and uninjured by frost. Standards, 15s. per dozen and upwards; Dwarfs, 9s. per dozen; Climbers, 6s. per dozen. Priced Descriptive CATALOGUES free by post. Paul's Nurseries, Waltham Cross, N.

ALTERNANTHERAS of Sorts, from A Stores, 8s. per 100, or 70s. per 1000. Orders now booked and executed in rotation. LIST of Carpet and other Bedding Plants free on application. Terms cash.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

JULES DE COCK, NURSEYMAN, Ghent, Belgium, offers AZALEA INDICA of all sizes, AZALEA MOLLIS, and A. PONTICA; CAMELLIAS, DIUTZIA GRACILIS, DIELYTRA SPECTABILIS, SPIRÆA JAPONICA, PALMS for Table use, DRACENAS, FERNS, and YUCCA VARIEGATA. CATALOGUES free on application.

Mangel Seed.

JOHN SHARPE is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs. Bardney Manor, Lincoln.

FRUITING PLANTS of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale. THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps. CATALOGUES of ROSES and ORCHARD-HOUSE TREES post-free on application. THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

MAHONIA AQUIFOLIA.—Transplanted, 6 to 12 inches, 12s. per 1000; 1 to 1½ foot, 20s. per 1000. THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

Verbenas in Single Pots.

WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash. Cemetery Nursery, Gravesend.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash. Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums.

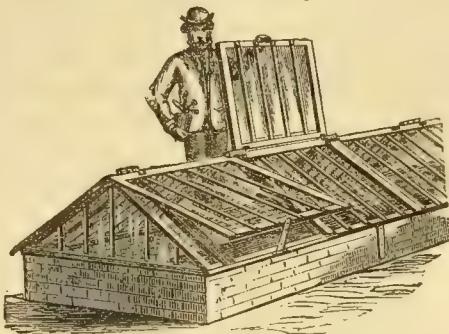
WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash. Cemetery Nursery, Gravesend.

Pinus Laricio.

CORSICAN PINE.—For prices of this valuable Pine, which is seldom eaten by rabbits—never if they can get any other food—apply to JAMES SMITH, Darley Dale Nurseries, near Matlock.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879. Extra Strong SEAKALE, 2s. per dozen. RICHARD SMITH, Nurseryman, Worcester.

BOULTON & PAUL, Horticultural Builders, Norwich.



No. 64. PATENT PLANT PRESERVERS.

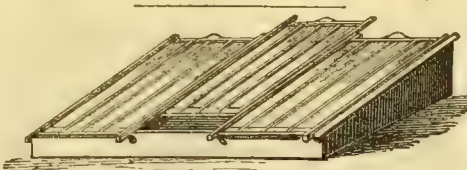
ARRANGED TO BUILD ON BRICK WALLS.

This is the Practical Gardener's and Nurseryman's favourite Frame, now largely used for storing the great quantities of bedding plants in winter, and in summer for growing Melons, &c.

Section No. 64 shows the frame built on brickwork, with a pit sunk low enough for making a dung bed for growing Cucumbers, Melons, &c. This form can be made up to any length required. (See List, free on application.)

CASH PRICES, including two glass ends to each length, painted four times, glazed with 21-oz. glass. Carriage paid.

| Length. Feet. | Width. Feet. | £ s. d. | Length. Feet. | Width. Feet. | £ s. d. |
|---------------|--------------|---------|---------------|--------------|---------|
| 12 | 5 | 5 0 | 24 | 6 | 11 10 0 |
| 18 | 5 | 7 5 0 | 30 | 6 | 14 0 0 |
| 24 | 5 | 9 2 6 | 36 | 6 | 16 0 0 |
| 30 | 5 | 11 2 6 | 42 | 6 | 18 0 0 |
| 12 | 6 | 6 10 0 | 24 | 7 | 11 0 0 |
| 18 | 6 | 9 0 0 | 30 | 7 | 14 0 0 |
| | | | 36 | 7 | 17 0 0 |

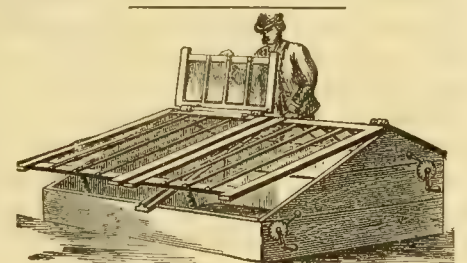


100 MELON and CUCUMBER FRAMES

Ready to dispatch on receipt of order. These Frames are made of the best red deal, thoroughly seasoned, and fitted by first-class workmen: 24 inches high at the back, 13 inches high in front; painted three coats of good oil colour, glazed with the best 21-oz. glass, every pane of which is nailed in and bedded in putty—the best method of glazing known, and adopted by the most eminent Builders and leading Nurserymen (see the Garden for January 13, 1877, p. 30). Iron handles to each light, and an iron strengthening bar across. Each light is 6 feet by 4 feet, and 2 inches thick.

CASH PRICES.

| | 4 feet by 6 feet | £ s. d. |
|---------------|------------------|---------|
| 1-Light Frame | 4 feet by 6 feet | 2 0 0 |
| 2-Light " | 8 " | 3 7 6 |
| 3-Light " | 12 " | 4 17 6 |
| 4-Light " | 16 " | 6 7 6 |
| 5-Light " | 20 " | 7 17 6 |
| 6-Light " | 24 " | 9 7 9 |



No. 74. NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.

Our illustration shows a New Frame for Growing Cucumbers, Melons, &c., and for storing plants. It is made to give greater height and more convenience than the Melon Frame, No. 75. The front is 11 inches high, without the light, 32 inches high at the ridge, and 22 inches high at the back. The front lights can be turned back on the lights behind, and the back lights turned on to the front lights, giving access to all the plants. They are made of the best red deal, sides and ends 1½ inch thick, 2 inch lights; all are painted three times and glazed with 21-oz. sheet glass.

CASH PRICES—Carriage paid.

| Size. | Long. Feet. | From front to back. Feet. | £ s. d. | Gearing extra to 8 ft. size and upwards. £ s. d. |
|-------|-------------|---------------------------|---------|--|
| No. 1 | 4 | 6 | 3 0 0 | — |
| No. 2 | 8 | 6 | 4 15 0 | 0 15 0 |
| No. 3 | 12 | 6 | 6 10 0 | 1 2 0 |
| No. 4 | 16 | 6 | 8 5 0 | 1 10 0 |
| No. 5 | 20 | 6 | 10 0 0 | 1 16 0 |

SPECIAL NOTICE.—Carriage paid to any railway station in England, also to Dublin, Glasgow, and Edinburgh, on order of 40s. and upwards.

Breakage seldom occurs. Should any glass be broken we will send sufficient to repair it, carriage free.

Packing Cases charged cost price, and half allowed when returned free to our Works.

New Illustrated Catalogue of Greenhouses, Plant Preservers, Melon Frames, &c., post-free.

BOULTON & PAUL, NORWICH.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c. THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above. CATALOGUES on application.

To the Trade, &c.

ASPARAGUS, GIANT.—Splendid Roots for Planting, in immense quantity. EWING AND CO., Norwich.

GLASTONBURY or HOLY THORN.—Strong plants of above, 3 to 4 feet high, 2s. 6d. each. Always blossoms at Christmas. J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

SURPLUS STOCK.—50,000 MANETTI STOCKS, Gloire de Dijon, Cheshunt Hybrid, and Céline Forestier ROSES. Prices on application to EWING AND CO., Eaton, near Norwich.

KENTISH FRUIT TREES of every description, at extraordinary low prices. Send for Special LIST to T. EVES, Gravesend Nurseries. Established 1810.

Carnations and Picotees.

CHARLES TURNER is now prepared to supply the above in fine Plants and in great variety. This is the best time for planting to ensure a good bloom of these popular flowers. CATALOGUES on application. The Royal Nurseries, Slough.

Hazel—Scotch Fir.

J. GEO. HILL has a quantity of Strong J. HAZEL, 3 to 3½ feet; also Scotch FIR, 2 to 2½ feet, to offer on very liberal terms for cash. J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy. The Ottershaw Nursery, Chertsey.

TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application. ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

HARDY HEATHS.—60,000 good plants, in great variety—fine for Edging, Bedding, Covering Banks or raised mounds. The prices, which are very low, will be found in the CATALOGUE, free per post. JAMES SMITH, Darley Dale Nurseries, near Matlock.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS. **H. AND F. SHARPE** will be pleased to give special quotations for their fine selected stocks of home-grown MANGEL WURZEL, and SWEDE and other TURNIP SEEDS of 1878 growth, and raised from transplanted Bulbs. Seed Growing Establishment, Wisbech.

MILES' NEW HYBRID SPIRAL MIGNONETTE.—This being the best time to sow I beg to offer from the original stock, at 1s. per packet, or 12s. per dozen. The usual allowance to the trade. WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

ENGLISH YEWS.—Extra transplanted and well furnished, 3 to 4 feet, 9s. per dozen, 60s. per 100; 4 to 5 feet, 12s. per dozen, 90s. per 100. THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

WEBB'S CHOICE POLYANTHUS AND OTHER SPRING PLANTS. Early orders are solicited for the above choice plants. Apply to THE MANAGER, Calcot Gardens, Reading.

WEBB'S PRIZE COB FILBERTS AND OTHER NUTS. Persons desirous of obtaining Trees of the above, grown by the late R. Webb, of Calcot, should give early orders to THE MANAGER, Calcot Gardens, Reading. CATALOGUES post-free on application.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to The LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

ASPARAGUS, ASPARAGUS, Giant.—Strong roots, 2-yr. old, 1s. 6d. per 100, 10s. per 1000. THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

CARNATIONS, PICOTEES, and CLOVES.—A grand stock of the above, very fine plants, consisting of the choicest varieties in cultivation. For descriptions and prices see New CATALOGUE of Florists' Flowers, free on application. THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

To the Trade.

ASH, ELM, SYCAMORE, BIRCH, BEECH, OAK, ALDER, POPLAR, fine trees, 6, 8, 10, 12, 15, and 18 feet. Weymouth PINE, 3, 4, 5, and 6 feet, well furnished Plants. Apply to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

MANETTI STOCKS.—A few thousands, of fine quality, still to offer. QUINCE STOCKS, also, very fine. CHARLES NOBLE, Bagshot.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

STRAWBERRIES, prepared Plants.—Now is the time to plant for profit. The fact of my being located in the midst of hundreds of acres enables me to offer very fine plants of the best and most profitable Kentish kinds, true to name, 4s. per 100. Special prices for large quantities.

STRAWBERRIES.—Splendid Strong Plants, established in 1½ inch pots for immediate private planting, to produce a crop of fruit at once, 12s. per 100.

STRAWBERRIES for FORCING.—Extra strong in 6-inch pots, showing three or four crowns. Crop at once certain. 25s. to 100s. per 100. Special prices per truckload.

CATALOGUES post-free.
From Mr. HENRY PECKHAM, Thorpe, Chertsey, Oct., 1878.
"Dear Sir: The Strawberry plants (24,000) have arrived in splendid condition.

H. CANNELL, Swanley, Kent.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers to the Trade Seedlings in store pots:—*Areca lutescens*, 40s. per 100; *Areca rubra*, 30s. per 100; *Chamaerops excelsa*, 8s. per 100; *Cocos Weddelliana*, 100s. per 100; *Corypha australis*, 20s. per 100; *Euterpe edulis*, 25s. per 100; *Lantana borbonica*, 8s. per 100; *Pandanus utilis*, 25s. per 100; *Phenix reclinata*, 16s. per 100; *Phenix tenuis*, 12s. per 100; *Scaevola elegans*, 25s. per 100; *Thrinax elegans*, 32s. per 100; *Araha Sieboldii*, 6s. per 100; *Dracena indivisa*, 6s. per 100.

To the Trade.

JAS. GARAWAY AND CO.

PELARGONIUMS, Show and Fancy choice varieties, good bushy plants, to bloom in May, in 48 pots, 50s. and 60s. per 100.

CANNATIONS, best named varieties, 8s. per dozen pair.

CHRYSANTHEMUMS, large flowered, Japanese and Pompon, in 3-inch pots, 20s. per 100.

DAHLIAS, named varieties, 21s. per 100.

DELPHINIUMS, single and double, best named sorts, 6s. per dozen, 40s. per 100.

PHYRETHRUMS, Double, best named sorts, 21s. per 100.

PHLOX, leading and distinct varieties, 4s. per dozen, 25s. per 100.

Jas. Garaway & Co.'s own Selection
JAS. GARAWAY AND CO., Durdham Down Nurseries, Clifton, Bristol.

To the Trade.

G. J. ALBERTS AND CO.
(Successors to the late J. W. Outlander & Son), Boskoop, Holland.

beg to draw attention to their extensive and superior Stock of Dwarf-trained Fruit Trees, Ornamental Trees and Shrubs, Trees for Avenues (Limes, Elms, Planes), Roses, Climbers, American Plants, Conifers, New and Rare Plants, &c.

VARIEGATED HOLLIES, the best and most distinct varieties, regular Pyramids, transplanted, 2 to 6 feet.

WEEPING HOLLIES (Perry's Silver and Golden-margined), 4 to 5½ feet stems.

Carriage of all packages is paid to Rotterdam.
Particulars and prices of the above on application.

NEW CHRYSANTHEMUMS.—Strong young plants of the following first-class new Japanese Chrysanthemums now ready:—

M. Crouse, the only variety that received a First-class Certificate last year; M. Ard-ne, and M. Lemoine, 2s. 6d. each.
Bouquet fait, Cœur fidèle, Fleur parfait, Gloire de St. Martin, Hiver fleuri, La Figue, l'Amie du Cœur, Madame Bordier Rendatler, Mdlle. Moulise, M. Barat, M. Morlet, M. Delaux, Miel d'Automne, Orphée, Père Delaux, Reine des Beautés, Tendresse, 1s. 6d. each.

The 20 varieties for 25s.
Also a large stock of all the leading older varieties.
T. JACKSON AND SON, The Nurseries, Kingston-on-Thames.

SWEET VIOLETS.

BLANDYANUM, Double.
BELLE DE CHATEAU, new.
KING OF VIOLETS, Double.
MARIE LOUISE, best Double.
NEAPOLITAN, Double.
REINE DES VIOLETS, Double.
NEAPOLITAN, Single.
WHITE CZAR.
VIOLET CZAR.
VICTORIA REGINA, best Single.

The above are large clumps, suitable for potting, forcing, or forming beds and clumps in flower gardens; 6s. per dozen, 40s. per 100.

PRINCESS MARIE DE SAVOY, new, 3s. 6d. each.
PATRIE, 1s. each.

One plant each 12 vars. free by post, 7s. 6d.

Trade LIST on application. P. O. O. payable to
FREDERICK PERKINS, Regent Street, Leamington.

Surplus Nursery Stock.

SPECIAL OFFER.—CASH PRICES.

WOOD AND INGRAM beg to offer the following, at clearance prices:—

APRICOTS, dwarf cut-back and maiden, 9s. per dozen, 6s. per 100; dwarf-trained, 24s. to 30s. per dozen.

CHERRIES, standards, Mayduke and others, 75s. per 100.

PEACHES, dwarf cut-back and maiden, 9s. per dozen, 60s. per 100.

ACACIA INERMIS, standards, 18s. per dozen.

AUCUBA JAPONICA, 1 to 1½ and 1½ to 2 feet, 21s. to 40s. per 100.

ARBOR-VITE ELEGANTISSIMA, 1 to 2 feet, 18s. p. doz.

ELLWANGERIANA, 2 to 3 feet, 12s. per dozen.

BEECH, 4 to 5 feet, 10s.; 5 to 6 feet, 12s.; 6 to 7 feet, 16s. per 100.

CUPRESSUS LAWSONIANA, 3 to 4 feet, 40s. per 100.

HAZEL, 2 to 3 feet, 18s.; 3 to 4 feet, 25s. per 100.

LAURELS, 2 to 3 feet, 12s. per 100.

PORTUGAL, 3 to 4 feet, 9s. per dozen, 4 to 6 feet, 20s. per dozen.

LIMES, 6 to 8 feet, 25s.; 8 to 10 feet, 50s. per 100.

POPLARS, Black Italian, 4 to 5 feet, 20s. per 1000; 8 to 9 feet, 20s. per 100.

LOMBARDY, 4 to 5 feet, 35s. per 1000; 6 to 8 feet, 9s. per dozen.

PICEA NORDMANNIANA, 3½ to 5 feet, 35s.; 5 to 6 feet, 4s. each.

ROSES, best vars., W. & I.'s selection, standards, 60s.; dwarfs, on Manetti, 21s. per 100.

WELLINGTONIA GIGANTEA (transplanted spring, 1878), 1½ to 2 feet, 21s.; 2 to 2½ feet, 23s. per dozen.

WILLOW, old Weeping, standards, 8s. per dozen, 50s. per 100.

YEW, common, 3 to 4 feet, 18s. per dozen, 120s. per 100; 4 to 5 feet, 24s. per dozen.

IRISH, 4 to 5 feet, 15s. per dozen, 110s. per 100.

Rhododendrons and Hollies.

RHODODENDRON HYBRIDS, 6 to 9 inches, 80s. per 1000; ditto, ditto, 12 to 15 inches, 18s. per 1000; ditto Stocks, for grafting, 100s. per 1000. **HOLLY**, Common, 1½ to 2 feet, 28s. per 100. **LAUREL**, Common, 1½ to 2 feet, 6s. per 100; ditto, Portugal, 2 to 2½ feet, 15s. per 100. **PRIVET**, Oval-leaved, 2 to 3 feet, 60s. per 1000. **WHIN or GORSE**, Double, 9 to 18 inches, 50s. per 1000. The above are healthy and well-rooted. Also other Nursery Stock. **CATALOGUES** free.

HENRY DERBYSHIRE, Nurseryman, Darley Hill Side, near Matlock, Derbyshire.

Seed Potatoes.

WOOD AND INGRAM beg to offer the following, at clearance prices:—

CLIMAX (Breese's), 4s. per bushel.

CAMBRIDGE MARKET, 3s. 6d. per bushel.

DAI MAHOY, 4s. per bushel.

BAKLY OXFORD, 4s. p. bushel.

HAMMERSMITH KIDNEY, 4s. per bushel.

KING of the EARLIES, 3s. 6d. per bushel.

KING of the FLUKES, 3s. 6d. per bushel.

MYATT'S PROLIFIC KIDNEY, 3s. per bushel.

OXFORD KIDNEY, 3s. 6d. per bushel.

VICTORIA (Paterson's), 3s. 6d. per bushel.

SNOWFLAKE, 4s. per bushel.

MAGNUM BONUM, 7s. per bushel.

SCOTCH CHAMPION, 3s. 6d. per bushel.

The Nurseries, Huntingdon.

CARTERS' GRASS SEEDS

HAVE BEATEN ALL COMPETITORS FOR PASTURES & LAWNS

THE ONLY GOLD MEDAL GRASS SEEDS AT THE PARIS EXHIBITION WAS AWARDED TO Carters'

20/- VALUE CARRIAGE FREE 5 PERCENT FOR CASH

THE QUEEN'S SEEDSMEN HIGH HOLBORN LONDON

ILLUSTRATED LISTS GRATIS & POST FREE

Special Offer.

W. BALL AND CO., Bedford Road Nursery, Northampton, having a very large stock of the under-mentioned TREES, &c., in fine condition for removal, have much pleasure in offering them at the following low prices:—
ASH, 2 to 2½ feet, fine, 18s. per 1000.
BERBERIS AQUIFOLIA, 1 to 1½ foot, very fine, 12s. per 1000.

ELMS, Canadian, 8 to 10 feet stems, with good heads, 100s. per 100.

English (upright), 6 to 7 feet stems, fine, with good heads, 50s. per 100.

HORNBEAM, 2 to 3 feet, fine, 20s. per 1000.

LIMES, 8 to 9 feet, very fine, 50s. per 100; 9 to 11 feet, ditto, 70s. per 100.

PRIVET, common, 2 feet, bushy, 10s. per 1000.

OVALIFOLIUM, 3 to 4 feet, very fine, 50s. per 1000.

WALNUTS, 6 to 7 feet stems, nice heads, 60s. per 100.

CHERRIES, Morello, dwarf-trained, splendid stuff, 18s. p. doz.

APRICOTS, Moorpark, dwarf-trained, splendid stuff, 20s. per dozen.

ROSES, extra fine standards, large heads, fine varieties, 4 feet stems, no better in the trade, our selection, 70s. p. 100.

APPLES, fine standards, best market varieties, our selection, 60s. per 100.

PEARS, fine standards, best market varieties, our selection, 70s. per 100.

General CATALOGUE of Seed and Herbaceous Plants post-free on application.

RICHARD WALKER has to offer East Ham, Enfield Market, and Robinson's Drumhead CABBAGE: BRUSSELS SPROUTS, SAVOY, and Red Dutch CABBAGE PLANTS, all at 6s. per 1000; LEM IN THYME and PENNYROYAL ROOTS, 8s. per 100; SAGE and BLACK THYME, 5s. per 100; White Spanish ONION SEED, all new and genuine, 1s. 8d. per pound. Terms cash.

Market Gardens, Biggleswade.

PRIMROSES and POLYANTHUS are Real Gems of Spring.

SINGLE PRIMROSES.
Auriculiflora, 1s. each, 9s. doz.
Lavender, 4s. per dozen.
Mauve Queen, 1s. each.
Magenta Queen, 4s. per dozen.
Purity, white, 3s. doz., 20s. 100.
Yellow, 4s. per dozen.

One each of the above 12 varieties, post or package free, 8s. 6d.

BEDDING POLYANTHUS.
Single Varieties.
Henry Hooper, 6s. per dozen.
Golden Queen, 6s. per dozen.
Plover, 1s. each.
Magenta King, 4s. per dozen.
White Perfection, 6s. per dozen.
Hose-in-Hose Queen, 6s. doz.
Crimson, 1s. each.

One each of the above 12 varieties, post or package free, 10s. 6d.

Trade price on application. Post-office Orders payable
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

VANDA PARISHI, VANDA CÆRULEA, CYMBIDIUM LOWIANUM, AND OTHER CHOICE ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 31, by order of Messrs. HUGH LOW & Co., imported Orchids from Burmah, consisting of fine plants in the best possible condition of the rare and lovely VANDA PARISHI, V. CÆRULEA—very fine plants, V. CÆRULESCENS, V. BENSONI, AERIDES CRASSIFOLIUM, DENDROBIUM LITUIFLORUM, D. ALBA SANGUINEA, D. TORTILE—best variety, D. DALHOUSIANUM, D. PRIMULINUM GIGANTEUM, D. CRYSTALLINUM, D. EBURNEUM, D. DEVONIANUM, D. FORMOSUM GIGANTEUM, D. FYTCHIANUM, SACCOLABIUM GIGANTEUM, &c. At the same time will be offered sixteen strong established plants of CYMBIDIUM LOWIANUM.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THE QUEEN OF ORCHIDS.

ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS has received instructions from Mr. B. S. WILLIAMS to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 3, at half-past 12 o'clock precisely, several hundreds of plants of this most lovely Orchid.

The plants will be sold WITHOUT RESERVE, and are in the finest possible condition, just starting into growth; and having been imported for several weeks, purchasers may rely upon the bulbs being sound and good, and not likely now to rot off.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

EXHIBITION OF HYACINTHS.



MESSRS. JAMES VEITCH & SONS

Invite an Inspection by all Lovers of this beautiful Spring Flower of their
MAGNIFICENT PRIZE COLLECTION,

Which is now in great perfection, and includes some Eighty Novelties never before flowered in England.

The Collection has received the following awards this Season :—

Royal Horticultural Society's Exhibition, March 25.—The large Gold Banksian Medal of the Society and Four First-class Certificates for New Varieties.

Royal Botanic Society's Exhibition, March 26.—The Silver-Gilt Medal of the Society and Ten Certificates of Merit for New Varieties.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA. S.W.

TO OBTAIN

THE BEST LAWNS, THE BEST BOWLING GREENS,
THE BEST CROQUET GROUNDS, THE BEST CRICKET GROUNDS,
S O W



SUTTON'S PRIZE LAWN GRASS SEEDS,

Which produced three beautiful Lawns at the Paris Exhibition, 1878.

(See above Illustration, from a Photograph.)

These Lawns were awarded a Prize Medal, and thus referred to by "L'Echo Agricole," November, 1878 :—

"The Lawns shown by Messrs. Sutton's Agent are at least equal in beauty, vigour, and luxuriance to those shown by any other exhibitor. They are of extraordinary beauty and evenness, and form throughout one charming velvety carpet."

Price, 1s. per pound, 20s. per bushel, Carriage-free.

SUTTON'S PAMPHLET on LAYING DOWN and IMPROVING GRASS LAWNS, &c.,
Gratis and post-free on application.

THE QUEEN'S
SEEDSMEN,

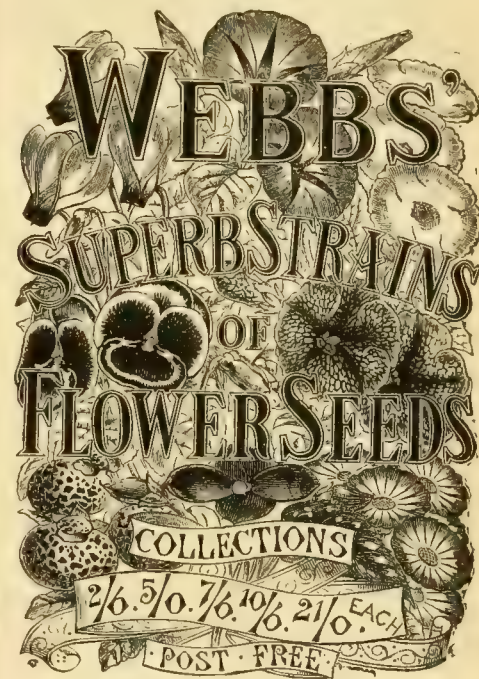
Sutton & Sons

READING,
BERKS,

To the Trade.
SPECIAL PRICES ON APPLICATION.
GEORGE COOPER, SEED MERCHANT,
Hertford, begs to offer the following, of the choicest stocks :—
BEET, Red, Cooper's Excelsior
BROCCOLI, Hill's June
CUCUMBER, Improved Telegraph
PARSLEY, Curled, Cooper's
SWEDE, Cooper's Improved
TURNIP, Improved Aberdeen
ONION, White Spanish
" White Globe
" Bedfordshire Champion
CELERY, Cooper's Improved
White
BROMPTON STOCK,
Giant Scarlet
CYCLAMEN PERSICUM,
from large flowers.

Illustrated Catalogue of Hardy Perennials.
THOMAS S. WARE has pleasure in
announcing the issue of the above for the present year,
containing New, Rare, and Select Hardy Perennials, with
which is combined extensive Lists of Aquatics, Bog Plants,
Hardy Terrestrial Orchids, Bamboos, and Ornamental Grasses.
Gratis and post-free on application.
Hale Farm Nurseries, Tottenham, London.

NEW CATALOGUE for 1879.—The most
comprehensive Catalogue issued of reasonably-priced
Plants and Seeds of the best quality, and suitable for all who
love a Garden or Greenhouse. See last week's large advertisement,
and write for a Catalogue.
WM. CULRAN AND SON, The Oldfield Nurseries,
Altrincham, Cheshire.



| | Per Packet | s. | d. | | s. | d. |
|---------------------------|------------|----|----|----|----|----|
| WEBBS' Superb Calceolaria | 1 | 6 | .. | 2 | 6 | |
| WEBBS' Choice Primula | .. | 1 | 6 | .. | 2 | 6 |
| WEBBS' Superb Cineraria | .. | 1 | 6 | .. | 2 | 6 |
| WEBBS' Selected Cyclamen | 1 | 6 | .. | 2 | 6 | |
| WEBBS' Miniature Aster | .. | 1 | 0 | .. | 2 | 0 |
| WEBBS' Choice Auricula | .. | 1 | 0 | .. | 2 | 6 |
| WEBBS' Show Pansy | .. | 1 | 6 | .. | 2 | 6 |
| WEBBS' Choice Verbena | .. | 1 | 0 | .. | 2 | 0 |

All Flower Seeds Free by Post or Rail.

Webb's Prize Medal Lawn Grasses,

1s. per lb., 20s. per bushel.

Seeds of 20s. value carriage free. 5 per cent. discount for cash.

THE QUEEN'S SEEDSMEN,

WORDSLEY, STOURBRIDGE.

VERBENAS.—50,000 now ready for Sale.
All good, strong, spring-struck plants, perfectly free from
all disease, of Purple King, Scarlet, White, and Pink, 6s. per
100. Twenty other good exhibition varieties, true to name,
8s. per 100. Package free for cash. Also strong healthy
Cuttings of the above at half-price: free by post.
S. BIDE, Alma Nursery, Farnham, Surrey.

To Gentlemen, Builders, and the Trade.

ROBERT AND GEORGE NEAL,
Wandsworth Common and Garrett Lane Nurseries,
beg respectfully to call attention to their large and varied Stock
of HARDY, ORNAMENTAL, FOREST, FRUIT TREES
and SHRUBS, which are grown at their Nurseries, especially
those Trees, &c., which are most suitable for growing in or near
large towns. An early inspection invited. All goods delivered
free on rail in London, or at own residence, within five miles
of the Nurseries.

CATALOGUES free by post on application.

A. VAN GEERT, the Continental Nurseries,
Ghent, Belgium. PLANT and SEED CATALOGUES
free on application. All orders have careful and prompt
attention.
London Agents: Messrs. R. SILBERRAD AND SON, 5,
Harp Lane, Great Tower Street, E.C.

CATALOGUES.—The Gartenbau Verein für Hamburg, Altona and Umgegend will feel obliged if Nurserymen, Seedsmen, Engineers, and Horticultural Builders, will kindly send their Catalogues for our reading-rooms. They should be forwarded by post to ADOLPH SPIHLMAN, Esq., Honorary Secretary, Hamburg.

Trade Offer.

PRIMROSE, Double Lilac, 12s. 6d. per 100, 100s. per 1000.
RODGER McCLELLAND AND CO., 64, Hill Street, Newry.

CATTLEYA MENDELII, **CATTLEYA GIGAS**, **ODONTOGLOSSUM ALEXANDRE**, **O. PESCATOREI**, **O. TRIUMPHANS**, **O. PHALÆNOPSIS**, &c.; **ONCIDIUMS** of sorts, **macranthum**, **ampliatum majus**, **cucullatum**, &c., and a quantity of other beautiful **ORCHIDS** chiefly for cool culture. Before ordering, send for the "New Plant and Bulb Company's" LIST. These plants come from our own collectors, and can be supplied either just arrived very cheaply, or semi-established from last year's importations.
Lion Walk, Colchester.

BEDDING GERANIUMS, **LOBELIAS**, **PANSIES**, and **VIOLAS**.

GERANIUM Wonderful, 10s. per 100, 2s. 6d. per dozen; Leamington Lassie, 5s. per dozen—both autumn-struck. A few stock plants of Wonderful, with cuttings on, 2s. 6d. per dozen, 15s. per 100.

LOBELIAS, from cuttings.—St. Martin's Blue, very fine plants with a quantity of cuttings on, 7s. 6d. per 100; *pumila grandiflora alba*, a new white one, 2s. per dozen, post-free.

PANSIES, Cliveden Blue, Cliveden Purple, and Dean's White Bedder, 2s. per dozen, 6s. per 50, 10s. 6d. per 100; *Viola Bluebell* same price.

Also extra choice Bedding *Violas*, 2s. 6d. to 4s. per dozen.

J. J. MARRIOTT, Highfield Nurseries, Matlock.

NEW AZALEA INDICA of real merit. The following are now offered in good clean healthy plants, with buds, at reduced prices, viz.:

EMPEREUR DU BRÉSIL (J. V.).—Large double flowers, pure rose, finely and broadly edged with a pure white band. Extra fine plants, with buds, 12s.; strong plants, 12 inches in diameter, 21s.

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GERANIUMS, &c., for Bedding.—Strong autumn-struck plants from store pots, of *Vesuvius*, Dr. Lindley, Indian Yellow, Christine, Stella, Tom Thumb and other varieties, 10s. per 100; *Madame Vaucher*, Crystal Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of Calderdale, &c., 12s. per 100.

HELIOTROPE, Light and Dark, 6s. per 100.
CALCEOLARIA, Golden Gem, 6s. per 100, package free for cash.

CENTAUREA CANDIDISSIMA, autumn-struck, good plants in large 6's, 80s. per 100.

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J. J. MARRIOTT has a fine stock of the above, and begs to offer 4-yr. seedlings, 2-yr. bedded, at 24s. per 1000; 4 to 6 inches, transplanted, bushy, 7s. per 100, 60s. per 1000; 6 to 9 inches, 9s. per 100, 80s. per 1000; 9 to 12 inches, 11s. 6d. per 100. Also 2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000. The Trade supplied.
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ANEMONE FULGENS, strong plants, established in pots, 9d. each, 7s. 6d. per dozen, 50s. per 100. This is the most dazzling Scarlet, and most invaluable for the spring garden, and also for cutting, as it opens its flowers just as well under artificial as real light.

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„ double Crimson-Purple, fine variety, often throwing up its flowers in scapes, and continuing long in bloom, 6s. per dozen, 45s. per 100.

„ double Yellow, 3s. 6d. per dozen, 20s. per 100.

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SATURDAY, MARCH 29, 1879.

NEW AND RARE BULBOUS PLANTS.

AMONG the new bulbs which I have flowered lately there are some to which I should like to call the attention of horticulturists. First and best is the lovely little *Chionodoxa Lucilia*, introduced by Mr. Maw from Asia Minor, and liberally distributed by him. This flowered last year, but weakly. Now, however, I can say with confidence that it is one of the best, if not the very best, of all its class, far surpassing any of the Squills, and apparently as hardy and as easy to increase as *Scilla sibirica*. The colour is a bright sky-blue, fading to white in the centre of the flowers, which are about 2 inches in diameter, five or six in number, and thrown well up to the sun. The foliage is very like that of *Scilla bifolia*.

Rhinopetalum Karelini is an interesting little plant, but not showy, and flowers too early in the year to suit this climate. My bulbs in a frame flowered in November, and those in the open ground, though they are perhaps not killed, are much injured by frost. It was introduced from Turkestan, like most of the following plants, through Dr. Regel of St. Petersburg.

Korolkowia Severtzowi is a *Fritillaria* somewhat in the style of *persica*, with large livid flowers. It is more curious than beautiful.

From Mr. Leichtlin I have received some extremely fine Turkestan Tulips, three of which are now in flower.

T. Kaufmanni is a real prize, superior in beauty to almost any of the garden Tulips. The outside of the flower is bright carmine, deepest on the three outer perianth segments, which are bordered with white. The inside of the flower is pearly white, with a bright yellow centre and a band of carmine round the yellow. The flower, which opens nearly flat in the sun, is about 3 inches in diameter; the leaves glaucous, and not much developed at the time of flowering.

Another Tulip which much resembles the last in everything but colour may be only a variety of it. If not yet described I would suggest for it the name of *Tulipa Regeli*. The flower is primrose-yellow, with golden centre and anthers.

The third is *Tulipa triphylla*, which, though much inferior in beauty to the last two, is an interesting species. The bud was produced a month ago, and has slowly developed into a small yellow flower with pointed perianth segments, borne on a somewhat reflexed stem. The leaves are unlike those of any other Tulip I know, but the plant seems to belong to the australis section.

The best form of *Puschkinia scilloides*, which is sometimes called *libanotica* in gardens, seems to be a very well-marked variety, flowering three weeks earlier than the common pale-coloured form. I should be glad to know the correct name of another much smaller plant which is grown as *P. scilloides* at Kew and elsewhere. It does not seem to be recognised in Baker's revision, the only other species described there, *P. hyacinthoides*, having white flowers.

As to *Galanthus Redoutei*, which I see is spoken of as a novelty of merit, I can only say that I flowered it last year, and could see no distinction whatever between it and the common

Snowdrop. It was, as Mr. Crewe says, a little later, and that was all.

I hope travellers in the Levant will look out for some other species of *Chionodoxa*, of which genus four are described, two of them from Crete. This fine island, which from all accounts is much superior to Cyprus, is well worth the attention of botanists, no one having explored it at all carefully. Judging from analogy, it ought to produce a number of peculiar plants, and being now quite tranquil, there would be no obstacle to travelling.

P.S. After the above was in type, I brought up a good specimen of *Chionodoxa* to the meeting of the Royal Horticultural Society, thinking that a First-class Certificate, though of no possible advantage to myself or Mr. Maw, might be of use in assuring the general public of its high merits. I was, informed, however, by one member of the committee that the plant was a botanical curiosity, not suitable for the judgment of the committee; and by another, that though he had never seen the plant growing, he considered its hardness doubtful; and though Messrs. G. F. Wilson, Harpur-Crewe, and E. Green were, as well as myself, able to speak on this point from personal experience, the plant was rejected. I will, however, take this opportunity of assuring any one fond of bulbs that this one is very far superior to many which have already received certificates, and that in respect of hardness, early flowering, colour, habit, and facility of propagation, it is surpassed by none, and equalled by few. *H. J. Elwes, Preston House, Cirencester.*

New Garden Plants.

PHALANOPSIS ANTENNIFERA, n. sp.*

Last year brought us no new species of this highly-prized genus. A small document at hand gives evidence of a new species, very near indeed the lovely *P. Esmeralda*, but of very different colour, since the side lacinia and the basilar antennae of the lip are decidedly deep orange, and the anterior lacinia alone purple. Whether the colours of the sepals and petals are white or rose-red or purple I cannot tell. The general shape of the flowers is that of *P. Esmeralda*. Both species have the singular peculiarity of having small linear spreading side lacinia of the stalk of the lip, and it appears necessary to combine those two species in a special group which I propose to name *Esmeralda*.

This very unexpected novelty comes from inexhaustible Burmah. I have to thank for the material Mr. Stuart Low, who no doubt will bring it in a certain time within the reach of European, at least of British, Orchidists. *H. G. Rehb. f.*

COMPARETTIA MACROPLECTRON, *Rehb. f., Triana, Gard. Chron.* 1878, Oct. 26, 524.†

It is a very great pleasure to state that this curious species has just developed its flowers in England. I have at hand a raceme of four flowers, far larger than those of the well-known *C. falcata*, Poepp., Endl., and *coccinea*, Lindl., boasting the long spurs of the lateral connate sepals, which include the two genuine spurs of the lip of orange colour on inferior halves, and covered with numerous minute short hairs. The flowers are whitish, washed with rose-red, and have the broad acute petals and the square blade of the lip covered with numerous gay rose-red spots, the sides of the lip being toothletted.

I stated before that the discoverer of the species was, as far as we know, Señor Triana. There was once at Mr. S. Low's establishment, among some most curious New Grenadan flowers, the crown of which was *Odontoglossum vexillarium*, a flower of a giant *Comparettia*. It may have been this. The flower was not left with Mr. S. Low, hence I did not see it. The plant itself came into the

hands of my invaluable oldest English correspondent, Mr. S. Low, who had it from his keen and successful traveller, Mr. Lehmann, who may have collected it on Señor Triana's hunting grounds. *H. G. Rehb. f.*

CYPRIPEDIUM VERNIXIMUM, n. *hyb.**

This is a new artificial hybrid produced from *Cypripedium Argus* and *villosum*. It has the leaves of *C. villosum*, with those characteristic little spots on the base outside, but there is a very faint indication of marbling, scarcely to be seen at some distance, on the upper side. The peduncle (which may be rather long, the piece I have is 1 span long) is rather robust, and covered with short hairs, nearly as in *C. Argus*, and with no vestige of those long goat hairs, so remarkable in *C. villosum*. Bracts shorter than the ovary, nearly emerald-green, with longitudinal lines of dark spots. Ovary light ochre-coloured, hairy, hairs also shorter than those of *C. villosum*. Single sepal oblong-acute, rather narrow, light green, with darker nerves, and some transverse bars of nervilli, and rows of dark spots on the lower parts of the nerves. The so-called inferior sepals combined without any vestige of bidentation, very narrow, same colour, but with much fewer small spots. Petals much like those of *C. Argus*, ligulate, blunt, undulate, and with bristles on the upper border, washed with warm dark brown, very shining. Lip that of *C. Argus*, but the sac much longer, light olive greenish, with brown face. Nervation very conspicuous. Staminode transverse, with two blunt spreading anterior angles, and a small tooth in the middle, so it has the transverse shape of that organ of *C. Argus*, and the blunt angle so conspicuous in *C. villosum*.

Is it necessary to tell whence the novelty comes? Scarcely. From the Veitchian Royal Exotic Nursery, product of Mr. Seden's skill. *H. G. Rehb. f.*

NOTES FROM LOWTHER CASTLE.

IN going through the gardens and grounds at Lowther Castle, the beautiful seat of the Earl of Lonsdale, a few days ago, I was struck with the entire change which has been effected from a gardening point of view under the able management of Mr. Shand. New features have been introduced at various points by removing unsightly objects which had grown or accumulated over a number of years, and intercepted the prospect at important places; while an entirely new feature is the substitution of a Rose garden, which is dotted with single plants of choice *Coniferae*, instead of a forest of Larch and Spruce trees, which completely obstructed the view from an avenue of gigantic Beech trees, and also the "look out" to the beautiful grass avenue which commands a view of the deer park and a tract of country unequalled for variety of scenery.

There is a fountain erected in the centre of this new garden which reflects the utmost credit on the taste of whoever conceived the idea. The rockwork surrounding the fountain is natural, and, what is more, it is in character with its situation and surroundings.

There is a row of chain beds on either side the principal walk, and a herbary at the top of the garden. Weeping trees and Roses several feet high have also been introduced; and altogether the laying out is indicative of taste and simplicity rather than of intricacy of design.

The winter has, however, left its mark behind it at Lowther Castle. Hybrid Perpetual Roses have suffered severely; and such delicate kinds as *Céline Forestier*, *Climbing Devonensis*, and *Souvenir de la Malmaison*, are killed to the ground. All late growths of the common Laurel are also cut down, but not otherwise injured, and spring bedding plants have suffered to an extent that can hardly be appreciated at present.

The occupants of the hothouses have increased in quantity as well as in quality; fruit trees are the picture of fruitfulness and health; and plants, especially the fine collection of Palms for house decoration, and the foliage plants, are in the pink of condition.

The flowering plants at present in flower are trained Azaleas, *Libonia floribunda*, grown in bush form, *Spiræas*, and other spring flowering plants, including Mr. Williams' new *Cyclamen giganteum*, which is a vigorous grower of sturdy habit, and is much thought

* *Cypripedium verniximum*—(*Argus* × *villosum*).—Folius *C. villosi*, Lindl., sed obscurissime marmoratis; pedunculo piloso; bractea aciciliata ovario breviori; sepalis impari oblongo obtuse acuto; sepalis cuneato opposito angustiori simpliciter acuto; tepalibus oblongoligulatis obtuse acutis; margine superiori undulatis hinc setosis; labelli sacco bene profundo obtuso; cornubus angulatis erectis; staminodis transversis antice trilobis, lobis lateralibus obtusis magnis; lobulo interjecto dentiformi obtuso minuto. *H. G. Rehb. f.*

of by Mr. Shand. It is a valuable and choice addition to spring flowering plants.

A collection of new and choice zonal *Pelargoniums* in flower are also interesting; their submission to forcing at any season opens up a wide field for the production of gay colours in forced flowers. The varieties that appeared to be most striking were *Annie Orton*, *Zuleika*, *Enchantress*, *Titania* (maroon-crimson), *Mrs. Findlay*, *Mary Mabel*, *Mrs. Ward*, and *Leviathan* (rich rosy salmon).

A batch of *Gardenias*, grown from cuttings six years ago, are now fine specimens, literally swarming with buds. It is noteworthy that when these plants were potted in a mixture of loam and peat they did not succeed nearly so well as they have done lately in pure Shap Fell peat—that is, the grassy surface which at one time had grown nothing but Heather.

In the large conservatory adjoining the Castle there are two notable samples of *Phormium tenax variegata*, with massive leaves beautifully marked. Myrtles are trained in pyramids, and after they have furnished themselves with fresh growths will be used with other plants for furnishing lofty staircases. There are also two fine *Yucca aloifolia variegata*, about 7 feet high, which flowered, one last year and one in 1877, and since they have flowered they have degenerated so rapidly as to be nearly naked of foliage to within 18 inches of their tops. This is a singular occurrence, but not an unprecedented one, if my memory serves me rightly. *Visitor.*

SEVERE FROSTS.

WE have received from Mr. Slack, of the School of Musketry, Hythe, the following interesting particulars regarding severe frosts since the year 220. The winter of 1878-79 has equalled in its severity some of those old-fashioned winters recorded below:—

| YEAR. | YEAR. | England split by the frost; most of the Hollies were killed; the Thames was covered with ice 11 inches thick; and nearly all the birds perished. |
|---|---|--|
| 220. It lasted five months. | | |
| 253. The Thames frozen nine weeks. | | |
| 291. Most rivers in England frozen six weeks. | | |
| 359. Severe frost in Scotland, fourteen weeks. | | |
| 508. The rivers in Britain frozen for two months. | | |
| 695. Thames frozen six weeks; booths built on it. | 1708-9. Three months' frost, with heavy snow, from December to March. It was scarcely felt in Scotland or Ireland. | |
| 759. From October 1 till January 26, 76. | | |
| 827. Frost in England for nine weeks. | 1716. A fair held on the Thames, and oxen roasted. This frost continued from November 24 to February 9. | |
| 978. Most rivers in England frozen two months. | | |
| 923. The Thames frozen thirteen weeks. | | |
| 987. Frost lasted 120 days, began December 22. | 1717. Lasted nine weeks, when coaches plied on the Thames; diversions of all kinds on the ice. It was called the hard winter. | |
| 993. The Thames frozen five weeks. | | |
| 1013. Severe frost June 21, the corn and fruit destroyed. | 1742. Severe frost for many weeks. | |
| 1063. Thames frozen for fourteen weeks. | 1788. The Thames was passable opposite the Custom House from November to January, 1780. | |
| 1775. Dreadful frost in England from November to April. | 1795. From December, 1794, to February, 1795. | |
| 1114. Several wooden bridges carried away by ice. | 1814. January. Booths erected on the Thames. | |
| 1205. Frost from January 14 to March 22. | 1848. A very hard frost. | |
| 1497. Frost lasted fifteen weeks, when all the small birds perished. | 1855. Very severe frost, January 14 to February 24. | |
| 1433. From November 21 till February 10; Thames frozen down to Gravesend. | 1878-9. Skating commenced December 15 and is still lingering with us, the birds are suffering where they are not fed to any great extent. | |
| 1607. Fires and diversions on the Thames. | | |
| 1783. Frost for thirteen weeks, the forest-trees and even the Oaks in | | |

Land and Water.

MORTALITY.

How do the Roses die?

Do their leaves fall together,
Thrown down and scattered by the sky
Of angry weather?
No; the sad thunder-stroke
O'ersweeps their lowly bower;
The storm that tumbles on the Oak
Relents above the flower.

No violence makes them grieve,
No wrath hath done them wrong.
When with sad secrecy they leave
The branch to which they cling.
They yield them, one by one,
To the light breeze and shower,
To the soft dew, cool shade, bright sun,
Time and the hour.

J. S. D., in the "Spectator."

* *Phalanopsis antennifera*, n. sp.—(Aff. *P. Esmeralda*.)—Folioribus parvis illius, mento acutiusculo; sepalis impari ligulato obtuse acuto; sepalis lateralibus oblongis acutis; tepalibus ligulatis acutis angustis; labelli ungue laminam subquadrata lineari utrinque lamina parva brevi lineari mediana divaricata, lamina trifida; laciniis lateralibus oblongis obtusis, laciniis mediana triangulari obtusa brevi porrecta, callo rhombeo antice bidentato inter lacinulas antebasidares, linea una crassa labelli discum apicem usque percurrente, linea approximata utrinque. *Burmah. Com. el. St. Low. H. G. Rehb. f.*

† *Comparettia macroplectron*, *Rehb. f.*, and *Triana*, supra *l.c.*—Folius oblongo ligulatis acutis; pedunculo paucifloro; racemo secundo; bracteis minutis squamiformibus; sepalis impari ligulato acuto; sepalis paribus connatis fornicatis ligulatis acutis; tepalibus cuneato ovatis acutis; labelli auriculis in basi obtusangulis, istimo lineari carinifero; laciniis antice subquadrata medio antice emarginata cum apiculo, lateribus externis denticulata; calcaribus inclusis elongatis subtiliter papulosis; tabula infrastigmatica oblique prona; carina per medium foveam stigmaticam perpendiculari (?)—*N. Grenada. Triana! Lehmann! H. G. Rehb. f.*

A CHAPTER ON SNOWFLAKES.

GALANTHUS and *Leucojum* (Snowdrop and Snowflake), taken together, constitute a well-marked tribe of *Amaryllidaceæ*, characterised by the epigynous insertion of the stamens, and by the anthers dehiscing from the tip of the cells, not by a regular longitudinal slit. In both genera the six segments of the perianth are quite distinct from one another

slightly thickened style, and the black testa of its seeds. The common summer Snowflake, *Leucojum æstivum* of Linnæus, is a very old favourite in our gardens, and grows wild in some places in the southern counties of England. It has an ovoid bulb about an inch in diameter, four to eight bright green erect lorate leaves contemporay with the flowers in May, an angular scape about a foot long, a large one-leaved lanceolate spathe, an umbel of from three to

recent works. *Leucojum pulchellum* of Salisbury is a subspecies or variety of *æstivum*, which flowers a fortnight or a month earlier, with less robust habit, narrower leaves, and smaller flowers. It is a native of Sardinia and the Balearic Isles, and is perhaps even more common in our London gardens than the typical *æstivum*. A figure will be found in Salisbury's *Paradisus*, tab. 74. *L. Hernandezianum* of Cambrésides is the same plant, and Kunth has made a



FIG. 54.—THE SNOWFLAKE, *LEUCOJUM VERNUM*: PURE WHITE, TIPPED WITH GREEN.

down to the ovary. The difference between the two is that in the Snowdrops the three inner segments of the flower are much shorter than the three outer, and entirely different from them in shape, whilst in the Snowflakes all the six segments are uniform in size and shape.

Under *Leucojum* there are three well-marked subgenera, which have been regarded as genera by Salisbury, Herbert, Kunth, and many others, viz., *Leucojum* proper, or *Leucojum* in a restricted sense, *Erinosma* and *Acis*. *Leucojum* proper is marked by its robust habit, lorate leaves, many-flowered umbels,

six flowers expanding in succession, with long unequal drooping stalks, white oblong flower-segments half or three-quarters of an inch long, marked with green spots at the tip, stamens half the length of the flower-segments, and an obovoid capsule, which is late in dehiscing, with black seeds as large as a pea, without any carunculus. Its range of distribution is from England through the southern half of Europe to Asia Minor and Armenia. Good figures of this plant will be found in the *Botanical Magazine* (tab. 1210), *English Botany* (tab. 621), the *Flora Londinensis* of Curtis (fasc. 5, t. 23), and also in many other more

blunder in giving *pulchellum* as a synonym of *æstivum*, whilst he keeps up *Hernandezianum* as distinct.

Of the subgenus *Erinosma*, which is distinguished from *Leucojum* proper by its club-shaped style, usually solitary flowers and straw-coloured seeds tipped with a fleshy white carunculus, there is only a single species, the spring Snowflake, *Leucojum vernum* of Linnæus (fig. 54). It flowers from February to April, has four or six distichous lorate erect bright green leaves, an angular scape about half a foot long, a one-leaved spathe, and usually only a single drooping flower larger than that of *æstivum*, with

broader divisions, also pure white tipped with green. It is widely spread through the centre and South of Europe. Figures of the type will be found in the *Botanical Magazine* (tab. 46), in Jacquin's *Flora Austriaca*, and many more recent works. A variety with a couple of flowers and the segments tipped with yellow, is figured *Bot. Mus.*, tab. 1993, and was called *Erinosma carpathicum* by Herbert. The capsule is remarkably turbinate, and as in *L. æstivum* does not split open till a very late stage.

The subgenus *Acis* is marked by its dwarf slender habit, filiform style, and more membranous capsule. It contains six species, all little fragile plants, with narrow linear leaves, inhabiting the Mediterranean region, five of which are vernal and one autumnal. The first of these is *Leucojum hyemale* of Bertoloni. *Hyemale* is a misleading name, as it flowers in April and May. It grows about Nice and Mentone. Our plants at Kew were given us by the Messrs. Moggridge, and an excellent figure of the plant will be found at tab. 21 of the late lamented J. T. Moggridge's *Contributions to the Flora of Mentone*. It has a very slender scape, 4 or 6 inches long, with one or two flowers, two or three narrow linear flaccid leaves as long as the flower-stem, and white lanceolate perianth segments under half an inch long, coloured green down the keel, which contains eight or ten close ribs. Parlatores makes it the type of a monotypic genus which he calls *Ruminia*, and Jordan and Fourreau, rejecting the misleading name *hyemalis*, figure it (*Icones*, tab. 65, fig. 108) under the name of *Ruminia niceensis*.

Leucojum longifolium of Gay is a little-known Corsican plant, not in cultivation. It has flaccid leaves sometimes 1 foot in length, and produces a flower rather larger than that of *hyemale*, with the same kind of lanceolate segments, with a green keel of many crowded ribs. It flowers in April and May, and is well figured by Jordan and Fourreau, *Icones*, tab. 67, fig. 107.

Then come three closely allied spring-flowering species, in which the perianth-segments have laxer nerves, and instead of being keeled with green are more or less tinted with red on the outside. Of these *L. roseum*, Lois., is a very rare Corsican plant, with a rose-red perianth limb not more than a quarter of an inch long. It is figured under the name of *Acis rosea* in Sweet's *British Flower Garden*, tab. 297, and Jordan and Fourreau's *Icones*, tab. 65, fig. 106. *L. trichophyllum*, Brotero, of which Mr. Barr sent me living specimens last spring, is to my mind the prettiest plant of the subgenus. The perianth-limb is twice as large as in *roseum*, the white segments being laxly nerved, with just a flush of red at the base. It inhabits Spain, Portugal, and Morocco. *Acis Broteri* of Jordan and Fourreau, *Icones*, tab. 65, fig. 105, is a synonym, and *Acis grandiflora* of Sweet a large-flowered form. To these two *L. tingitanum*, Baker, in *Journ. Linn. Soc.*, vol. xvi., p. 678, discovered lately by Mr. Blackmore at Tangiers, is a close ally, with a many-flowered umbel and very long leaves.

The last species of *Acis*, *Leucojum autumnale* of Linnaeus, much resembles *L. trichophyllum*, but it flowers in autumn. It has a wide range of distribution, as it extends from Portugal to the Ionian Islands. It is figured in the *Botanical Magazine* (tab. 960) in Salisbury's *Paradise*, and in the *Flore des Serres*, t. 1983, and two of its forms at tab. 64 of Jordan and Fourreau's *Icones*, under the names of *Acis pulchella* and *Acis oporantha*. *J. G. Baker*.

ABSENCE OF WEEDS.—A request for a handful of Groundsel the other day, by a young lady, brought to light somewhat forcibly the fact that annual weeds are now much scarcer than has been the case in any preceding spring for several years. Not only has the severe winter kept weed seeds from germinating, but it has killed the commoner annual forms wholesale, and in consequence the soil that has not yet been moved is cleaner on the surface than is usually the case at this time of the year. Whilst we have been grieving over the hardships which our wild feathered friends have had to suffer we have taken no thought of those more intimate and perhaps dearer friends who, caged and confined, have been wanting their customary green food. The peripatetic hawkers of "Grassel, and Chickweed, and turves for the larks" have also had a rough time of it, but let us charitably hope that for purveyors of such acceptable diet for the home birds there may be soon better times in store, as there is for the wild birds who can now help themselves.

HOW TO DEAL WITH THE FUNGUS BLIGHTS.*

THE Peronosporæ are the cause of a series of diseases which infest, or may infest, our crops. In order to prevent their ravages, one must consider first the nature and life-history of these parasites; secondly, that of the plant attacked, and the cultivation it requires. The subject is a difficult one, and requires extreme attention.

P. gangliiformis will often be taken as an example, but most of the conclusions drawn from this are general, and applicable to other species with some slight modifications.

A.—In Order to Prevent either the Extension or the Local Production of the Parasite.

1. The period of the existence of the parasite should be noticed. Some occur early (*P. Cyparissiae*, *P. Viciae*). In this case endeavour should be made to retard the crops until their disappearance. Others occur late (*P. infestans*). In this case the crops should be got in before their appearance. This last method may be adopted for Potatoes, but not for Tomatoes in our climate.

These observations cannot be applied to *P. gangliiformis*.

2. When the entire plant is attacked by the disease it should be got rid of at once. It is a hotbed of infection; it is generally more elongated, paler, and more weakly than others.

3. The infected leaves should be removed, so that the plant may not contaminate itself or other plants. This should be done with precaution, in dry weather, when there is neither wind nor dew.

4. Destroy without exception, as far as possible, all the seeds which may harbour the parasite. In the case of *P. gangliiformis* take away the Composite plants, such as *Cirsium arvense*. It is necessary to watch attentively Chicory, Artichokes, &c.; consider them as a hotbed of infection, and if necessary give up their cultivation.

5. All plants or portions of plants, whether green or withered, infected by the Peronospora or its mycelium should be removed. The green portions left on the ground may, in damp weather, produce fresh spores; the withered portions may contain resting-spores, and so become a source of danger.

6. They should be plunged at once into a solution which destroys the parasite (chloride of calcium, sulphide of potassium, &c.); otherwise the Peronospora may be spread.

7. They should be entirely destroyed—either burnt or deeply buried. In no case should they be used as manure, or as food for domestic animals, as is often done; the resting-spores (oospores) do not lose their vitality or their hurtful properties.

By following these instructions, which are general, and are easily applied to a large number of vegetable parasites, it will be possible both to neutralise the centres of infection and to prevent them spreading. The more valuable the crop, the more care should be given to their application.

B.—Mode of Protecting the Plant from the Spores, and Killing the Parts Attacked.

In this case the peculiarities of the plant have to be considered. We will take the Lettuces as an example; many facts, however, applicable to them are general, and not restricted to them.

It is known that this problem has reference to early crops only. These are produced under the following special conditions:—

The plant is—1, annual, and comes from seed; 2, it is pricked out; 3, it is cultivated under frames during winter and spring; 4, it is planted in rich earth; 5, the crop is of short duration.

1. In sowing the seeds, rubbish should be removed, which might contain resting-spores; the seeds should be carefully picked, or, better still, taken from healthy plants.

2. Pricking out. Healthy seedlings only should be used. Leaves bearing the parasite generally perish later on, as I have seen in a great number of crops attacked by various parasites (*Uredo*, *Æcidium*, *Puccinia*, *Stigmataea*, *Dothidea*, *Cystopus*, *Peronospora*, and among them, *P. gangliiformis*). This does not apply entirely to plants provided with bulbs, rhizomes, or transplanted with a large quantity of earth.

* By Dr. Maxime Cornu, in *Grevillea*. Translated from a paper on the Diseases of Plants caused by Peronosporæ in the *Comptes Rendus*, December, 1878, by T. Howse.

3. Exposed to frost the leaves attacked by the parasite are the first killed. This advantageous result is known to market gardeners. It is necessary, both in this and the preceding case, to remove the withered leaves. It is probable that any weakening cause produces the same effect; the decay, through damp, of plants prepared for sale is thus explained. Hence the use of solutions of alkalines, sulphides, or solutions saturated with nourishing principles, is to be recommended; these would for the time slightly weaken the plant. It is dangerous to open the frames; wind, which propagates the spores, should be avoided.

Any infected or suspected frames should be opened separately. The frames should not all be placed in order, that a general infection may be avoided.

4. Every year the situation of the crops should be changed; fresh earth should be always used.

The soil only should be watered; the leaves should never be wetted, to avoid the attachment and germination of spores.

5. When the plant is in the young state it should be carefully protected, so that it may have the start of the parasite, which later on is less to be feared, owing to the imbrication of the leaves.

The evil will be much lessened by following these recommendations. Independently of these precautions, is it possible to prevent the putrefaction of Lettuce leaves attacked by Peronospora? These leaves die through exhaustion; to oppose this, one may endeavour—

a. By keeping the plants gathered at a very low temperature until they are required, so that the parasite may be destroyed.

b. By gathering the Lettuces with their roots, so as to prevent the exhaustion of any leaves already infected.

Practical men must judge which of these two methods is the best. Further details and explanations on this subject will be given in a more extended publication.

THE SYDNEY BOTANIC GARDENS.

THERE is an interest attached to the Director's old residence (illustrated on p. 401, fig. 55), which is prettily situated in the Botanic Garden of Sydney, New South Wales, from its being coeval with the establishment of the colony, as the residence of the Superintendent of what was then called the "Government Garden," established for the supply of Government House with vegetables, fruits, &c., and also for introducing and acclimatising various economical plants and trees, both European and tropical, for distribution to the settlers. In 1832 a magnificent and important introduction was made of a collection of nearly 500 varieties of Vines, collected by Mr. James Bushby from the vineyards of Spain and France in 1831. The whole of these and other valuable fruit trees having been distributed for years and extensively cultivated, being no longer required to be retained in a botanical garden, were in consequence during the last few years excluded, the rarer tropical kinds only being retained. From this primitive state it gradually became the "Botanical Garden," a portion of which, however, was retained until very recently as a vegetable garden for the supply of Government House, but maintained at the expense of the Governor.

Until 1874 this house was the residence of the Directors of the gardens, most of whom were men who have left a name for discoveries in Australian botany—first among whom stands Allan Cunningham, distinguished not only as a botanist, but as an explorer, for to him the colony of Queensland owes the discovery of that rich and valuable tract of country, known as, and named by him, the "Darling Downs." As this cottage will no doubt be soon pulled down [or probably is so now], to give place to the alterations and improvements about to be made in these beautiful gardens, a reminiscence by a photograph will be of historic interest. The first resident was Mr. Charles Fraser. It has also been the abode of Allan and his brother Richard Cunningham, of Messrs. McLean, Robinson, Anderson, Mr. Bidwell, and of Mr. Charles Moore, the present director, who resided here for upwards of twenty years, previous to his removal in 1874 to the new house erected for him. In this house Allan Cunningham died, and from this place his remains were conveyed and interred in the old Church of England cemetery. In front of the house beautiful climbing plants are trained over the trellis-work verandah

and balcony, consisting of *Passiflora quadrangularis*, *Stephanotis floribunda*, *Bougainvillea spectabilis*, and *Bignonia venusta*; the latter during the winter months is in full bloom, extending even over the lower roof of the house, and has a charming effect, for this superb climber abounds in clusters of brilliant orange-coloured tubular blossoms, and continues to flower for nearly three or four months, each corymb consisting of a large number of flowers. [See *Gardeners' Chronicle*, p. 273.] The grounds in front of the house are tastefully laid out as a lawn, flower garden, shrubbery and rockwork. In detached beds are a variety of lovely Roses, rich double and single varieties of Pelargoniums, Heliotrope (*H. peruvianum*), elegant varieties of Gladiolus, *Hibiscus Rosa-sinensis* with bright scarlet, and *Plumbago zeylanica* with a profusion of light blue flowers.

Close to the lower windows of the house is the

about fifteen months, and in so short a period of time displays a collection of well-grown and healthy trees and shrubs, with a well mown grass plot in the centre. Among the plants and shrubs whose blossoms were adorning the garden at this season of the year, I noticed a variety of Pelargoniums, Petunias, Verbenas, Bouvardias, *Vitex ovata*, loaded with panicles of blue flowers, patches of the bright orange-coloured flowers of the Peacock Treasure-flower (*Gazania pavonia*), the blue flowers of *Plumbago zeylanica*, *Hibiscus Rosa-sinensis*, *Solandra lævis*, Oleander (*Nerium Oleander*), *Veronica salicifolia*, the Lemon-scented Verbena (*Aloysia citriodora*), and *Habrothamnus corymbosus*. The Norfolk Island White-wood (*Lagunaria Patersoni*) was covered with flower-buds not yet expanded. Among others not in flower I noticed Camellias, *Magnolia grandiflora*, the double-flowering Peach from China, *Berberis Fortunei*, the

White Gum-trees (*Eucalyptus viminalis* or Drooping Gum) remain, and some fine Norfolk Island Pines and other trees add to the landscape in the distance. The Eucalypti found indigenous in the domain are *E. viminalis*, *E. botryoides*, or Blue Gum, and *E. maculata* or Spotted Gum. *George Bennett, M.D., F.L.S.*

Florists' Flowers.

THE POLYANTHUS.—This fine old flower has become during the last few years almost as popular as the Auricula. There was no other type of it held in estimation as a florists' flower in the days of our grandfathers than that now known as the Gold-laced Polyanthus. I wrote an article on its culture last year, which was published in vol. ix., new series, p. 205. To that I would refer those interested in the various



FIG. 55.—THE DIRECTOR'S OLD RESIDENCE IN THE LOTANIC GARDEN, SYDNEY. (SEE P. 400.)

dwarf Chinese Banana (*Musa Cavendishiana*), the orange-coloured *Cestrum* (*Cestrum aurantiacum*), a variegated-leaved Abutilon; and the elegant *Bignonia Tweediana*, a native of Brazil, runs over the fence, and adorns it with its fine clusters of yellow blossoms. Adjoining and behind the house is a very fine grown English Oak (*Quercus pedunculata*), a Coral-tree (*Erythrina Corallodendron*), and a White Cedar or Lilac-tree (*Melia australis*). The rockery at the lower part of the ground is adorned with a profusion of Ferns (*Scolopendrium*, *Dicksonia*, *Platycerium*, &c.), Orchids (*Dendrobium*), Palms, and various species of Cacti, &c.

The Director's new house was erected in 1874, after the plans of and under the supervision of Mr. Barnett, the Colonial Architect. It is situated near the Domain Road, on a site commanding a fine view of Woolloomooloo Bay, that portion of the city and adjoining villas, Garden Island, Pott's Point, and a portion of the harbour, North Shore, &c. A small garden has been laid out in front of the house for

Mexican Syringa (*Philadelphus mexicana*), *Spiræa corymbosa*, the Sugar-bush of the Cape (*Protea mellifera*), *Poinsettia pulcherrima* with its elegant foliage, flowering, like the *Bignonia venusta*, most profusely during the winter months, forming a rich and brilliant adornment to the gardens at that season of the year; the *Chilianthus* or wild Elder of the Cape (*C. divaricata* of Burchell, *Scoparia*, Linn.), which bears large panicles of small white flowers, very attractive to bees and other insects when in full bloom; *Viburnum lucidum*, *Dombeya Mastersii*, and the Ash-leaved *Murraya* (*M. exotica*). I also observed the Pomegranate (*Punica Granatum*) the Fiddle-wood tree of the West Indies (*Citharexylon caudatum*), *Brachychiton acerifolium* and *luridum*, the Plantain-like *Strelitzia* (*S. augusta*), *Gardenia*, Bo-tree of India (*Ficus religiosa*), *Guava* (*Psidium pomiferum*), two fine Araliaceous trees, the Umbrella-tree of Queensland (*Brassaia actinophylla*), the *Hedera terebinthacea*, *Taxodium sempervirens*, *Phoenix reclinata*, and other Palms, &c. Near the house several of the indigenous

details of raising plants from seeds, propagating by division, &c. Since that time I have visited the best growers in the North of England, and gleaned some additional information. In the first place those intending to raise seedlings with the expectation of producing something in advance of what we already possess, must obtain the best varieties, and save their own seeds. However fine a flower may be as regards the lacing and ground colour, it would be worthless as a show flower if the stigma protruded, or could be seen with the anthers down in the throat under it. A perfect flower has the ground colours very decided; black contrasts best with the clear gold edge and lines that edge the segments of the corolla to the centre, which should be of the same shade of yellow as the edge and radiating lines. The mouth of the tube should be filled up with the anthers, forming what the old florists styled a "moss eye." Now if we want to obtain seeds that are likely to produce flowers of the best form and colours, such a flower must be selected as the pollen-parent. The cottagers

in the North have well-marked pin-eyed flowers, which they designate "mothers;" the pollen is applied to the stigma of these, and from this cross more seeds are obtained, and of a better quality than if the seed-bearer were chosen from plants the flowers of which had the stigma well down in the tube. Of course many of the seedlings are pin-eyed, but at least an equal number have thrum eyes. Some of the varieties selected may have form and colour in a superlative degree, but may be pin-eyed; if so, such varieties should be put aside to produce seeds, or they may be impregnated at once in the seed-bed. I saw one of these "mothers" in the hands of a grower in the North last year with the flowers perfect in every respect; the ground colour was black, with the edge, centre, and radiating lines of a clear lemon. My friend was good enough to send me a plant of this beautiful Polyanthus, with a few others of different colours; they are now showing flower-trusses in company with such sorts as Kingfisher, Pearson's Alexander, Earl of Lincoln, Buck's George the Fourth, Cheshire Favourite, &c. Some of the best of these are already in flower. The plants seemed to grow even when the frost was keen enough to crust the surface of the soil in the pots. With a few genial days the whole of them will be a blaze of beauty.

It is worthy of note that the old growers—or, at least, some of the most successful of the exhibitors—had two sets of plants; one set was grown and flowered in pots for a year, and at the end of the flowering season they were planted out, say in May; they remained in the open border until July or August of the next year, when they were potted up for flowering. Mr. Sanderson, of Newcastle-upon-Tyne, pursues that plan, and he was successful in taking the first prize at the spring show there last year with well-developed plants. Prizes are offered for Polyanthus at South Kensington on April 22 this year, in connection with the National Auricula Exhibition; at Manchester, on April 29, the northern section of the National Auricula Society also offers prizes for them; and on April 9 they are also invited in the schedule of the Great Spring Show to be held at Newcastle-upon-Tyne. The Polyanthus is well adapted for the lover of flowers of humble means; but it is by no means confined to such, as I know ardent fanciers amongst those who have large ranges of glass-houses, and who possess the choicest Orchids and other flowers. *J. Douglas, Loxford Hall, Ilford.*

AURICULAS: APRIL.—The best place for the plant this month is a house large enough for a person to stand upright in. The early sorts will be in flower the first week in the month, and in order to preserve their beauty as long as possible the house must be kept cool and the atmosphere rather dry. Many growers cannot afford the luxury of a house for them; but with care they make an excellent display in frames. Ordinary garden lights are very useful too, because if it is necessary to keep some of the plants back for exhibition or other purposes it can be done by removing some of the frames behind a north wall or other shady place. Some of the best varieties do not open kindly in frames, especially such sorts as True Briton (Hepworth), Lancashire Hero (Lancashire), Peveril of the Peak (Walker), Smiling Beauty (Heap), &c. When the flowers are open they must be shaded by some light material, as the sun's rays would scorch the petals in an hour. The plants make vigorous growth this month, and must be well supplied with water at the roots, taking care not to let any of it fall on the beautiful mealed foliage. As the flowers fade they must be removed; pinch off the pips, leaving the footstalks. As the plants go out of bloom remove them to a frame with its back to the south; the plants can here enjoy plenty of air and less shade than those not yet out of flower.

CARNATIONS AND PICOTÉES.—If the weather is favourable, the plants may be removed from under the glass lights to an open position out-of-doors, yet sheltered from very high winds. If the flower-stems have advanced enough place the sticks to them. Remove dead and decaying leaves with a pair of scissors, and also weeds from the pots; at the same time slightly stirring the surface of the soil. It is desirable to keep the plants in the frame as long as possible, as rain, snow and hail are not uncommon in April.

CHRYSANthemUMS.—The cuttings should now be well rooted and the plants may all be placed in cold

frames, giving abundance of air, and removing the lights altogether in fine weather; pot any plants that require it before they become root-bound, and on no account crowd too many plants into the frames; better grow a less number of plants, than injure them by overcrowding. See that the leaves are quite free from thrips and greenfly before the plants are placed out-of-doors.

DAHLIAS.—The plants may now be arranged in cold frames, allowing sufficient space between the plants, also admitting plenty of air; this will cause a stocky growth, and produce leaves of great substance. The frames must be matted at night, as the plants might suffer from frosts through the glass. Place sticks to the plants, and repot into 5 and 6-inch pots before the plants become pot-bound.

GLADIOLI.—Plant out fortnightly for successional bloom. Sometimes the April-planted corms are those that produce the best spikes. In fine weather run the Dutch hoe through amongst the plants of the early planted beds if they have appeared aboveground. Sow seeds in pots.

HOLLYHOCKS.—If the weather is favourable the whole of these should be planted out if they have been inured to the weather. If at any time, owing to bad weather, the plants cannot be put out when they are ready, it is better to repot than to allow the plants to become root-bound. I have seen fine plants quite spoiled because they had been kept too long in the pots, the roots had coiled round the insides of the pots, and the plants were put out without uncoiling them. If they have become root-bound the roots must be disentangled, but it is better that the roots should be in such a state that they do not require to be disturbed.

PANSIES AND PINKS.—They should now be kept in a healthy growing condition. Neither of them suffer from inclement weather if the soil is sweet and in a condition to promote the development of healthy roots. If the weather is fine Pansies will produce flowers, and continue to do so freely. If weeds come up thickly it may be necessary to pick them out by hand, and when stirring the surface of the ground press the soil round the neck of the plants if it has been loosened by frost. See that they are free from insect pests, and if sparrows begin to peck the leaves they may be kept off by stretching lines of white cotton-thread along the rows about 6 or 9 inches above the ground.

PENTSTEMONS AND PHLOXES.—Plants in beds will have made considerable growth, and sticks must be placed to the young growths, to prevent their being injured by the wind. This must be seen to in an early stage of their growth, else the stalks may snap off close to the surface of the ground. Phloxes in pots must be potted on as they require it, and if room cannot be spared under glass lights for them they may be placed out-of-doors in a sheltered place.

PYRETHRUMS.—As the plants advance in growth it is very interesting to watch the development of the rich green finely divided leaves, and the flower-stems will also be steadily advancing. Although the plants look tender they do not receive any injury from frosts, unless very severe with high winds. Plants in pots must be very freely exposed to the air, and the lights should be used only to protect from severe weather.

TULIPS.—The leaves do not suffer from frosts if they are dry, but those who grow for exhibition must needs shelter the plants from frosts, as the tender petals are easily injured. If glass lights can be spared they are the best, and give the least trouble. The usual canvas tents are clumsy affairs, and cost as much as a simple arrangement of glass lights. The tents are of framework covered with canvas, and are large enough for a person to walk under. The canvas, of course, is movable, and is drawn up and let down at pleasure with pulleys. *J. Douglas.*

POSTAGE OF PLANTS, SEEDS, &c., TO INDIA.—The Director-General of the Post-office in India has ordered that in future packages containing plants, young fruit trees, bulbs, seeds, &c., need not be open at the ends, but may be sent in closed covers with a written description outside of the contents of the parcel. The exposure of plants and bulbs to the air often causes much injury to them, and the plan now adopted is a great improvement. The maximum length of a packet is to be 2 feet, and the ordinary parcel rates will be charged.

Notices of Books.

Fuel; its Combustion and Economy. By D. Kinnear Clark, C.E. Crosby Lockwood & Co.

This work consists of an abridgment of the treatise of C. W. Williams on the combustion of coal, and the prevention of smoke; and of that of T. S. Prideaux, on the economy of fuel. To these are added numerous observations by the editor himself on various points connected with the combustion and economy of fuel—coal, coke, wood, peat, petroleum, &c.

Le Monde Sédéral. By MM. Zurcher and Margolle. Paris: Rothschild.

A brief and clear account of the starry firmament on high, and of the phenomena witnessed by the aid of the telescope, spectroscope, &c. For its size and of its class, this little book appears to be one of the best introductions to the science of astronomy. A table of contents and a good index add to the value of the book, which we commend to the notice of those of our readers desirous of obtaining within small compass an elementary account of the principal astronomical phenomena and to whom the French language offers no bar.

Garden Operations.

KITCHEN GARDEN.

An extremely cold wind and its drying effects at the present season of the year is not only seasonable but suitable, and very beneficial for many operations connected with the soil, as the sowing of cereals and other kinds of seeds, such as those already indicated; let therefore advantage be taken of the opportunity to complete such matters without further delay, and under present conditions defer the planting of tender-rooted subjects till a more clement state exists, when no delay should take place in getting out the residue of winter Cauliflower and Lettuce plants which have been nurtured in frames, &c., also Asparagus, Seakale, and Rhubarb, and any other plants, as Peas, Beans, &c., in boxes, which have been advanced in houses, and well hardened off by gradual exposure. Keep a regular supervision over the different crops, which at this season, on a suitable change taking place, will speedily emerge from the soil, and be liable to the attacks of many enemies, as slugs, sparrows, jackdaws, &c.; the latter are most destructive to the broad Bean crops, and occasionally root up Peas also. After completing the operations which are needful for the sake of appearance, as the cutting of Box and other edgings, &c., commence hoeing the surface of the soil. This important operation cannot be begun too early at this season. *G. T. Miles, Wycombe Abbey.*

FORCING DEPARTMENT.—Generally there is at this season and onwards a great demand for French Beans, which entails the cultivation of them rather extensively, and involves their being grown in such places as vineries, peacheries, &c., along with the permanently established inmates. Under such circumstances there is much risk of the introduction and dispersion of that terrible enemy the red-spider; and to avoid the results which will surely ensue from its effects if once established it will be necessary to use the utmost caution by keeping the plants from coming in contact with any others which may be in the least degree affected. For this object we recommend the sowings to be made in the places where they are to be grown. Considerable attention will be required to the wants of these plants, more especially if they be grown in pots. Plentiful supplies of weak manure-water should be given to all bearing plants, and copious syringings will also be beneficial. Amongst the kinds which we have grown this season we have found Osborn's Forcing to be a most useful and excellent variety. In order to lessen the labour it will be advisable now to sow in pits. As soon, therefore, as those which have been occupied with Asparagus, or from which early Potatoes have been lifted are vacant, let the beds, if made of fermenting materials, be turned over and replenished if necessary, and afterwards place upon them about 12 inches of rich compost; sow in drills about 18 inches apart, placing the Beans 6 inches asunder. In every case in the cultivation of these in houses the plants should be supported by means of dwarf sticks; for this purpose we have found worn-out birchbroom heads when washed to be most useful. The effects of biting winds such as now (March 24) prevail will be found to be most penetrating, and this will entail much care in the management of the ventilation of half-hardy subjects such as those included under this head. Air in some degree is essential to these subjects every day, its admission should, however, be regulated so as to prevent cold

currents from operating directly upon the plants. As successional crops of Potatoes advance soil them up before the haulm falls; and thin out to 3 or 4 inches apart the Carrots which are to succeed former sowings. The thinning process should also be applied to crops of Radishes under glass; this useful salading subject should under ordinary means now be in perfection. Wood's Early Frame is still pre-eminent, in our opinion, for early work. As time and circumstances permit, let a good supply of early sown Celery plants be pricked out into frames in near proximity to the glass, using material which is somewhat rich and adhesive, so that at the time of transplanting it will adhere to the plants to admit of their removal without detriment. About the first week of April sow Tomatos, Capsicum, and Chili seeds for out-of-door cultivation or otherwise, also Ridge Cucumber and Gherkin seed, and another supply of Celery seed in pans or in a frame. By this time advanced plants of Tomatos will be coming into flower; remove all side shoots as soon as they appear, and pinch out the top when the plants have reached the limit allowed. When the surface soil has become permeated with roots add to the surface an inch of compost composed of half fibrous loam and well decomposed manure. These plants are likewise much improved if a mixture of the same compost be placed beneath the pots, provided the drainage is not interfered with; for this end we employ three bricks and place them in a triangular form, on which the pots are stood, the enclosed space being filled with it. *Geo. Thos. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD-HOUSE.—The work in these structures is of a very pleasant nature to the ardent amateur, and it becomes even more pleasant when the house has a division, so that the trees are in two stages. I would again urge on those intending to build an orchard-house the importance of making the roof watertight in the roughest weather, that the dry bracing air may contrast with the driving rain outside. As to the details of the work in the forcing-house it is much the same as that given at p. 337. If there are any of the Peach aphid on the trees, it will be best to fumigate some night when the leaves are dry. Red-spider can be destroyed by syringing the trees daily with clear water, applied with some force, and the brown scale pest is best disposed of with a sponge and rather strong soapy water. It is most usually found on the young wood, not on the leaves, at this season. It is necessary to urge the importance of destroying all insect pests, as they are now waking up into active life. It is better to kill one now than thousands more in a week or two hence. See that the trees as they advance in growth have plenty of space in which to develop the young wood, and to fully expose the fruit to light and air. I would rather throw away some of the trees than allow them to injure others. As the pots are now well filled with young roots, they require a very large supply of water, and it is as well to apply a little of the surface dressing. This should always be at hand in a rather dry state. It does not answer to apply crude manure to the trees. I have tried various mixtures to surface-dress with, but must go back again to the constituents recommended by Mr. Thos. Rivers; the most convenient to us is malt or kiln dust, horse-droppings and stiffish loam, a barrow-load of each thrown into a heap and turned daily for two or three weeks, will answer well. It must, of course, be kept in a dry place. When fermentation ceases it will be ready for use. About two handfuls applied to each tree is sufficient; it is much the best way to apply it in small quantities, and it is astonishing how soon the manurial properties are absorbed. The blossoms in the late house have not yet begun to expand, and until they are open the house will be kept cool, the object being to retard them as long as possible. There is no special attention required at present; we would shut up the house at night and syringe at least once a day. *J. Douglas.*

ORANGE-HOUSE.—The fruit will now be nearly all gathered, and if not the trees ought to be in a cool place. Orange trees differ from most of our popular exotic fruits in this, that if the trees are allowed to remain in a warm house as long as the fruit will hold on and be of good quality, the buds will start into growth, blossom, and set another crop of fruit. A temperature of 60° to 65° at night suits the bearing trees, with a rise of 10° or more by day, with a moist atmosphere and as much ventilation as possible to maintain this heat at the same time. *J. Douglas.*

STRAWBERRIES IN POTS.—Early crops are now supplying daily gatherings of fruit, but resources should be so handled, according to facilities, as to continue the supply all through the season without intermission. This is a difficult matter where the demand is great and facilities for forcing are not equal to the demand. A safe plan is to keep a batch in houses of different temperatures after the fruit is set, as it is but the work of a few days in a brisk heat to

swell Strawberries up to the highest state of perfection. A blank frequently occurs between the last gathering of the early forced kinds and the first gathering of the second for want of accurate calculation, or for want of a proper knowledge of the time required to ripen fruit of different kinds from a given date. To obviate this an abundance of plants should always be kept in a forward state. Allowance should also be made for second early and late kinds, such as Sir Charles Napier, British Queen, and James Veitch, which succeed best under a system of gentle forcing. I have found it a capital plan, after the early gatherings of Vicomtesse Héricart de Thury were over, to keep a stock of Underhill's Sir Harry in an advanced state, ready as it were to be pushed along at the shortest notice. The variety stands any amount of forcing, is of large size and high colour, and is always favourably spoken of when served up in good style. *W. Hinds.*

PINES.—The violence of March winds and storms combined has such a preponderating influence on highly heated structures as to necessitate the relaxation of set rules in regard to internal temperatures, which should be allowed to the extent of 5° or so, according to circumstances. A period of excitement is now commencing in the plants in the several stages of development, which as a natural consequence necessitates increased vigilance and attention. Keep a strict supervision over the state of the heat at the roots lest it should become too hot, and thereby injurious; 90° to 95° at the base of the pots is certainly safe and reliable, above that point there is danger, and particularly so at this season. In the case of fermenting beds, which are much influenced by atmospheric elevations or depressions, keep an abundance of moisture in the compartments where fruit is swelling, and let the heat ordinarily stand at about 70° at night and 75° to 80° in the daytime. Ventilate at 80°, and close at from 80° to 85° with solar heat. Syringe occasionally overhead at shutting-up time, avoiding all such fruits as are in flower. Remove all superfluous suckers before they become large, unless the stock of plants is to be increased. Examine individually the requirements of every plant at least once every week, and water freely when needful with moderately strong guano-water. In the successional houses keep a genial and invigorating state about the plants, a night temperature of about 65°, and 70° or thereabouts by fire-heat during the daytime. Where suckers are placed a close state is most beneficial, and during very sunny weather a slight shade should be used; temp. about 60° night and day. *Geo. Thos. Miles, Wycombe Abbey.*

PEACHES AND NECTARINES.—With a piercing north-east wind, the external temperature ranging about the freezing point, and snow falling heavily, incessant firing is still in force. To counteract the parching influence of constantly heated pipes the most important item in general routine is well syringing the trees twice a day backwards and forwards with clear soft water, and frequent waterings over paths, mulching, &c. Let inside borders be examined and keep them well supplied with tepid liquid manure, as anything approaching dryness at the roots is highly favourable to the rapid spread of spider, independently of its producing a check that may prove fatal to the crop of fruit. Attend to the gradual thinning of fruit and shoots. Tie-in as growth advances, and aim at an even spread of foliage that will shade and protect the strong wood from the direct rays of the sun as the season advances. This caution applies most to light modern houses glazed with large squares of strong glass. Ventilate carefully so as to avoid cold currents of air and sudden depressions of temperature, a somewhat difficult matter in a trying season like the present. In the old fashioned lean-to resting against a solid brick wall the fluctuations are not so great as in span-roofed houses, they are more economical in fuel—no small matter in 1879, and under good management the finest Peaches may be ripe in them by the end of May. Pay attention to succession-houses. Fumigate as soon as the trees are out of bloom, rub off all small and badly placed fruit as soon as the most prominent show signs of taking the lead. Ply the syringe vigorously, always taking care to wet the under sides of the leaves and the strong shoots. Water copiously all inside borders and keep them mulched with well-worked horse-dung. Syringe early on fine mornings; give a little air shortly after; gradually increase, and close with a rise from sun-heat about 3 P.M. The trees in late houses are unusually backward this year; but they are none the worse for this, as the blossoms will open stronger and set quicker than when brought forward by mild weather early in the year. Give plenty of air by night and day until the blossoms begin to open, unless the weather becomes very severe. Fumigate with tobacco-paper, to insure freedom from aphid during the time the trees are setting their fruit. The careful cultivator, who leaves no trifling detail neglected, will of course impregnate the flowers in accordance with one or other of the modern modes of helping Nature to do that which she is well

able to perform for herself, providing all other conditions are right. The first of these we hold to be warm well-drained borders full of active roots, and as these can only be kept in condition by constant attention to lifting, root-pruning, and the addition of fresh calcareous food, it becomes doubtful if the steel fork is not in advance of bees or brushes in bringing about wonderful "sets." *W. Coleman.*

PLANT HOUSES.

ORCHIDS.—Shading, ventilating, and watering are three important operations connected with the growing of these plants that will now take up much time and careful attention. The blind should be run down over the Masdevallia and Odontoglossum-house immediately the sun on bright mornings has raised the inside temperature to 55°. It should be kept down so long as the sun shines upon the roof. Where the side lights allow the sun to play upon the plants or their pots they must be covered outside with a strip of the same material as the roof-shading. There will be some days when the sun, obscured by light clouds, will not be dangerous as regards scorching the foliage, but will still have power enough to raise the temperature to rather a high point. On such days the blind may be left up, for if the house is kept damp and well aired no harm will follow. In ventilating the following is a safe guide:—When the external air is 40° open the bottom ventilators slightly, when 45° wide, when 50° add a little top air, when 60° increase the ventilation by opening the side lights a few inches. Only use fire-heat when the temperature is falling below 50°. The plants will require a thorough soaking every three days. The water used should equal the night temperature of the house, when used warmer the peat and sphagnum in which the plants are potted will during the night be warmer than the atmosphere; the air soon becomes heavily charged with moisture, which finally condenses on the cool leaves and flowers, causing the latter to spot and decay. The shadings of the Cattleya and intermediate-houses must be let down whenever the sun is strong enough to overheat the foliage of the plants; the moment the leaves feel warm to the hand it is time to down with the blinds, and there they should remain until the sun has passed off the roof, or, in the case of a western aspect, until it has lost its power for harm. The bottom ventilators of these houses may be slightly opened whenever the external air is 45°, and wide open when 55°. In low-built houses the top ventilators may be a little open when the outside air is 60°. In lofty houses, where the roof ventilators are far away from the plants, air may be safely admitted in such a free manner as to almost dispense with the bottom ventilators. The side lights must only be used when the weather is decidedly hot. Use enough fire-heat to keep the temperature 60° by night, and when needed to 65° by day. The watering of Cattleyas and Lælias is an operation that takes a long time to master. More of these plants have been killed by overwatering than from all other causes combined. One sound guide is the form of the bulb; experience proves that the shorter and stouter bulbed plants require less frequent watering, and more exposure to light and air than the longer and thinner bulbs. In Lælia majalis and Cattleya citrina we have types of the short-bulb plants which, when growing on bare blocks under the influence of bright light, will pass with one watering safely through the hottest day. Such Cattleyas as Mossie, labiata, and Trianae have intermediate-sized bulbs which, when rooted in peat and sphagnum, prefer thorough soakings at long intervals, and grow best near to the roof-glass. Such long-bulb plants as Lælia elegans, Cattleya Leopoldi, and C. Harrisoni, require to be kept moist at all times, and prefer the centre stage, where they are a foot or two from the glass or more. The extreme of the long and thin section is Lælia harpophylla, which will take as much water at all times as a Sobralia. Use the shading of the East Indian-house whenever there is fear of the foliage getting injured by the sun. With some plants this happens long before they get scorched; Cyrtopodium Veitchii, for instance, will lose its colour when exposed to a very little sunshine, as also will Phalenopsis grandiflora and Angreacum citratum, bilobum, and Ellisii. I have known the three last fail to progress when suspended near the roof, but when stood down on the side stages, shaded by taller plants, they have grown well. On the other hand, Vanda teres and Renanthera coccinea will only flourish where they can get a bright light. The deciduous Dendrobies, such as Wardianum, Pierardi, &c., revel in early morning and evening sunshine, while the Cyrtopodiums do not care for the least ray. To suit in the matter of shading all so-called East Indians is a great difficulty, but wonders can be done by selecting certain positions for certain plants. On this point much can be learned by visiting other collections, and noting well the positions the best grown plants occupy. This house will require but little ventilation at present. The plants will now take frequent waterings, and the atmosphere must never get dry unless it is for an hour or two in the middle of the day. *Joseph C. Spyers, Burford Lodge, Dorking.*

THE Gardeners' Chronicle.

SATURDAY, MARCH 29, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, March 31 | 1 | Sale of Orchids and Azaleas, at Stevens' Rooms. |
| WEDNESDAY, April 2 | 2 | Sale of Gladioli, Plants, Trees, &c., at Stevens' Rooms. |
| THURSDAY, April 3 | 3 | Meeting of the Linnean Society, at 8 P.M. |
| | 4 | Sale of Orchids and Lilies, at Stevens' Rooms. |
| SATURDAY, April 5 | 5 | Sale of Hardy Plants and Bulbs, at Stevens' Rooms. |

AS we have felt it right occasionally to endeavour to moderate the exaggerated value attached by some to the EUCALYPTUS as a fever-destroying tree, it is only just that we should not ignore, and still less should not attempt to controvert, the opinion of so competent a witness as Baron VON MUELLER. To him, indeed, and M. BOSISTO, we chiefly owe what information we have concerning these valuable trees, and to their earnest advocacy and material aid the diffusion of the tree is due. For our own parts we have never denied the value of the tree in suitable climates and situations as a rapidly growing timber tree, but we have been and still are rather sceptical as to the efficacy of the balsamic emanations to neutralise malaria and prevent fever. Where such effects have been produced—and we have no doubt whatever that such results have been witnessed—the benefit has arisen, to our thinking, chiefly from the improved drainage which the mere planting of the trees, if nothing else were done, would bring about, and by the natural purifying power which every growing tree exerts. In swamps in this country, where no Eucalyptus would live, an equally good effect would be produced by the planting of Poplars, Willows, Alders, and other fast-growing trees, quite irrespectively of any balsamic exudation. On the other hand, we do not overlook the fact that chemists have detected in the exhalations from some plants vapours which have powerful antiseptic qualities. Our doubts, however, refer rather to the infinitesimal quantities of such vapours from scattered trees. It is time, however, that we allowed Baron VON MUELLER to be heard for himself, as his opinions on such a matter are so much more worth than those of other people.

"No one," writes the Baron to us, "should recommend the Eucalypts for utilitarian culture *en gros* in any region subject to severe frosts, nor can many species be cultivated in damp tropical lowlands, though the species from the coast-borders of tropical Australia are, in respect to their endurance of moist heat, not yet extensively tested. In an essay which I wrote some years ago for the Agricultural and Horticultural Society of India, and which was published in the Society's *Journal* in Calcutta, I set forth the main uses of the Eucalypts and their degree of endurance to heat and cold.

"In a botanic arboretum for scientific purposes the alpine Eucalypts ought to prosper in at least the milder portions of Britain. In the Southern Alps *E. coriacea* and *E. Gunnii* ascend to a height of 5500 feet, indeed they form the best of the tall woody vegetation. They occur in spots not much below those ravines in which frozen snow lies on the shady side throughout the year, and where during the short alpine summer snowstorms occur every month, and where the spring vegetation is two or three months later than in our lowlands here.

"*E. polyanthemos*, to which Mr. J. SMITH refers as hardy at Kew, never reaches any considerable elevation on our mountains at all. *E. stellulata* is in the south-east of Australia almost subalpine, and *E. alpina* (now extinct except one tree in the Melbourne Botanic Garden, raised from seeds gathered by me in 1853) occurred only on the summit of Mount William, at an elevation of 5000 feet, where the strictly alpine *Celmisia* and other plants which like snow for some months in the year occur. No one, I presume, ever recommended Eucalypts as timber trees to be grown in Britain, unless the hardier species perhaps in the Channel Islands. But for Cyprus, Malta, &c., these trees ought to be of an enormous and invaluable importance. We have no other hard-wooded trees

which grow with a rapidity of that of the Willows and Poplars, and I do not think that even the most resinous of Pines exhale the same quantity of antiseptic oil of best Eucalyptus. Thus *E. amygdalina* yields 2 per cent. of oil from the fresh foliage (branchlets included), and the yield will rise, even under favourable circumstances, to 4 per cent. ! This I proved as far back as 1863 in the second French Exhibition, when I placed, with the help of M. BOSISTO and Mr. JOHNSTON, about thirty new kinds of volatile Australian oils, chiefly of Eucalyptus, before the technologic world. To live in a forest of Eucalyptus *amygdalina* would restore a phthisical patient to health, if the disease had not gone beyond the first stage. Like all the terebinthine oils of Pines, so the cajuput oil of Eucalyptus and Melaleuca, and others of our Myrtaceæ generate binoxide of hydrogen, that potent disorganiser of putrid compounds. Hence I would be cautious in condemning Eucalyptus culture in suitable climatic zones for hygienic reasons alone.

"That in tropical Australia in moist jungles paludal fevers do occur, is proved by sad experience; yet these maladies are not so severe and do not spread over such a vast area as in some other tropical regions. Moreover, the Eucalyptus in such regions, unlike those of the South, do not prevail gregariously in the fever regions of Australia, but are largely interspersed with the more ordinary trees of tropical jungles, such as Sapindaceæ, Meliaceæ, Euphorbiaceæ, Verbenaceæ, Urticæ, Combrétaceæ, Rubiaceæ, &c. Then again many of the Eucalyptus, as I have shown long ago, yield as little as one half per cent. of oil against 2 per cent. and more of all of those species (and they are many) which have the leaves copiously perforated by oil dots.

"I omitted to mention that in Tasmania about half-a-dozen species of Eucalypts occur at heights of from 4000—5000 feet, thus on strictly subalpine elevations, where keen frosts prevail for several months in the year, with any amount of wet, and where the elevation just indicated would correspond to 5000—6000 feet in the Australian alps on account of the difference in the geographic latitude. As regards production of fuel and building timber, what trees could compete in any artificial rearings with the Eucalypts? As regards their respective hardiness, they display a degree of difference as great, if not greater, than that of the Coniferae, among which, merely to quote one example—*Nageia* (or *Podocarpus*), not strictly alpine species, growing quite depressed at the verge of the glaciers (e.g., *Nageia alpina*), and species restricted to hot lowland jungles of equinoctial zones."

— BOTANICAL CERTIFICATES. —It is high time that the Council of the Royal Horticultural Society took steps to carry out properly what they have already decided on, viz., the establishment of these certificates on a proper basis. There is a certain class of plants which, to put the matter succinctly, are not of commercial interest at present, though some of them are evidently destined in future to become so, and which are systematically ignored by the Floral Committee. We do not impute blame to the committee as at present constituted, because they deal or are supposed to deal principally with matters of cultivation, and when a plant is exhibited out of condition or in an imperfect state the committee is quite justified in withholding its award till the value of the plant from this point of view has been proved. The Society, however, has other duties to perform besides recognising established merit—it has to encourage the production of novelties and of new introductions. As a Society it has, or should have, nothing whatever to do with the question of the commercial value of plants. It should commend and encourage merit in plants of whatever nature. Some time since the very beautiful *Torenia Baillonii* was passed over—rightly, perhaps, from a cultural point of view, as the plant was not in condition, but wrongly so, very wrongly so, considering its beauty and interest. Another case of the same kind is noted by Mr. ELVES in our present issue, in the case of the lovely *Chionodoxa Lucilæ*, a new bulbous plant rivaling *Scilla sibirica*, if not excelling it. This plant happened to be unknown to the majority of the committee, and it was in consequence passed over, although several most competent plant-lovers and plant-growers vouched for its good qualities. In such a case, where the judgment of those best qualified to form an opinion is not heeded, the committee in effect stultifies itself. The proper course is to refer such plants to a competent sub-committee, or to the Scientific Committee, and to let that body award certificates of equal value to the ordinary ones awarded by the other committees. The Society has a character to maintain, and it should

not be exposed to the risk of being laughed at because some members of its committees do not understand their duties.

— CYMBIDIUM LOWIANUM (fig. 56).—Those who were present at the meeting of the Royal Horticultural Society on the 11th inst. are not likely to have overlooked the fine Orchid shown by Mr. Low, and which was described by Professor REICHENBACH in our issue of the 15th inst. (p. 332). We have now the pleasure of publishing an illustration from the pencil of Mr. W. G. SMITH, who has successfully represented a portion of the raceme of this fine species. The sepals and petals are of a pale greenish hue, with a few brown lines along the nerves. The lip is yellowish, with the terminal segment rich maroon. The plant was also exhibited at the Regent's Park show on the 27th inst.

— EXCRESCENCES ON SILMS OF CONIFERS.—Referring to the figure of one of these lately given, a correspondent kindly sends us an interesting specimen of a seedling *Chamaecyparis Lawsoniana*, on which has been grafted another species of the same genus. The plant is one of several of the same age and size, and it is obviously in good health. For its size it has a large development of root, not less than that of its compeers in a natural state, but they all come from the stem along the depressions of the woody callus, not directly out of it, and had this plant had a further opportunity of growing, the stronger roots might eventually have been embraced and probably strangled by the growth of the callosity, resulting in the death of the plant.

— OUR FRUIT PROSPECTS.—This is a theme on which we are ever dwelling at this time of the year, whilst the fruit produce of the year remains in embryo; and the fact that we thus dwell upon it so often, and with such anxiety, affords powerful evidence of the fickle and uncertain nature of our climate. We see now that the fruit trees are teeming with the highest promise. The wood is firm and remarkably ripe, the buds are plump and apparently healthy. If any mischief has been done to them by the severe frosts of the past winter, there is good reason to believe that it is simply local, and that so far no great reason exists for despondency on that head. On the other hand, the comparative sluggishness still displayed in Nature is productive of great hope. There is no active excitation, and the few hours of warm sunshine that now and again tempt us to think spring is really come are not of sufficient endurance to allure the wary bloom-buds to expand. The continued wave of cold air is our best protection from the dreaded evil of late spring frosts; the trees are well kept in check, and so they will remain until the arrival of the genial weather shows that the winter of our discontent is at length past and the summer of our enjoyment has well nigh come. As evidence of the slow action of the bloom-buds—for the general inaction in Nature is abundantly evident—it may be mentioned that it has taken nine days from the time the first bloom expanded on an Apricot tree growing on a cottage wall in the warmest southern aspect till one-sixth were open, and at the present rate it will take a month to get the entire tree in full bloom; but a sudden change from bitter east winds to genial spring warmth may soon provoke a rapid expansion. It will doubtless be well for us to be safe out of treacherous March ere the tender bloom-buds seek largely to woo the sunshine.

— CATTLE POISONING.—Another report is to hand of a number of cattle having been poisoned by the eating of branches of Yew, near Eastbourne, in Sussex. The cattle had been somewhat hard driven for food, and ate the Yew branches for lack of other diet. It is strange that no amount of warning will induce people to take ordinary precautions against a danger of this kind. If eighteen head of cattle were affected by cattle disease or pleuro-pneumonia there would be a tremendous outcry, and the whole energies of the Privy Council would be exercised to meet the emergency. As it is; poisoning by misadventure, or rather through gross negligence on the part of those in charge, in allowing cattle to graze where trees of dangerous nature grow, is regarded with indifference.

— CHIONODOXA.—Of this there appear to be two distinct species in cultivation, one, *C. Lucilæ*, with 1—2-flowered scapes, flowers 7—8 lines long



and filaments of unequal length, and the other, *C. Forbesii*, with 1-4-flowered scapes, flowers 6 lines long and filaments of unequal length. The species are described by Mr. BAKER in the *Journal* of the Linnean Society, vol. xi., p. 436 (1870), and we hope shortly to be able to present our readers with fuller information on the subject.

— AMERICAN CAMELIAS.—We understand that Mr. J. C. STEVENS will offer for sale early in April several fine young plants of Messrs. HOVEY's beautiful new Camellias—Mrs. Hovey and C. H. Hovey—which were exhibited at South Kensington on Tuesday, and awarded First-class Certificates, as recorded in another column. Our plant dealers and amateurs will thus have an early opportunity of adding these desirable acquisitions to their collections.

— PRESENTATION TO MESSRS. GARAWAY, OF BRISTOL.—On the occasion of the recent exhibition of the Bristol Chrysanthemum and Spring Show Society, held in the Victoria Rooms, Queen's Road, Clifton, the committee of management, consisting entirely of practical gardeners, presented the Brothers GARAWAY, of the Durdham Downs Nursery, with their portraits, as an acknowledgment of the services rendered by them to the Society, whose business has been transacted almost from its commencement in the Messrs. GARAWAY's offices free of all cost to the Society. The presentation was made after the dinner on March 19, the portraits being handed over after a few well-timed remarks from the Chairman, Mr. BANNISTER, and Secretary, Mr. WEBLEY; and the Messrs. GARAWAY tendered a suitable acknowledgment.

— SEEDLING TEA ROSES.—We have received from Mr. H. BENNETT, Stapleford Nursery, Salisbury, a cut bloom of a seedling Tea Rose, named Duke of Connaught, which appears to be a gem of the first water, a full-sized showy flower, of a rich crimson, almost equalling in intensity the old Crimson China, and of a most delicious scent. Another flower, named Purple King, is very promising for a "maiden," and very fragrant to boot.

— CATTLEYA TRIANÆ DODGSONI.—The variety so named by Mr. WILLIAMS is one of the finest we have seen. The sepals and petals are white, the latter nearly 3 inches broad, the lip 3 inches long and 2 inches in expansion, about an inch of the tip of the richest magenta-crimson, the throat orange-yellow, and the prettily undulated side-lobes just tinted with blush. When fully spread out the flowers measured 8-9 inches across; really grand. The specimens were sent us by Mr. OSMAN, gardener to R. B. DODGSON, Esq., Beardwood, Blackburn, after whom the variety was named.

— CAMELLIA ROSEFLORA.—To the large-sized and various coloured varieties of the popular *C. japonica* this miniature-flowered species forms a pleasing contrast, and by many would doubtless be considered preferable, on account of its more convenient size, more especially for buttonhole bouquets. The flowers are of a delicate pink shade, and about the size of an ordinary Abutilon flower, subtended by the deep green foliage, smaller and of thinner texture than that of the ordinary Camellia. It may be needless to add that the flowers are single, but if taken in hand by a skilled culturist most probably the stamens, which to some appear so objectionable, would soon be transformed into neat imbricated petals, which would indeed be a very desirable acquisition. It is of a more slender habit than *C. japonica*, and probably of about the same degree of hardiness, though it is of Chinese origin.

— ROSE FORCING AND SUNSHINE.—It is stated in *Der Deutsche Garten* that the absence of sunshine is the reason why the Berlin gardeners are not so successful in forcing Roses as their brethren farther North and farther South; but is it true that there is less sunshine during the winter at Berlin than London? We doubt it, though from the meteorological reports in the journal quoted the good people of Berlin get less than we had expected. Of course sunlight effects wonders, and it is specially welcome to the forcer of fruits and flowers in winter. Moreover, Cucumber forcing is very trying work during the dull months of autumn and winter; but there is no doubt that success in

forcing Roses and most other plants largely depends on their preparation for this process.

— "THE INVENTOR'S RECORD."—The first number of a new periodical, published at 28, New Bridge Street, Ludgate Hill, is before us. It is to be published fortnightly, and is intended to bring inventors in closer communication than heretofore with manufacturers, to the advantage of both. The publication seems to us well adapted for its purpose. We may cite an article on the morality of strikes as taking a very common-sense view of things, and commend the column devoted to Notes and Queries as likely to be very serviceable.

— POTATO MEASURES.—Those who are engaged in the retail Seed Potato trade are made familiar with the various local designations applied to given quantities. For the customary peck the quantity is sometimes inquired for as $\frac{1}{4}$ bushel, as 14 lb., as the stone, and as a peck. The $\frac{1}{2}$ peck is termed the gallon, the $\frac{1}{4}$ stone, and as 7 lb. The $\frac{1}{4}$ peck as the pottle and $3\frac{1}{2}$ lb.; the descriptions being entirely guided by the designations locally prevailing. We have here in stone, gallon, and pottle, three distinct appellations to weights that are purely local, and have no essential connection with either the bushel or sack, the most widely understood Potato measurements. Pounds, pecks, and bushels are all popular denominations that it were a pity were not made universal in the country.

— DAVALLIA MOOREANA.—Plants of an ornamental character are so much in demand for house decoration, and speaking comparatively there are so few good plants that will stand even an ordinary amount of the "knocking about" attendant upon their use for such purposes, that we are always pleased to meet with new subjects possessing the quality of endurance so much desired. That *Davallia Mooreana* is a plant of this character we are assured by Mr. BAKER, gr. to E. C. BARING, Esq., at Coombe Cottage, who has had a considerable amount of experience in providing plants for "the town house." Of its beauty we need say nothing, but it may be useful to many to know that it stands well, and has an excellent effect in the rooms. While on the subject of supply, we may also add that Mr. BAKER grows a number of seedling plants of *Gleichenia flabellata*, and finds them most useful for cutting, on account of their durability in the cut state.

— FLOWERS FOR EVENING WEAR.—It is reported that in Paris a great effort is being made to revive the use of Camellias for evening wear; but white Roses are preferred because of their more graceful appearance. One of the gossipers of talk in *Society* states that the Camellia suits only a stately lady, and is not becoming to small people. Flowers are thus subject to the mysterious springs which set the fashions, and are used or disused according as the custom is.

— ACACIA PLATYPTERA has been flowering so freely and beautifully all the winter, that even now we are constrained to draw attention to its merits, with the object, especially, of inciting attention to the preparation of plants for the next season, often really the most important thing to do. This species has been particularly fine at Kew. The winged stems in reality are very slender, but with the branchlets, which bear multitudes of golden balls, have the appearance of broad flat expansions. The phyllodia are completely decurrent into the wings, to which they seem to belong as immense teeth. Few Acacias continue so long in flower, and none appear to surpass it in the rich golden colour or profusion of bloom. It is an old plant, of the easiest cultivation, introduced from Swan River about forty years ago.

— HILDEBRANDT'S NEW COMORO PALM.—*Der Deutsche Garten* for March 1 contains a figure of this elegant dwarf Palm (*Ravenea Hildebrandtii*), which was discovered by Mr. J. M. HILDEBRANDT, the African traveller, who recently passed through this country on his way to Madagascar, on Johanna Island, one of the Comoro group, situated midway between Madagascar and the mainland of Africa. In its native country it grows 8 to 10 feet high, and it has pinnately divided leaves. The latter are described as dark green, beset with prickles on the underside, and

in healthy plants nearly as broad as long. It grows quickly in a moderate temperature, and is recommended for the temperate house. Both of the horticultural societies of Berlin awarded it the prizes offered last summer for new plants. Only a small stock of it exists in Europe at present, but it is expected that Mr. HILDEBRANDT will soon send more seeds.

— FAILURE OF MESSRS. THOMAS BUNYARD & SONS.—This well-known Kentish nursery firm, having establishments at Maidstone and Ashford, are under the necessity of calling their creditors together, owing to their being so heavily involved in the failure of Mr. H. BUNYARD, of Tooley Street, S.E. They state that, under the peculiar circumstances of the case, no other course, just to their creditors and honourable to themselves, is open to them.

— THE SCOTTISH SEED AND NURSERY TRADE ASSOCIATION.—At the annual general meeting, held in Edinburgh, in January last, a discussion took place as to the best means of extending the usefulness of the Association. After which it was unanimously resolved, in furtherance of this object, to press upon the attention of members and others the importance of arbitration in all cases of dispute between buyers and sellers of seeds and plants, thus preventing expensive, and too often vexatious, as well as unsatisfactory, litigation. For carrying out this resolution it was also resolved to place the services of the committee at the disposal of all disputants, upon the payment of one guinea towards the funds of the Association, in addition to all expenses incurred in connection with each case brought forward. All further information on this important arrangement may be had upon application to the Secretary. In connection with what may be considered the primary object of the Association, viz., the prevention and exposure of attempts to vend adulterated seeds, it was agreed to offer to seedsmen's and nurserymen's assistants a prize of £5 for an essay on the best means of discovering the various forms of adulteration and admixtures in Clover seeds, stating particulars of all foreign substances found in any questionable samples offered for sale. Competitors for this prize must lodge their essays with DAVID HUNTER, Esq., S.S.C., Secretary of the Association, on or before November 1 next, for adjudication of the judges to be appointed by the committee. Members are respectfully requested to bring this subject under the notice of *employes* likely to compete: and they are also reminded that much may be done to increase the usefulness of the Association by communicating to the Secretary all information on matters of special interest occurring in their several localities.

— INSTITUTION OF SURVEYORS.—The next meeting will be held on Monday evening, March 31, when a paper will be read by Mr. R. W. TOOTELL, on "Hop Cultivation." The chair to be taken at 8 o'clock.

— ODONTOGLOSSUM CIRROSUM.—The number of well-marked forms of *Odontoglossum cirrosum* now in flower in Mr. BULL's nursery go to confirm the extremely variable character of this most beautiful and elegant species, which from the first time of its blooming in this country gave evidence of being so dissimilar, not only in the markings, but also in the size and substance of the flowers collectively. Charming as are the massive racemes of the well-known *O. crispum*, there is still an elegance in the long arched stems of *O. cirrosum*, not present in the former, which, together with its easy growth, make it a most desirable plant for cool Orchid-house cultivation.

— VIOLETS IN POTS.—A system pursued by Mr. SHAND, of Lowther Castle, of cultivating Violets in pots, will be interesting to all who are admirers (and who are not?) of this beautiful spring flower. The stock now to be seen in full flower at Lowther have been raised from a few plants of Victoria Regina. The plants were increased by cuttings and by division, and planted out in the open border the first year, and were lifted the following autumn, and potted up into 6-inch pots for supplying Violets during the winter and spring. They succeeded very well the first year, and after they were out of flower they were partially shaken out and shifted into 8-pots and plunged out-of-doors up to the rim of their pots; and all the runners that were formed through the summer were

"pegged" round the side of the pot till the surface was well furnished, when the runners were allowed to overhang the side of the pot but kept regulated and proportionate. The pot appears to be filled with a number of plants, but virtually they are the progeny of one single plant, and yield a large quantity of flowers all through the early spring. Mr. SHAND has several batches of them coming on in different sized pots, and those in flower are a blaze of sparkling blue flowers of large size intermixed with fine healthy foliage. The variety is worth obtaining where large quantities of Violets are required through the winter and spring.

— **COST OF FUEL IN NURSERIES DURING WINTER.**—A leading nurseryman in London remarked, a few days ago, that he should be thankful if he this season managed to pay his expenses. There has been the drawback of a great depression in trade generally, which means the curtailment of expenses on the part of the monied classes, and as the purchase of plants comes under the denomination of luxuries more than that of necessities, orders are neither so numerous or so large in extent as usual. The long spell of wintry weather prevented many orders being sent in during the months of January and February, which it is said have been altogether lost, and orders on hand could not be executed. Labour expenses have had to be maintained with very much reduced incomes, and the cost of fuel has been enormous, added to a much larger average than usual of bad debts. One leading market grower puts down his cost of fuel during the wintry weather at £4 daily, while the inclemency of the weather, as a matter of course, affected the progress of things and materially paralysed trade.

— **ARISEMA NEPENTHOIDES.**—The handsome and striking species of *Arisea* exhibited by Mr. ELWES at South Kensington on Tuesday the 25th, was presented to Kew, and on comparison it is found to be *A. nepenthoides*, figured in the *Tentamen Floræ Nepalensis*, tab. 18. It is about 2 feet high, and from the base upwards is marked with black-purple, chiefly in the form of short bars, distinct, or several merged into each other; on the larger sheath in particular are irregular rings of pinkish colour, which do not appear on the petioles or scape. The leaves are pedate of five leaflets, lanceolate or oblanceolate, the central about 6 inches long, the others shorter, and the two lateral ones oblique towards the base. All are undulated, and the midribs beneath are marked in the same way as the petioles. The species is dioecious, and the plant before us is a female; the ovaries are tipped with jet black, and the stigmas have the same colour. The spathe above the tubular portion is extended into two decided auricles, and these, perhaps, are not found in any other species; then there is a constriction to a diameter of about $1\frac{1}{4}$ inch, from which the somewhat ovate hood expands to a greatest diameter of 2 inches, arching over and terminating in an acute point. The auricles extend to a diameter nearly twice that of the constriction. These auricles have, perhaps, an important function; the plant is absolutely dependent on another individual for fertilisation, and it is not surprising if there should be a means to an end. On their surface and around the mouth is secreted a shiny slightly viscous fluid, in tiny drops within the tube and up the hood along two or three of the principal veins, but more copious on the auricles, where the glands are probably more numerous, so as to form a continuous polish of secretion. The tongue fails to detect a sweetness, though at the same time the object is possibly to attract insects, and hence the attainment of a pollen conveyance. The auricles may also afford a convenient surface on which to alight—the secretion does not seem to appear over the entire surface. In the *Botanical Magazine* (not at hand at the moment) it is suggested that the long tail-like appendage to the spadix of *A. speciosum* is for the special use of insects; trailing on the ground it allows them to climb up direct to the sexual organs. In this species there is no tailed appendage, and the termination is truncate—a point that we believe is of sectional value in the genus. This fine acquisition was imported by Mr. ELWES from Sikkim, and, with little doubt, for the first time. *L.*

— **FUMIGATING MACHINES.**—Of all the contrivances for fumigating that have come under our notice we know of none better for use in large

places, where there is much of this disagreeable work to be done, than that which Mr. BAKER has in use at Coombe Cottage, and which is simply one of the Vermin Asphyxiators invented by that well-known sportsman, the late Mr. S. BATESON, screwed down to the bottom of a sideless wheelbarrow. We gave an illustration of the machine, which was originally invented for driving rabbits and other ground vermin from their runs underground, in our volume for 1872, p. 1263, but had not until quite recently seen it in practical use in a garden. It is very substantially made, and not liable to get out of order very easily; besides being worked with a greater degree of comfort by the operator than is the case with most other contrivances, by reason of its power to drive the smoke through a considerable length of india-rubber tubing, which allows of the work being mostly done from the outside. Besides, the smoke is cooled considerably in its progress through the tube, so that even the largest houses can be filled with perfect safety in a very few minutes. So cool indeed is the smoke after passing through a tube, say about 8 feet long, that where there are large plants of Azaleas, for instance, which want fumigating, and it is not desirable to fill the whole house, the single plants can be operated on separately by simply covering them over with canvas thrown over a skeleton framework surrounding the specimen. The machine can also be used for disinfecting purposes, as well, as before mentioned, for "bolting" ground vermin, or suffocating them in their holes. It is manufactured by Messrs. JOHN WATTS & CO., 6, Broad Weir, Bristol.

— **ANTS, CRICKETS, AND COCKROACHES.**—A correspondent writes:—We have been trying saucers of oil, as recommended in your columns, for the destruction of ants, and find that they lead to fatal accidents on the part of cockroaches and crickets!

— **ORCHIDS IN BLOOM AT THE VICTORIA AND PARADISE NURSERIES.**—The following Orchids are now in bloom in Mr. B. S. WILLIAMS' nursery.

| | |
|----------------------------|---------------------------------|
| Cattleya Trianae | Lycaste Skinneri, several vars. |
| " Warscewiczii delicata | " Janipes |
| Calanthe veratrifolia | " aromatica |
| Cymbidium eburneum | Masdevallia ignea |
| Coleogyne cristata | " tovarense |
| Cypripedium Boxalli | Phalenopsis Schilleriana |
| " barbatum | Maxillaria grandiflora |
| " Dayanum | Oncidium aureum |
| " Harrisianum | Odontoglossum Alexandrae |
| " Warneri | " cirrosium, several |
| " villosum, several plants | " Klabochozum |
| Bolbophyllum siamense | " gloriosum, several |
| Dendrochilum glumaceum | " Pescatorei |
| Dendrobium Cambridgeanum | " triumphans |
| " crassinode Barberianum | " nebulosum |
| " densiflorum | " Lindleyanum |
| " Findleyanum | Restrepia antennifera |
| " fimbriatum oculatum | Sobralia macrantha pallida |
| " primulinum | Vanda tricolor formosa. |
| " pulchellum purpureum | " " superba |
| " nobile | " " Rollissoni |
| " Pierardi | " " insignis, several |
| " Wardianum | " " suavis, several |
| Laelia cinnabarina | |

— **A NEW FORAGE GRASS FOR HOT COUNTRIES.**—The most noticeable plant figured in the *Botanical Magazine* for the present month is the noble Maize-like grass originally introduced into France from Guatemala, under the name of Teosinte, and frequently referred to in our columns. It was referred first to Reana, and now to Euchlena, and is of interest, botanically, as being nearly allied to Maize, whose American origin it thus supports. This relationship is clearly shown by the admirable illustration now before us. It is a handsome grass, and flowered in the Water Lily-house at Kew last year, its stems attaining the height of 15 feet. From experiments made with it in the South of France, M. DURIEU pronounced it to be a plant *d'une végétation prodigieuse*, every seed producing 100 stems, and these attaining 10 feet in height, but the climate was not warm enough to enable it to flower. It has been introduced successfully into Egypt, where it flowers and seeds abundantly. From Kew it has been distributed to Cyprus, the East and West Indies, and tropical Africa, where it is likely to be of great service.

— **ROYAL VISIT TO MR. WILLS' NURSERY.**—After inspecting the flower show in the Royal Horticultural Society's Gardens on Tuesday last, His Majesty the King of the BELGIANS paid a visit to the establishment of Mr. JOHN WILLS, at Onslow Crescent, South Kensington, who is executing an

important commission from His Majesty in connection with the new winter garden erected in the grounds attached to the Royal Palace at Laacken.

— **LAELIA HARPOPHYLLA.**—In Mr. BULL'S nursery recently we saw in bloom the as yet rarely-flowered *Laelia harpophylla*, since shown by Sir TREVOR LAWRENCE at the South Kensington fortnightly meeting, March 11. It affords a colour that amongst the immense number of Orchids now in cultivation is very scarce, an exceedingly bright deep orange-red, to which *Laelia cinnabarina* comes the nearest. This new acquisition is much enhanced by its distinct creamy white lip; the sepals and petals lie quite flat, disclosing the white inner surface of the flower, which gives it a most conspicuous and effective appearance. So bright is it that independent of its own high merits it lends something to every flower associated with it, as was apparent on the occasion referred to at South Kensington, where the magnificent group in which it had a most telling effect was a sight worth going a long way to see.

— **ARAUCARIA EXCELSA.**—M. ANDRÉ tells us that at Monaco there is a plant of this species bearing cones. No male flowers are apparent, but at Hamma (Algiers) a plant of this species bore both male and female flowers, as was the case with a tree of *A. imbricata* at Bicton some years ago.

— **NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.**—We see from the schedule issued by this Society that there are offered, as heretofore, the same liberal prizes in the various classes for plants, flowers, and fruits, at the spring, summer, and autumn exhibitions, which are to be held on April 9 and 10, July 9 and 10, and September 17 and 18. This long-established Society gathers strength and importance with age, a consummation in such matters not always attained. We doubt not but that it will continue to increase in prosperity, as it evidently has within it the elements calculated to insure success; a committee who understand the work before them and who leave nothing undone that appears necessary; an excellent place for holding their shows, and a full appreciation of the exhibitions by the public in this populous district, as proved by their attendance in such numbers. The arrangements for the great summer shows, as described in our report of the last July exhibition, are such as to secure an effect with the plants displayed better than any we have before seen, where ordinary tents are used.

— **AYLESBURY FLORAL AND HORTICULTURAL SOCIETY.**—The annual show of this Society is fixed for Thursday, July 3.

— **THE WEATHER.**—From the report issued by the Meteorological Office for the week ending March 24, we learn that the weather was fine in central and south-eastern England during the early part of the week, but generally dull elsewhere; cloudy and squally weather extending to all parts later. A good deal of fog and mist extended over the United Kingdom, especially at the beginning of the week. Rain was recorded in many places on the 18th, with snow in the north, but the weather generally was dry during the remainder of the period. The temperature was a few degrees below the mean in all districts. Readings uniformly low in Scotland, but exhibiting great extremes over England. During the fine weather which prevailed on the 19th the thermometer rose as high as 64° at Audley End, Cirencester, London, and Strathfield Turgiss, 65° at Rothamsted, and 68° at Cambridge, but the temperature afterwards fell rapidly, and on the 24th the maxima at the same stations were almost all 30° lower, while at Cambridge the change amounted to 34°. The rainfall was less than the mean everywhere, the deficit ranging from one-tenth of an inch in Scotland to six-tenths in "England, S.W." The fall noticed on the 18th was generally in the form of rain, but a few slight snow showers fell in some parts at the close of the week. Wind southerly to south-easterly at the commencement of the week, afterwards shifting to east or north-east generally, and blowing very strongly in the Channel and South of England. On the 21st the wind veered to south-east in Scotland, but remained easterly elsewhere. At the close of the week strong breezes were becoming general.

Home Correspondence.

What Boiler Shall we Use?—This is an important question, and deeply concerns both the amateur and the professional horticulturist. It is a question frequently put to himself and his friends, but rarely does he obtain a satisfactory reply. How is it possible, we ask, for us to decide on the merits of the numerous boilers now in the market, when with hardly any exception each claims to be the best? It has occurred to us that if some of your readers who have had extended practical opportunities of ascertaining the truth in these matters were to give the results of their experience they would be doing a public service, especially to the perplexed purchaser. The late severe winter and the consequent severe strain put upon hot-water boilers must have forced upon the notice of the observing gardener grounds for comparing the merits of different forms of boilers under his control. Of course it will be readily understood that small boilers, warming it may be one or two houses, form little or no criterion, as they would be utterly useless for large establishments, where the space of glass, as at our nursery, exceeds 45,000 feet in extent, and therefore it is to large establishments that our remarks must be taken more especially to apply. After the enlargement and additions made to the glass on our premises we put down two large improved saddle-shaped boilers to meet the requirements thus rendered necessary: imagine our disappointment when in the unusually mild winter of 1877-8 we found ourselves deficient of boiler power, and were unable to warm the quantity of water contained in our heating system. True, the circumstances of the case were somewhat exceptional, the number of the houses to be heated being unusually large, situated some distance apart, at different levels, containing nearly 2 miles of piping and divided into ninety-five compartments. Still as the season was so mild no difficulty should have been experienced in obtaining sufficient heat. However, as the boilers failed to supply this, it became apparent that additional power must be obtained either by fixing a third boiler of the same type as those already fixed, or by the substitution of another and more powerful form of boiler. We decided to adopt this latter course, and having seen some very favourable instances of Messrs. J. Weeks & Co.'s Patent Duplex Tubular Boilers, we had one of their large ones, with all recent improvements, put down, and attached to the pipes of the other boilers in use. The result, we are glad to state, is a complete success, and notwithstanding the extreme severity of this last winter (1878-9), we have with ease been able to maintain a good temperature in all our houses and stoves. Our large winter garden, nearly 100 feet square, has been delightfully warm, and we have been enabled not only entirely to dispense with the two large patent saddle boilers before attached to our system, but also to discontinue the use of mats, with which on previous winters we have been obliged to wrap up the side glass, in order to avoid dangerous consequences. We ought here to state that at the time of fixing this tubular boiler the quantity of piping in our apparatus was somewhat augmented, while in other respects the arrangements remained precisely the same as when the two saddle-boilers were tried. The marked improvement we have experienced gives incontestable proof of the very superior power possessed by the tubular boilers. *E. G. Henderson & Son, The Pine-apple Nursery, London.*

Double Tropæolums.—In an old-fashioned garden some time ago I came upon a fine double Tropæolum, from which I got a few cuttings last July. I have grown them as creepers in a warm greenhouse, and they have bloomed freely the whole winter. The flowers are of a fine dark scarlet, last a long time in bloom, and are, I think, an acquisition among greenhouse or conservatory winter-blooming plants. Not having seen them before nor seeing any note of them in catalogues, it occurs to me to inquire if the double Tropæolum has been or is in commerce, and if so who raised or sent it out? The plant is certainly worth more general cultivation, as it can be grown as a creeper or trained round a few stakes for indoor work, or used for the flower garden. I enclose a sample of the flowers for your inspection, and will be glad of any information as to its origin. *D. M.* [There used to be two double Tropæolums in cultivation, and they are probably still to be met with in "old-fashioned gardens." The one called the double scarlet Nasturtium had flowers of a bright scarlet, and was considered a variety of Tropæolum minus. The other was known as the double orange, was stronger and more vigorous in growth, and had the flowers of a streaky orange-scarlet. Both were good old things, used for bedding out in the earlier bedding days, but the first was the better of the two, and if our memory serves us—for we have not seen it for years—had a few scattered hairs on the leaves. The double scarlet as a pot plant grew from a foot to 18 inches high; the double orange was taller and coarser, and was

considered to belong to *T. majus*. Both were less frequent than the single types. Yours appear to be the double orange, judging by the streaky coloration. We quite agree with you that they ought to be looked upon as acquisitions, for they certainly rank amongst old neglected beauties. *T. majus fl. pleno* was recorded upwards of 100 years ago by Philip Miller. *Eds.*]

Weather at Inverary.—Having got through the long winter here with comparatively little injury to vegetation, it was thought the worst was past, and that the future promised well; but to our surprise the wind, which had for some days been northerly, shifted all at once on the 13th inst. to the east, bringing with it a fall of snow, which measured on the morning of the 14th 9 inches thick, and at the same time the thermometer indicated 14° of frost. Covered with their wintry garments of snow, the old Beech trees had many of their branches bent to the ground; and *Abies Douglasii* and *Thujopsis borealis*, with their tiers of branches arranged alternately, pressed down with snow, had a most beautiful effect. Irish Yews, which had been cut-in from time to time, and *Cupressus Lawsoniana* with single stems, as well as *Wellingtonia gigantea*, *Cedrus Deodara*, all carried their loads of snow without injury. The weather has come upon us very unexpectedly, and put a stop to all outdoor work, which was far behind at any rate. It will be some time before the high and low-lying ground attains an equilibrium of temperature, owing to the former being still frozen at a certain depth. *John Calk, Inverary Gardens, March 18.*

Strawberry Prospects.—The foliage of the Strawberry plants has almost everywhere been laid low, and the crowns are exposed and unprotected. I have noted elsewhere the statement that in spite of this damage to the plants the crowns look as strong as ever, and promise well; to this I take exception. Although not yet far developed, the crowns do not by any means display that vigour and fulness that is usually seen, and that this will be the more apparent when the season advances there can be no doubt. There is a special danger in store for the blossoms when they expand, and that is the lack of the customary protection furnished by the foliage when spring frosts are prevalent. Except in very small breadths, any supplying of artificial protection of the blossoms is out of the question, therefore the great mass of bloom will have to take its chance. The chief reason for hope that the blossoms may not suffer after all lies in the still prevailing cold weather and general lateness of the season, which may tend to keep the crowns dormant until danger from late frost is past. The general slaughter of Strawberry foliage places the plant in much the same position that those stood in when it was formerly the custom to mow off the foliage in a mass in the winter at the time of the usual dressing and cleaning. This practice has been so often denounced as barbarous and opposed to all good culture that it has now become a thing of the past. One great argument against the practice was the inevitable deterioration of the plants consequent upon such a wholesale decimation of foliage. What the scythe did of old the frost has done now, and we can hardly hope for better results than followed under the mowing operation. One result will follow to the advantage of the fruit, the stricken leaves will furnish a natural protection from the soil and dirt, and will aid to keep it clean. That, however, is but a minor benefit as compared with the possible loss that may result from the remarkable destruction of foliage. *A. D.*

Shrubby Veronicas.—Though the majority of these handsome plants have succumbed to the past severe weather, there are two species which in the neighbourhood of London are perfectly unscathed though without the slightest protection, these are *V. Traversii*, known in some gardens as *Devoniensis*, and the little glaucous-leaved *V. pinguifolia*. The former may be highly recommended for general cultivation as it grows naturally without either cutting or training into large symmetrical specimens, 4 feet high and as much through, and would make a first-rate object for isolation on lawns, &c. The leaves are small and Box-like, arranged in a decussate manner, perfectly evergreen, and enlivened during summer with a profusion of purple flowers borne in dense racemes. It was well figured in the *Botanical Magazine* last year. *G.*

Bees and Fruit Blossoms.—Since sending you the communication I made last week respecting bees and fruit blossoms I have been enabled to watch these insects very closely, and instead of their doing good in assisting fertilisation, as many appear to think, my observation of them has led me to quite a different conclusion. March 19 being sunny, they were very busy among the flowers, as I had at first supposed, sipping at the sweet nectar contained therein; instead of which, to my great surprise, their

only object was to collect the pollen, and this they did in the most expeditious manner, clearing out each anther so clean that not a single grain apparently was left. Judging from the load each one had attached to its legs I should suppose they were gathering material to build up fresh comb; but be this as it may, certain it is that they were not after honey, as they never attempted to penetrate the inner recesses of the bloom, but alighted on the edges, where they quickly cleared the anthers of their contents, and destroyed many others by knocking or nipping them off. It is generally thought that these active little insects carry the pollen in the hairy coat with which Nature has endowed them, and that it is accidentally deposited on the stigma of the flower while they are engaged in collecting sweet food to fill their hives, which may be the case later on, but I am convinced it was not so in this instance, and I shall therefore be glad if others will watch their movements for a time and report, that those having to do with fruit culture under glass may know what course to pursue in regard to keeping them out or otherwise. My opinion is, that Nature has made due provision for fructification without any external aid, and that all we have to do is to see that the pollen is properly ripened by maintaining a suitable temperature and a moderately dry atmosphere, together with sufficient air to cause a motion; one at least of the thousands of grains of pollen most flowers of fruit trees contain must find its billet, and there carry out its allotted purpose. The notion entertained by some that syringing causes them to set is a most erroneous one, as wet pollen loses its fertilising power, and were the blossoms not already impregnated previous to the application of water it would have the reverse effect and defeat the object in view. Syringing, and a consequently moister state of the atmosphere it at once brings about, hastens the swelling of the embryo Peaches, and in that way does good, but there is always a risk in being too soon with it. *J. Sheppard.*

Hardy Flowers are fast coming into bloom now, *Narcissi*, *Squills*, *Dog's-tooth Violets*, *Primroses*, &c. *Scilla biflora* and *S. amœna* form lovely carpets of blue. I counted sixty flowers of *Iris reticulata* on a square yard of ground, and the rich purple, blue and golden-spotted flowers produced a spring-like effect much to be admired. What a grand effect though might be made by planting it in a bed on a carpet of golden-flowered *Crocus*, say *C. ochroleucus*, *C. Olivieri*, or even the brown-striped *C. Susianus*. Talking of *Crocus* one must grant that the variety of the pure species, and the length of time which they cover collectively during their blooming season renders them pre-eminent, but a bed of the Dutch seedling varieties which has been planted two years in Mr. Barr's bulb grounds is just now the perfection of *Crocus* flower beauty, the individual blooms being pure in colour, large in size, and of a firm waxy substance. These are selections from named imported varieties, and their prevailing colours are white, yellow, orange, lilac, purple, and a glossy purplish crimson or claret-coloured variety is very distinct and beautiful. They are quite firm in substance—a fact owing in part to their having become thoroughly established in a dry well-enriched bed of sandy earth, and show to what perfection cross breeding and good culture can work in what naturally is rather an ephemeral flower. I counted twenty-five flowers fully expanded on a tiny bed of *Narcissus monophyllus*. This plant is one which will long act as a souvenir of the late Giles Munby, who tried so hard to introduce and cultivate it at Alice Holt. *F. W. B.*

Setting Peaches.—I agree entirely with "J. S.," p. 376. If the door is opened so as to admit a gentle breeze, it will be sufficient to waft the pollen from the stamens (male organs) on to the stigma and the pistil (the female organs). If the pistils are higher than the stamens, it might be useful to transfer the pollen on to the stigma. I, however, do not practise it; and my trees under glass set abundantly. I have sixteen under glass, and 121 out-of-doors on walls, south, east, and west: I have also some facing the north. *W. F. Railyffe, Okeford Fitzpaine.*

The Protection of Fruit Trees.—Simplicity and efficiency are closely linked together in most horticultural processes; and this is emphatically the case in regard to the protection of fruit tree blossoms in the spring. Nature should be helped rather than superseded in all such matters; when in a state of Nature trees protect themselves—the upper branches the lower—and the climate works with the trees to enable them to bloom at the most safe time to set a full crop of fruit. By changing the country, and consequently the climate, and also destroying the natural shape of trees, and displaying them as bare skeletons against brick walls, we render protection necessary as well as natural. In other words, by totally altering natural conditions artificial protection is needful to place the trees in the garden on a level with those equally or more favoured by Nature; hence to use protection is as logical in

theory as experience has proved it to be successful in practice. Not but what it may often fail; but this generally arises from excess in regard to the amount or the quality of it, or to the extent of time for which it is employed. It is also often applied at the wrong place, so as to intensify the energy of draughts or the destructive power of the cold. Copings, for example, check the energy of radiation, especially if formed of mat, wood, slate, turf, or other opaque substance; but they also not seldom create currents of air, and by concentrating the heat of the sun near to the top of the wall, bring the buds more forward, or render the trees far more tender than they would be without them. The same objections may be urged against permanent protectors formed of canvas, bunting, Frigi-Domo, or other textile fabrics; they enclose the heat of the sun to such an extent as to render the trees prematurely tender. This is often carried to such an extent that the unnatural tenderness is far greater than can be counteracted by the mere protective power of the curtains or blinds. Again, many of the protectors are placed too far off the buds to be of much use; the cold not seldom sweeps in between the protectors and the wall, and cuts off the blossoms behind the back of the former, as it were; hence it follows that the closer the protecting material to the flowers protected the better. And doubtless this is one great reason why the simplest and most primitive of all known modes of protection as a rule prove the most efficient and the best. A few sprayey boughs of Spruce and Pine, tied thinly over the surface of the walls, hardly ever fail to save a good crop of Peaches, Nectarines, Apricots, and Plums, while other and far more elaborate methods fail. It was so last year here; glass and wooden copings, canvas, netting, &c., utterly failed, whereas the screen of boughs, either associated with copings or without them, saved good crops. As the prospects of a crop of fruit this year are unusually bright at present, it would be well to add to the certainty of their being realised by preparing boughs for this purpose at once, so that they may be applied the moment the trees show bloom. Notwithstanding the length and severity of the winter, the buds of the more tender fruit trees seem perfectly safe and sound at present; they are also more plentiful, and perhaps a month later than usual. The latter fact is commonly in favour of a good crop; for it is emphatically the early buds that become food for frost, and the late ones that develop into the ornaments of the dessert. *D. T. Fish.*

The Spring Show at the Winter Gardens, Southport.—The spring flower show was held in the skating rink of the gardens on Thursday and Friday last, and was a decided improvement over last year, both in regard to quantity and quality of the exhibits. We are also glad to add that owing to the great financial success and an earnest wish of the exhibitors the directors have decided to continue it annually, being satisfied that few places have the advantage of Southport in regard to its surroundings and the increasing horticultural taste displayed by the local nobility and gentry in regard to their gardens and collections of plants and the easy railway accommodation from Manchester, Liverpool, Preston, Bolton, Blackburn, &c. The skating rink and the large area adjoining is in every respect well suited for large exhibitions, the building itself being large, lofty, and well lighted. We cannot speak too highly of the perseverance of the horticultural superintendent, Mr. Campbell, who has the credit of bringing such a fine collection of plants together, the admirable taste he displayed in the arrangements, and the satisfactory way the show passed off. *J. S.*

Preserving Stakes, &c.—The plan recommended by "F. S." (p. 342) is similar to that practised by the Kentish Hop-growers. They procure a large rectangular iron tank, say 8 feet by 4 feet, and 3 feet deep; this is set up on brickwork, with a furnace and flues beneath it; it is then filled to the requisite depth with creosote—"F. S." would probably find this answer his purpose quite as well, and it would also be much cheaper than gas-tar and pitch—into which the poles are placed in an upright position. The fire is then lit, and the creosote kept boiling for several hours, till they are thoroughly soaked; they are then allowed to cool, and when taken out are fit for use. Poles so treated have been known to stand continually in the ground for many years. This simple plan has caused quite a revolution in the price of the poles within the last twenty years. *W. H. Divers, Bury.*

Hardiness of Succulent Plants.—It is interesting to observe the effects of the past severe winter with regard to the various kinds of fleshy-leaved plants that are usually submitted to outdoor treatment. The novel little *Crassula alpestris* is quite uninjured, though it had only the protection of an unheated frame. Under the same conditions were *Greenovia dodrantalis*, *Umbilicus spinosus*, the beautiful *Sedum sempervivoides*, *Umbilicus chrysanthus*, *Libanoticus*, and *Sempervivum Bollei* and *ciliatum*;

all, with the exception of the last, are unhurt. The Californian *Sedum obtusatum* and *S. spathulifolium* were in the open border; the former was but slightly injured, the latter more so. *S. sarmentosum* (*S. carneum*) of gardens, with the variegated form, are almost killed. Amongst Cacti, *Opuntia Rafinesquiana* and *O. vulgaris*, on rockwork, are quite unaffected; *O. missouriensis*, *O. rutila*, *O. humilis*, *O. arborescens*, with frame protection, were not touched. The elegant *Yucca Whipplei* appears to be incapable of resisting severe cold, even on well-drained rockwork, as all plants are killed except those in very sheltered corners or under shrubs. *G.*

The American Spruces.—Anything botanical from the pen of Dr. Engelmann is always read with pleasure, and it is with some diffidence that I now suggest a few minor corrections to the subject-matter of his revision of the genus *Picea*, which appeared in your issue of the 15th inst. In it the branchlets of *P. alba* are described as being glabrous. This, I believe, is only partially correct. All the plants that I have examined have glabrous shoots, while their weaker branchlets are hairy. That you may have an opportunity of proving this I enclose a strong and a weak twig and a cone, all from the same tree. He has divided the American Spruces into two sections, thus:—A. Leaves more or less square; stomata on all sides. B. Leaves flattened; stomata only on the upper side. Under the latter (B) he describes *P. sitchensis* (*Abies Menziesii* of the Pacific coast). All the plants that I have examined have more or less stomata on both surfaces of their leaves. In Kew herbarium are three lots of leaves from Oregon, collected by Lyall and H. N. Moseley, and another lot from Sitka, collected by Barclay, all of which under examination may be seen to have from two to four interrupted rows of stomata along both depressions of the under surface, and many more rows on the upper surface. There is a slight discrepancy in our respective observations on the number of cotyledons to this species; Dr. Engelmann gives four, my notebook says four to six, great majority five. I have not now time to look further into this subject, but hope to do so soon. *G. S.*

Hardiness of Broccoli.—I can fully corroborate Mr. Sheppard's statement respecting the hardiness of Cattell's Eclipse Broccoli. I have grown it for many years, and would not grow any other were it not for the chance of other varieties coming in at different seasons. Out of 1500 or 1600 early and late Broccolis planted here last year none worth naming have stood the severe winter except the above-named variety. I believe the true variety will stand almost any amount of frost. I see that my friend Mr. Gilbert is sending out his Improved Cattell's Eclipse Broccoli, and I would advise every gardener to grow it. I send you the aggregate amount of frost registered here monthly from October, 1878, viz.:—October, 32°; November, 96°; December, 390°; January, 1879, 348°; February, 130°; and up to March 12, 47°. *Isaac Dell, Stoke Rochford, Grantham.*

—We planted largely of the following varieties last year:—Cattell's Eclipse, Leamington, Veitch's Self Protecting, Snow's Winter White, Knight's Protecting, Wilcove's White, Miller's Dwarf, Lake's Late, and Sutton's Late Queen. Veitch's came in well after their Autumn Giant Cauliflowers, and proved very useful up till Christmas Eve, when we had 27° of frost, which killed all except Lake's, Miller's, and Sutton's Late Queen. These three are standing now, and look very little the worse for the severe weather. Sutton's Late Queen has proved the hardiest here. It is of a dwarf and compact habit: we intend growing more of it this year. The late varieties were planted on rather higher ground than the earlier kinds, which of course was all in their favour. *G. Merritt, Kimpton Hoo Gardens.*

Specimen Eranthemums.—As winter decorative subjects, these Eranthemums are worthy of cultivation on a larger scale than is generally extended to them; they are not of much service as cut flowers, and on that account should be grown of a size to command attention where arranged with other mixed subjects in an intermediate plant-house or warm conservatory. As small plants they are not of much moment, and seldom receive more than passing notice, but where grown into handsome bushes the beautiful blue flowers of the old *E. pulchellum* are admirably adapted for forming a pleasing *tout ensemble* with the scarlet *Poinsettia* or *Plumbago rosea*, and some of the older varieties of early forced white Azaleas. To have large plants, propagation should be commenced at once, while the opportunities for increasing the proportions of the plants are better than when the season is more advanced. Plants grown from strong healthy cuttings are superior in every respect to those grown from the old stools, they carry larger and finer foliage, and the deep green leaf will not be the least attractive part next winter. It should, however, be understood, that to grow fine plants from cuttings in a single season requires, I shall

not say skill, but assiduity. Choose the cuttings from the healthiest plants, and insert from three to four of them in 4-inch pots, washed clean, and drained with any rough material from the potting bench. The soil for the cuttings should be a mixture of peat, leaf-mould, and sharp sand, and the pots should be plunged in a smart bottom-heat of from 85° to 90°. In this temperature they will soon take root and be ready for potting off singly into 4-inch pots. The soil for potting should consist of turfy loam one half, and one half of peat, horse-droppings, or dried cow manure moulded down, with a sprinkling of sand. The soil should also be warmed to the same temperature as that in which the plants are grown, and if possible have the shifting performed without taking the plants into cold draughts where they may receive injury which if not perceptible at the time may cause a temporary standstill and loss of growth. After potting, the plants should again be plunged into bottom-heat for a few days, and syringed overhead at least once a day, which, together with keeping up a moist growing atmosphere will ensure a speedy growth; in a short time fresh root-action will have commenced, and the plants may be lifted by degrees out of the bottom-heat and otherwise treated as before. Pinching will need to be performed as soon as the shoots have attained sufficient length, and the shoots should be pegged out as they grow in order to form a good foundation, and I may further observe that pinching does not mean "cutting back into hard wood," but simply removing the points of the shoot to cause it to break into a number of other shoots from the joints of the soft wood. At the next potting the same sort of soil will answer as before, only it may be a little rougher, and the final size of pot should be determined upon, so that the shift may be gauged accordingly. Generally speaking plants can be grown quite large enough for all ordinary purposes in 8-inch pots, and into this size they may be shifted at once and treated exactly as before. As the season advances they will require staking out, and as they develop into bushes under generous treatment they may be removed gradually into cooler places till by the end of June or a little later they may be turned out into cold pits and frames, where their daily wants will amount to airing, watering, and syringing overhead on the afternoons of fine days. They will also require a little shade in case of very hot weather, but towards the end of August a little sun and plenty of air and light will be beneficial in ripening their wood, without which, when they are again introduced into heat in the winter, they will start into fresh growth instead of yielding flowers. When the plants are housed let them have plenty of light and air still until such time as it is thought necessary to move them quietly along in a higher but gradually increased temperature. *W. Hinds.*

Orchids in Flower at Brougham Hall.—In the Orchid-house at Brougham Hall, the beautiful seat of Lord Brougham, near Penrith, there are several half specimens and smaller samples of Orchids in flower at present, the most noticeable being a fine piece of *Dendrobium Wardianum*, which is the finest variety I have seen, the flowers being nearly double the size of the varieties usually to be seen, and the colours being very distinct and richly marked. A plant of *Dendrobium densiflorum*, with twenty flower-spikes showing, also attracts attention from its free flowering habit, as indeed do all the *Dendrobies*, of which there is a nice collection, either in flower or coming into flower, in the same house. The other varieties in flower are *Phalaenopsis Schilleriana* and *grandiflora*, several fine varieties of *Cattleya* and *Oncidiums*, *Cœlogyne cristata*, *Odontoglossum Alexandre* and *pulchellum*. The general collection are in excellent condition under the careful management of Mr. Lodge, his lordship's head gardener. *Visitor.*

Mentha Pulegium gibraltaria.—I am glad to say that where the snow is disappearing this useful little plant, which has been buried with a covering of 18 inches to 2 feet for the past fifteen weeks, and with the thermometer several times within 6° of zero, has stood better than could have been expected. The closest portion of the centre of the plants seems rotten, but all round the edges are as green as in summer, so that thousands of plants will be got for use. *R. Farquhar, Fyvie Castle, Aberdeenshire.*

Liriodendron tulipifera.—Considering the highly ornamental character of this tree it is very remarkable that it is not more generally met with, as excepting the noble specimens of it in the pleasure-grounds at Longleat, I do not remember seeing examples of it in any other private establishment till we planted some here ten or twelve years ago. Unfortunately I have not the measurements of those above referred to on which I can lay my hand, but my recollection of what they were twenty-five years back is that the largest of them, if still in existence, must be at least 90 feet high, and some 18 or 20 feet round. In favourable seasons, after having their wood well ripened, they used to flower freely, which,

with their peculiarly cut and handsome foliage, rendered them highly interesting and ornamental objects to look at. It is in the autumn, however, that these trees are the most striking, their leaf colouration being then grand in the extreme, and on gathering or picking some up at that time, I have often regretted that I could not preserve them with all the rich and beautiful tints they then assume. The venation and colouring at that season is such as to command the attention of the most casual observer, and I am of opinion that it would form a valuable tree for town planting, as it is a robust grower, and I should think from the smoothness of its bark and polished foliage it would stand smoke, smuts, and dust, almost as well as the Plane and Poplars now thriving so well in some of our principal cities and towns. If they would only succeed, what grand objects they would be among others along the Thames Embankment and in our public parks and squares, where there is at present so little variety in the tree way. Has the *Liriodendron tulipifera* ever been tried for the above-named purpose, and if so, with what result? [We have seen it here and there, and should certainly recommend it as a town tree. Eds.] Another tree of a highly ornamental character too much lost sight of in planting, is *Ailantus glandulosa*, the leaves of which in their divisional appearance and form greatly resemble those of the Sumach, a plant that does exceedingly well in towns. I was much struck with some of it that I saw in the north of London last October, growing in some gardens running down and abutting on the New River, where, overhanging the water, they had quite a tropical appearance. This shrub and the *Ailantus*, the latter cut down annually, make fine groups, and are quite an acquisition during the summer months for affording bold types of vegetation and associating with Cannas, Palms, Solanums, and such-like fine-foliaged plants; and being so thoroughly hardy and not requiring renewal, they are the more valuable on that account. The only drawback to the *Ailantus glandulosa*, when grown to a large size, is that its branches are apt to get broken about by the wind, on account of the somewhat brittle nature of the wood. This being the case they should be planted in sheltered positions, as it is very disappointing to have them disfigured by a partial loss of their tops. I remember, too, another tree that used to be growing at Longleat that appears as scarce and rare as the *Liriodendron*—I allude to is *Salisburia adiantifolia*, the leaves of which, as its specific name implies, bear a great resemblance to those of the well-known and popular Maiden-hair Fern. This *Salisburia* is, I should suppose, if still alive, about the finest in England, as it must be by this time at least 60 feet high; for when I knew it it was growing fast, and appeared healthy and vigorous. The soil in which it stood is inclined to wet and clay, which appeared to suit it well, much better than ours does here, as one planted in a sandy dry position makes very little headway. The *Salisburia adiantifolia* is well adapted for the ornamentation of pleasure-grounds, and to grow as an isolated specimen on the lawn, where its beauties and peculiarities can be seen and appreciated. All the above-named being of a deciduous nature, there is still time to plant; and although this would have been better done in November, there need not be any fear of the non-success of any of them, as they all lift with plenty of fibrous roots and transplant readily. J. S.

London International Horticultural Exhibition for 1880.—It is a source of deep regret to me that my colleagues so quietly shelved the idea of holding the above show next year, at the meeting on the 18th. We had an excellent opportunity of carrying out the arrangements for the Exhibition, backed, as we were, by Her Majesty's Commissioners for 1851, who would, I feel sure, have lent us their willing aid if we had asked it, and I feel sure it will be regretted by horticulturists generally. The fact is simply this: A few of us have arrogated to ourselves the position of thinking for the general body of horticulturists in the country instead of, as I have urged, the committee time after time calling a general meeting by advertisement. This is what ought to have been done months ago, when I feel sure horticulturists as a body would not have considered the present time inopportune. It is all moonshine to talk about the depression in trade at the present time; that would not prevent the show being successfully carried out fourteen months hence. It is not reasonable to suppose Her Majesty's Commissioners would ever listen to any overtures for the site at any future time unless they came from a more spirited body of gentlemen than have brought the present negotiations to such a miserable failure, and they have no other use for the gardens. I still hope that Her Majesty's Commissioners will themselves carry out the arrangements for this most important exhibition, and if they do not feel disposed to do so on their own responsibility there are plenty of gentlemen (not strictly horticulturists) who would speedily guarantee £15,000 or £20,000; and if there

be no other means of attaining this end, and Her Majesty's Commissioners will let the gardens, arcades, and Albert Hall for the purposes of an international show in 1880, I have no doubt I can find gentlemen willing enough to furnish the required amount for the purpose. I therefore appeal to the great body of horticulturists to support me in this undertaking, and to prove to the few that the spirit of emulation is still potent in their breasts, and that as Englishmen they are willing and able to maintain the prestige of their country, whether it be on the field of battle, in the garden, or the cottage. I trust a large meeting will shortly be held, and that the general and predominant feeling will be to push this proposed exhibition to a successful issue with might and energy. What can be more conducive to the welfare of millions of our fellow-countrymen than the cultivation of their minds by horticultural teaching? Take the agricultural labourer for instance; how much pleasure he derives from the cultivation of his little cottage or allotment garden after his day's toil is over in the fields. Having refreshed himself with his humble meal, he goes forth into his garden, and occupies the remaining daylight in what proves to him a source of pleasant recreation, beneficial alike to himself and his family, instead of spending his hours in the ale-house. If there be in his neighbourhood a village horticultural society, his energies are stimulated to their fullest extent by the hope of gaining some of the prizes to be competed for; I therefore maintain that the example set by a great International Horticultural Show held in London would be productive of immense benefit to the whole of the country, by infusing a spirit of emulation in the breast of every cottager in the country; and I cannot help thinking that Her Majesty's Commissioners for the Exhibition of 1851 would be conferring a large amount of benefit on countless thousands of Her Majesty's subjects, and be fulfilling the ideas intended when they were appointed the guardians of the money entrusted to their care, and which was derived from millions of the humble workers in the great hive of industry within her Majesty's dominions. I cannot conceive any greater advantage Her Majesty's Commissioners could confer, nor anything likely to be more conducive to the general good of the country, than their encouraging an exhibition of this kind. *John Wills, 16, Onslow Crescent, South Kensington, March 26.*

Reports of Societies.

Royal Horticultural: March 25.—For a spring show of flowers the weather on Tuesday last was as wretched as it well possibly could be, snow falling almost the whole of the day accompanied by a piercingly cold north-easterly wind; yet when, at half-past twelve, His Majesty King Leopold made his appearance in the large conservatory, attended by Major-General Lynedoch Gardiner and a nobleman attached to his own suite, and accompanied by the President of the Society, Lord Aberdare, and other members of the Council, such a brilliant display of flowers was found collected together as it has seldom contained at this season of the year. His Majesty, who was unaccompanied by the Queen, owing to a cold which Her Majesty has contracted, spent about an hour in minutely inspecting the objects exhibited, which included an extensive display of Hyacinths from Messrs. Veitch, a brilliant array of Cyclamens from Mr. H. B. Smith, valuable groups of plants from Messrs. Bull, Wills, Williams, Lee, Osborne, Carter, Aldous, Richards (Gunnersbury), Dean, Parker, Ware, and others; and before leaving accepted from the hands of Mr. Harry Turner a beautiful bouquet of Roses, presented by Mr. Turner, of Slough, for Queen Marie; and a button-hole bouquet from Mr. Aldous.

The highest gold medal awarded was a Large Gold Banksian, and the recipient was Mr. H. B. Smith, of Ealing Dean, who again staged a magnificent collection of Cyclamens, in no way inferior to that exhibited by the same successful grower a fortnight ago. The Society's Gold Medal was voted to four exhibitors—Messrs. Bull, Veitch, Wills, and Moorman. Mr. Bull had a fine bank of plants, which included amongst other notable objects a number of flowering plants of *Odontoglossum cirrhosum*, a well-grown *Lycaste Skinneri* cerina, with ten fine flowers, which was awarded a Cultural Commendation; *Dendrobium Wardianum*, with a bulb 54 inches long, and forty-three perfect flowers; a finely-coloured variety of *Masdevallia Veitchiana* with nine blooms; a well-grown and freely-flowered plant of the double white *Epacris onosmæiflora flore-pleno nivalis*; a flowering plant of *Sarracenia flava*, and handsome young specimens of various choice Palms, Ferns, Dracenas, Acers, *Encephalartos*, *Phyllanthus*, &c., amongst fine-foliaged subjects; and *Azaleas*, *Echmeas*, &c., amongst flowering subjects. Messrs. Veitch's contribution consisted of a grand bank of Hyacinths, some 300 in number, including about eighty new

varieties, a selection of which was placed before the Floral Committee, who singled out four for the award of First-class Certificates. In the general collection all the best of the leading sorts were represented by fine examples, of which the following may be considered the cream:—Grand Maître, Macaulay, Czar Peter, Lothair, Gigantea, MacMahon, single yellow; Madame Van der Hoop, single white; The Bride, Blondin, Van Speyk, Lord Derby, single blue; Charles Dickens, De Candolle, La Grandesse, Grandeur à Merveille, Mont Blanc, Marie, l'Or d'Australie, Snowball, Fabiola, Von Schiller, John Bright, single blue; Bird of Paradise, Baron Van Tuyl, l'Innocence, King of the Blues, Grand Lilas, l'Ornement des Roses, Gen. Havelock, Grand Monarque, Princess Mary of Cambridge, King of the Yellows, Vuurbaak, Marie, and Prince Albert Victor. Mr. John Wills' group was, as usual, a model of taste and elegance, having for its central object the valuable Sevres vase won last autumn at Versailles, standing on a mossy plateau dotted with small bunches of Roses, with spikes of flowers of *Dendrobium Wardianum* promiscuously laid on the green moss near the margin; and backed up with small Ferns, &c. On either side of this artistic bit of Mr. Wills' handiwork were groups of choice new and rare fine-foliaged plants, and flowering stove and greenhouse plants, all staged by the same exhibitor. Mr. Moorman's contribution consisted of a remarkably well-grown group of Hyacinths and Tulips from the garden of his employers—the Misses Christy, Coombe Bank, Kingston. Silver-Gilt Banksian Medals were awarded to Mr. B. S. Williams for a fine group of flowering and fine-foliaged stove and greenhouse plants; to Messrs. Osborn & Son, for a fine group of Hyacinths, consisting of about 130 well-grown specimens; to Mr. Roberts, gr. to Baron Rothschild, Gunnersbury, for a choice group of Orchids and other flowering plants, including several freely-flowered examples of *Phalenopsis Schilleriana*, a fine rose-coloured variety of *Odontoglossum Alexandre*, and *O. Andersonianum* with two very fine branched spikes; to Messrs. Paul & Son, Cheshunt, for a nice group of forced Roses, not large either as regards plants or flower, but good for the season; and to Mr. C. Edmonds, Hayes Nursery, for another exceedingly fine group of Cyclamens. Banksian Medals in Silver were voted to Messrs. Osborn & Sons for a group of flowering and fine-foliaged plants; to Messrs. Charles Lee & Son, Hammersmith, for an attractive group of a similar character; to Messrs. Cutbush & Son for a group of Hyacinths and other spring-flowering bulbs; to Mr. R. Dean, Ealing, for a very attractive group of hardy Primulas, Scillas, and other early-flowering hardy plants; and to Messrs. William Paul & Son, Waltham Cross, for no less than twenty boxes filled with cut blooms of Camellias, upon which we must reserve a note for another occasion. Messrs. James Carter & Co. also contributed a group of Hyacinths, Dielytras, and Lily of the Valley; Mr. R. Parker a group of early spring-flowering plants; Mr. T. S. Ware a small group of hardy Primulaceæ, Mr. Cannell a couple of dozen bunches of *Zonal* *Pelargonium* blooms; Messrs. James Veitch & Sons, a well-flowered plant of the fine white Indian *Rhododendron Veitchii*; and Mr. Aldous, Gloucester Road, South Kensington, an example of dinner-table decoration, flanked with small groups of flowering plants.

SCIENTIFIC COMMITTEE.—Sir Joseph Hooker, K.C.S.I., in the chair. Owing to the visit of the King of the Belgians, the doings of this committee were of necessity somewhat interfered with, the business consisting principally in the exhibition of specimens of interest.

Plants Shown.—Mr. Elwes showed specimens of an *Arisæma* from Sikkim with a curiously mottled and three-lobed spathe; also a Tulip from Turkestan, resembling T. Kaufmanni except in the colour of the flower-segments, which in the present case were primrose-yellow externally, rich golden within—it was stated to be very early; Tulipa triphylla, Chionodoxa Forbesii, and two forms of Erythronium. The specimens were referred to the authorities at Kew for identification.

Fasciated Ruscus.—Dr. Masters called attention to a very interesting specimen of fasciation in the stem of this plant, the changes extending even to the phylloides. The specimen was sent by Mr. Thomson, of the Crystal Palace Gardens, and will be reported on further at another time.

Galls on Leaves of Galium sp.—Dr. Masters showed from Baron Von Mueller some curious cylindrical larva cases, or galls, on the leaves of an Australian species of Galium, or Asperula. The leaves were replaced by cylindrical, blackish, thick-walled tubes covered with stout hooked bristles, the unaffected leaves being all but destitute of appendage. The specimen was referred to Mr. MacLachlan.

Miscellaneous.—Specimens of Vine roots affected with Phylloxera were shown. A pamphlet of Professor Sargent's on the Catalpa as a timber tree was alluded to, but it was pointed out that in this country the wood did not ripen sufficiently to admit

of the wood having the valuable qualities assigned to it in America. Mr. Clapham sent specimens of *Trichomanes* in various stages, and which were referred to Dr. Masters for examination and report.

FLORAL COMMITTEE. James MacIntosh, Esq., in the chair. At this meeting, held in the conservatory, First-class Certificates were awarded to Messrs. James Veitch & Sons, for the following new Hyacinths, selected from a batch of about twenty submitted for adjudication:—*Leviathan*, a clear flesh-tinted pink flower, with fine large single bells closely arranged on a stout spike; *King of the Reds*, the finest single dark red yet introduced, the colour being more intense than in any other red variety that we have seen, though on other points there was not much to judge from, the bells being small and very closely set on a fasciated spike; *The Sultan*, single blue, a deep blue flower, shaded with dark violet-purple, bells large and of a good substance; and *Salmon King*, a single salmon-red flower, with bells of good size, and a well-formed spike. The same firm also received a First-class Certificate for *Amaryllis* Mrs. Baker, one of a batch of seedlings raised by Mr. Baker, gr. to E. C. Baring, Esq., at Coombe Bank, and one of the showiest decorative varieties that has come under our notice, the colour being a deep blood-red, and the broad, well-reflexed flowers measuring 7 inches across; and only debarred from taking rank with the most perfectly formed flowers by the acutely pointed petals. Messrs. Hovey & Co., nurserymen, Boston, U.S.A., received First-class Certificates for the new *Camellias*, C. H. Hovey and Mrs. Hovey, represented at the last meeting by cut blooms. The most pleasing flower of the two is Mrs. Hovey, a medium-sized pink flower of beautiful shape; the other, C. H. Hovey, being of similar size, but of a purple shaded crimson colour, and the petals in both cases perfectly round and smooth. To Mr. Bull a First-class Certificate was awarded for *Davidsonia pruriens*, the elegant and singularly curious Saxifragaceous plant figured and described in our number for June 30, 1877; and a Cultural Commendation was accorded to the same exhibitor for a small plant of *Lycaste Skinneri* cerina, with sixteen flowers, white suffused with rose. The first new Rose of the year to gain a First-class Certificate was a Hybrid Tea, named *Madame Alexandre Bernaix*—a great beauty, shown by Mr. Turner, of Slough. The flowers are large and full, cup-shaped, and of a bright rosy pink colour with a violet shade on the outer petals. It resembles *La France* in its foliage and style of growth, and promises to become a desirable acquisition. Mr. D. Melville, gr. to the Duke of Sutherland, Dunrobin Castle, sent examples of his fine seedling *Snowdrop*, *Galanthus nivalis* var. *Melvillei*, which gained a First-class Certificate. A similar award was also made to Mr. B. S. Williams for *Azalea* Duke of Connaught, a distinct new hybrid of the amœna type, with large rosy cerise double corolla or hose-in-hose flowers. To Mr. T. S. Ware, Tottenham, for the lovely little *Primula rosea*, noticed at p. 375 of our last issue; and to Mr. H. B. Smith, Ealing Dean, for *Cyclamen persicum* Queen of the Belgians, a pure white flower of the finest form. Votes of thanks were passed to G. F. Wilson, Esq., for *Primula denticulata* var. *concolor*, a pale lavender-coloured flower; and a seedling from this with a larger truss of similarly coloured blooms; to Mr. G. Thomson, garden superintendent of the Crystal Palace, for a singularly perfect example of fasciation in a stem of *Ruscus androgynus*, a portion of which was flattened and twisted in the form of a ram's horn; to Mr. Z. Stevens, gr. to the Duke of Sutherland, Trentham, for a striking variety of *Odontoglossum Andersonianum*, represented by a strong branched spike of seventeen orange-shaded blossoms; and to Mr. C. Green, gr. to Sir George Macleay, for cut flowers of *Salvia albo-cerulea*, a showy species with cobalt-blue flowers; *Salvia elegans*, ruby-crimson—a bushy growing and free flowering greenhouse plant; and *Prostanthera lasiantha*, an interesting and pretty greenhouse shrub, introduced from Australia so far back as 1808, and having purplish lilac labiate flowers produced in terminal clusters.

FRUIT COMMITTEE.—John Lee, Esq., in the chair. The only objects placed before this committee were a collection of single specimens of sixty varieties of Apples, shown by Mr. Lewis Killick, Mount Pleasant, Langley, near Maidstone; and a dish of a seedling Apple raised many years ago, shown by Mr. Justus S. Corderoy, of Blewbery, near Didcot; the former obtaining a letter of thanks, and the latter was considered no improvement on many varieties already in wide cultivation.

Royal Botanic: March 26.—The first spring show of the season of this Society was held on Wednesday, under atmospheric conditions as disagreeable and unfortunate as prevailed on the previous day for the display at South Kensington. Nevertheless the show was an excellent one, thanks to the large contributions made to the miscellaneous class of

plants and cut-flowers, brought on from the Royal Horticultural Society's Gardens. The best contested classes in the schedule were those devoted to spring flowering bulbs, though in these there were only enough exhibitors to take the prizes. In the amateur class for twelve Hyacinths, Mr. James Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, came in 1st, closely run by Mr. J. W. Moorman, gr. to the Misses Christy, Coombe Bank, Kingston, who was 2d: equal 3d prizes being awarded to Mr. James Weir, gr. to Mrs. Hodgson, The Elms, Hampstead; and Percy F. Sutton, Esq., Milton House, Gibbon Road, Kingston. The flowers of Mr. Douglas and Mr. Moorman were of the greatest excellence, and the winning twelve consisted of *Gigantea*, *Solfaterre*, *Koh-i-noor*, *Vuurbaak*, *Von Schiller*, and *Macaulay*, single reds; *De Candolle*, *Grand Lilas*, *Marie*, and *King of the Blues*, single blues; *La Grandesse*, single white; and *Grandeur à Merville*, pale red. For twelve pots of Tulips Mr. Douglas also beat Mr. Moorman, showing fine examples of *Proserpine*, *Kaizer Kroon*, *Vermillon Brillant*, and *Van der Neer*; and the 2d prize winner had the same varieties except *Pottebakker*, white, in the place of *Proserpine*. Mr. James Weir was again 3d. The nurserymen's class for twelve Hyacinths brought Messrs. Osborn & Sons to the front with capital examples of *Grand Lilas*, *Charles Dickens*, *Czar Peter*, *King of the Blues*, and *Lord Derby*, single blues; *Lord Macaulay*, *Vuurbaak*, and *Linnaeus*, single reds; *Princess Louise*, double red; *La Grandesse* and *Queen of the Netherlands*, single whites; and *Grand Duc de Luxembourg*, single yellow. Mr. S. Hill, 16, Alfred Street, Bow, came in a good 2d, and Messrs. Cutbush & Son 3d. In the corresponding class for Tulips Messrs. Cutbush & Son took the 1st prize with *Vermillon Brillant*, white; *Joost van Vondel*, *Fabiola*, and *Proserpine*; and Mr. S. Hill was 2d. For six greenhouse *Azaleas* Mr. A. Ratty, gr. to R. Thornton, Esq., The Hoo, Sydenham, came in 1st, beating Mr. J. James, gr. to W. F. Watson, Esq., Redlees, Isleworth, and Mr. G. Wheeler, gr. to Louisa Lady Goldsmid, with well-flowered medium-sized plants of *Duc de Brabant*, *Constant van Keirsbilock*, *Reine des Roses*, *Madame Ambroise Verschaffelt*, *Rubens*, and *Duc de Nassau*. The best dozen pots of *Narcissus* also came from Mr. Douglas, who had good examples of *Gloriosa*, *Queen of the Netherlands*, *Grand Monarque*, and *Grand Soleil*; while the varieties *Newton*, *States General*, and *Bazelman* major were well represented in groups from Mr. S. Hill and Messrs. Cutbush & Son. The class for twelve stove and greenhouse plants only brought one competitor, Mr. G. Wheeler, who took the 1st prize. Mr. Douglas again showed the best six *Deutzias*, Mr. James being 2d, both showing well-bloomed plants; while Messrs. Paul & Son, Cheshunt, sent the only examples of forced *Roses* and took the 1st prize for six, with *Madame Clémence Joigneaux*, *Duchesse de Vallobrosa*, *Anna Alexieff*, *Duke of Edinburgh*, *La France*, and *Princess Mary of Cambridge*. In the open class for a dozen *Cyclamens*, Mr. H. B. Smith staged a grand lot, and beat Mr. James for 1st honours; while in an amateurs' class for the same number Mr. James was 1st, beating Mr. Wiggins, gr. to H. Little, Esq., and Mr. G. Wheeler. For six *Amaryllis* Mr. Wiggins was 1st, with *Orpheus*, *Oriflamme*, *Grand Conquerant*, *Invincible*, *Firebrand*, and *Burtoni*; and Mr. Douglas produced the best six *Lily of the Valley* in a class not up to the usual standard.

In the large miscellaneous class extra prizes were awarded to Mr. Bull, for a fine bank of new and rare plants; to Messrs. James Veitch & Sons, for a grand display of Hyacinths; to Mr. B. S. Williams, for a nice group of new and rare plants; to Messrs. W. Paul & Son, for a large collection of cut *Camellias*; to Messrs. Cutbush & Son, for a group of Hyacinths and a collection of well-flowered small plants of the following *Epacris*:—*Lady Alice Peel*, rose, white tipped; *The Bride*, white; *Ardentissima*, rosy crimson; *Lady Pannure*, white; *Racemosa*, rose; *Model*, pale rose; *Fireball*, scarlet; *Hyacinthiflora fulgens*, rosy pink; *Carnea*, flesh-tinted rose; *Hyacinthiflora candidissima*, white; *Newton*, white; *Waltoni*, pink; *Magnifica*, rosy pink; and *Ndorata alba*, white. To Mr. James, for a group of his high-class *Cinerarias*; to Messrs. Paul & Son, Cheshunt, for a group of forced *Roses* in pots; to Messrs. Osborn & Sons, for a collection of Hyacinths, and a group of stove and greenhouse plants; to Messrs. James Carter & Co., for a collection of Hyacinths and Tulips, &c.; and to Mr. H. B. Smith, for his splendid collection of *Cyclamens*.

As usual at these shows a considerable number of new plants were submitted to the judges for special recognition, and the following were selected for the award of Botanical Certificates:—*Amaryllis* Mrs. Baker, *Asplenium neo-caledonicum*, *Davallia Mariesii*, *Epidendrum Wallisii*, a beautiful species from New Grenada, with golden-green sepals and petals, and a broad labellum richly marked with crimson; and *Syringa alba grandiflora*, a fine white-flowered lilac, all shown by Messrs. James Veitch &

Sons. *Calyptrotrinema Swartzii*, a handsome new Palm; *Croton albicans*, a bold-leaved plant with well-marked white variegation; *Croton Williamsii*, a fine introduction with large obovate leaves, green, variegated with golden-yellow, and with crimson coloured midribs; *Gleichenia dicarpa longipinnata*, with deep green pinnæ measuring from 2 to 2½ inches in length; and *Pandanophyllum humile*, a very distinct plant, with arching, strap-shaped, deep-green leaves, much resembling a *Dracæna* in its habit of growth. These were shown by Mr. B. S. Williams. *Davidsonia pruriens*, *Staphylea colchica*, *Epacris onosmaeflora flore-pleno*, *Adiantum bellum*, *Lastrea aristata variegata*, and *Macrozamia Mackenzii*, exhibited by Mr. William Bull. The distinct new *Cymbidium Lowianum*, illustrated in another page, and exhibited by Messrs. Hugh Low & Co., of Clapton; and *Agave marmorata* and *A. Shawii*, shown by Mr. Boller, of South Row, Kensall New Town.

New Hyacinths were the leading features amongst florists' flowers, and to Messrs. James Veitch & Sons Floral Certificates were awarded for the following novelties:—*Duke of Connaught*, single blue, very dark, with good bells closely set on a stout spike; *Royal Blue*, single blue, with a white centre, and the broad segments shaded with violet along the margin; a distinct and decided acquisition; *Prince Imperial*, single blue, with narrower segments than the last-named, and the colour slate-blue overlaid with a shade of rose; *Duchess of Connaught*, single blue, of a light porcelain shade, with broad segments, and the bells of excellent substance; *Duke of Norfolk*, semi-double blue, with the margins of the segments shaded with violet, a fine spike, and altogether distinct; *King of the Reds*, a single red of very intense colour; *Salmon King*, pale salmon red, and very fine; *Lord Derby*, single red, with the segments edged with pink; a bold well formed spike of large bells; and *McMahon*, single, deep primrose-yellow—a decided gain to this section. Floral Certificates were also awarded to Mr. J. Wiggins, gr. to H. Little, Esq., Hillingdon Court, Uxbridge, for *Cyclamen persicum* The Gem, white shaded with pink, and crimson at the base—a very chaste flower, with broad well-rounded petals. To Mr. H. B. Smith, Ealing Dean, for *Cyclamen persicum* Duke of Connaught, a fine addition to the giganteum section, with large well-formed rosy-hued blossoms, with a rich crimson base. To Messrs. Paul & Son, the Old Nurseries, Cheshunt, for their new H.P. Rose Charles Darwin, a full, well built, deep maroon-coloured flower, not over-burdened with scent, but a most promising flower on all other points. To Mr. J. James for *Cinerarias* Master Harold, rosy crimson shaded with purple, with a belt of white round the disc; Mrs. Bland, a large white flower margined with rosy purple, and having a black disk; and Earl of Beaconsfield, a self-coloured rich velvety purple flower of fine form.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, March 26, 1879.

| MONTH AND DAY | BAROMETER | | TEMPERATURE OF THE AIR | | | | HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | WIND. | RAINFALL. |
|---------------|-----------------------------------|-------------------------------------|------------------------|--------|--------|--------------|--|-------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest | Lowest | Range. | Mean for Day | | | |
| Mar. 20 | 29.63 | -.08 | 54 | 41 | 13 | 47.0 | 5 | ENE | In |
| 21 | 29.62 | -.08 | 48 | 37 | 11 | 41.2 | 0 | NNE | 0.00 |
| 22 | 29.60 | -.09 | 37 | 33 | 4 | 34.7 | 7 | NNW | 0.00 |
| 23 | 29.68 | -.01 | 35 | 32 | 3 | 33.8 | 8 | E.NE | 0.00 |
| 24 | 29.69 | -.00 | 33 | 28 | 5 | 30.6 | 12 | E.NE | 0.00 |
| 25 | 29.60 | -.07 | 34 | 25 | 9 | 29.6 | 12 | E.NE | 0.07 |
| 26 | 29.47 | -.20 | 35 | 30 | 5 | 32.2 | 10 | E | 0.08 |
| Mean | 29.61 | -.07 | 39 | 32 | 7 | 34.5 | 6 | E.NE | 0.15 |

March 20.—A fine day, but generally cloudy. Mild. Overcast at night.
21.—Overcast till noon, fine till 4 P.M.; overcast afterwards. Cool Windy.
22.—Overcast, dull day. Cold. Strong wind.
23.—Overcast, dull day. Raw cold. Strong wind. Slight snow in morning. Sky clear for a short time at 10.30 P.M.
24.—Overcast, dull, and bitterly cold throughout. Cutting wind. Granular snow in morning.
25.—Overcast, dull day. Bitterly cold. Snow fell throughout.
26.—Overcast, dull, and very cold throughout. Snow and sleet till 5 P.M. Windy.

LONDON: Barometer.—During the week ending Saturday, March 22, in the vicinity of London the readings of the barometer at the level of the sea increased from 29.70 inches at the beginning of the week to 30.12 inches by mid-day on the 17th, decreased to 29.72 inches by the afternoon of the 19th, increased to 29.86 inches by the morning of the 21st, decreased to 29.77 inches by the morning of the 22d, and was 29.81 inches by the end of the week. The mean reading for the week at sea level was 29.84 inches, being 0.37 inch below that of the preceding week, and 0.17 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 65° on the 19th, 54½° on the 20th, and 53½° on the 16th, to 37° on the 22d; the mean value for the week was 50½°. The lowest temperatures of the air observed by night varied from 33½° on the 22d, 36½° on the 17th, and 37° on the 18th and 21st, to 41½° on the 20th and 41¼° on the 16th; the mean for the week was 38°. The mean daily range of temperature in the week was 12½°, the greatest range in the day being 26°, on the 19th, and the least, 3½°, on the 22d.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—16th, 47°.8, +6°.3; 17th, 39°.9, —1°.7; 18th, 44°.1, +2°.4; 19th, 50°.3, +8°.6; 20th, 47°. +5°.3; 21st, 41°.2, —0°.6; 22d, 34°.7, —7°.2. The mean temperature of the air for the week was 43.6°, being 1°.9 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 128° on the 19th, 106° on the 16th, and 99° on the 18th; on the 17th the reading did not rise above 49½°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 32½° on the 17th, and 32½° on the 16th and 18th; the mean of the seven lowest readings was 34°.

Wind.—The direction of the wind was N.E. and S.E., and its strength moderately strong.

The weather during the week was generally dull and changeable, and the sky cloudy. The highest temperature of the air on Wednesday was 65°, whilst on Saturday it was but 37°.

Rain fell on three days during the week, but the amount measured was only 0.05 inch.

ENGLAND: Temperature.—During the week ending Saturday, March 22, the highest temperatures of the air observed by day were 65° at Blackheath, 64° at Leicester, and 61° at both Truro and Plymouth; the highest temperature at Sunderland was 47°, and at Leeds was 50°; the mean value from all stations was 57°. The lowest temperatures of the air observed by night were 31½° at Wolverhampton, 32½° at Bradford, 32½° at Nottingham and Sheffield, and 33° at Leicester, Hull, and Leeds; the lowest temperature at Truro was 38°; the mean from all places was 33½°. The extreme range of temperature in the week was the greatest at Blackheath and Cambridge, both 31½°, and the least at Sunderland, 13°; the mean range from all stations was 23½°.

The mean of the seven high day temperatures was the highest at Plymouth, 55½°, Truro 55°, and Wolverhampton 42°, and the lowest at Sunderland, 42°, and Hull 43½°; the mean from all places was 48½°. The mean of the seven low night temperatures was the lowest at Bradford, 35°, Wolverhampton, Liverpool, and Hull, all 35½°, and Sheffield and Leeds, 36°; and the highest at Truro, 43½°, and Plymouth 41°; the general mean from all places was 37½°. The mean daily range of temperature in the week was the least at Sunderland, 5½°, and the greatest at Wolverhampton, 16½°; the mean daily range of temperature from all places was 11¼°.

The mean temperature of the air for the week from all stations was 42°, being 1¼° lower than the value for the corresponding week in 1878. The mean temperature of the air was the highest at Truro, 48°, and Plymouth 47½°; and the lowest at Sunderland, 38°, and Hull, 38½°.

Rain.—The amounts of rain measured during the week varied from 0.71 inch at Leeds, 0.63 inch at Hull, and 0.53 inch at Sheffield, to 0.01 at Plymouth; the average fall over the country was 0.28 inch.

The weather during the week was changeable, but generally fine.

Snow fell at some places on Saturday, the 22d.

SCOTLAND: Temperature.—During the week ending Saturday, March 22, the highest temperatures of the air varied from 47½° at Glasgow and 47° at Paisley to 41° at Leith and 41¼° at Aberdeen; the mean value from all places was 44°. The lowest temperatures of the air varied from 23½° at Edinburgh, 27° at Perth, and 28° at both Greenock and Leith, to 32° at Aberdeen; the mean from all stations was 28½°. The mean range of temperature in the week was from all places 15¼°.

The mean temperature of the air for the week from all stations was 36¼°, being 7¼° lower than the value

for the corresponding week in 1878. The highest were 37½° at Aberdeen and 37¼° at Glasgow; and the lowest were 35° at Edinburgh and Perth, and 35¼° at Greenock.

Rain.—The heaviest falls of rain were 1.79 inch at Glasgow and 1.68 inch at Edinburgh; and the least falls were 0.26 inch at Aberdeen and 0.51 inch at Leith. The average fall over the country was 0.93 inch.

DUBLIN.—The highest temperature of the air was 52¼°, the lowest 30°, the extreme range was therefore 22½°, the mean was 40¼°, and the fall of rain 0.68 inch.

JAMES GLAISHER, F.R.S.

Obituary.

WE greatly regret to have to record the death of Sir WALTER CALVERLEY TREVELYAN, Bart., which took place very suddenly on the 23d inst., at Wallington, his seat in Northumberland. Sir Walter was in his eighty-second year, and succeeded his father as sixth baronet on May 23, 1846. During the thirty-three years he was in possession of his large landed estates he had very extensive improvements carried out, whereby the value of his property was enormously increased. He also did much towards improving the breed of Shorthorn cattle, and had just recently determined on the dispersion of his extensive herd early in the coming month. But Sir Walter Trevelyan was also, during the whole of his life, a great lover of science, literature, and art, and for many years a liberal and zealous patron. His taste for literature and science showed itself at a very early period, for when at school at Harrow he began the formation of a library; and he was wont to rise very early during the summer months and to go long distances in pursuit of plants, often having to return very hastily on these occasions in order to be in chapel at eight o'clock. At Harrow he had as a schoolfellow the late Mr. Fox Talbot (the chief discoverer of photography), who had in many respects similar literary and scientific tastes, and with whom he was accustomed to share the botanical collections which he made. From Harrow Sir Walter went to University College, Oxford, while Mr. Fox Talbot proceeded to Trinity College, Cambridge, but a life-long friendship continued between them. At Oxford Sir Walter attended the lectures of the botanical and geological Professors, and after taking his M.A. degree (in 1820) he proceeded to Edinburgh to pursue further his scientific studies. The result was that he became both a botanist and a geologist of no mean order, for he was a very close and, at the same time, a very careful and accurate observer. He was, moreover, an accomplished antiquary. Our space does not permit us to enumerate all of the many attainments of Sir Walter Trevelyan, but it should be stated, for the information of those who had not the privilege of knowing him, that he possessed a singularly refined and well-cultivated mind, and that the knowledge he had on a variety of subjects was great indeed. This knowledge he was ever ready freely to impart to others by frequent communications to the *Transactions* of several of our learned societies, to the pages of many of the scientific and other periodicals of the day, not forgetting the columns of this journal, to which he was an occasional contributor from its very beginning till quite recently. In 1821 he visited the Faroe Islands, where he made important botanical and mineralogical collections, of which he afterwards published an interesting account. To the late Rev. John Hodgson, in the preparation of his elaborate *History of Northumberland*, he rendered most important aid. Of the three volumes of *Trevelyan Papers*, published by the Camden Society, the last was edited by Sir Walter Trevelyan in conjunction with his cousin Sir Charles. He contributed liberally towards the cost of the new museum of his own university, in the improvement and advancement of which he ever took the most lively interest.

To the British Museum, the Museums at Kew, Edinburgh, and Newcastle-on-Tyne, to the Society of Antiquaries of London, that of Scotland, and that of Newcastle-on-Tyne, and to many other societies and institutions Sir Walter Trevelyan was a noble benefactor. Of many of the learned societies in England and Scotland he was a Fellow, and was one of the trustees of the Royal Geographical Society. Of the Royal Horticultural Society his father (the late Sir John Trevelyan) was one of the founders, and he

had himself been a Fellow of the Society for nearly forty years, contributing, in addition, liberally to its funds. To his kind encouragement and timely aid many owe their advancement in life. He was the persistent promoter of all good movements, especially those for the spread of education and the permanent improvement of the condition of the great masses of the population. The one object which, perhaps, was nearest and dearest to the heart of Sir Walter Trevelyan was the suppression of the vice of intemperance. For this he laboured earnestly and untiringly for more than fifty years, contributing largely to the funds of numerous societies and associations having this most desirable object in view, and more particularly to the United Kingdom Alliance, of which he was the President from its formation in 1853.

Very imperfect as this hasty sketch of a singularly well-spent life is, sufficient, it is believed, has been put on record to show that the name of Sir Walter Trevelyan and the memory of his good deeds should be perpetually held in grateful remembrance.

— It is with deep regret that we record the death of Mr. JOHN McDONALD, gr. to James Patterson, Esq., of Kinnettles, Forfarshire, which took place on the 21st inst., in the 50th year of his age. Mr. McDonald was a true horticulturist in every respect, but took a special interest in fruit culture, with which he was very successful; and at the time of his death he held the Corporation of Dundee Challenge Cup, for the best collection of fruit; which he had won for two years in succession. His memory will be cherished with a kindly feeling by all who had the pleasure of his acquaintance.

Enquiries.

He that questioneth much shall learn much.—BACON.

OLD NAMES OF PLANTS.—Would any botanical correspondent kindly tell me whether the fresh-water Alga formerly known as *Conferva bullata* is the same as the *Ulva bullosa*, Roth., of Smith's *English Flora*? Also whether "Nimble Bobs" is the name, or some variety, of Turnip? The names are used in some old MS. natural history registers of about forty to fifty years ago, and it is much wished to be certain of the plants intended relatively in the first case to dates of first appearance in successive years, and in the second to successive appearance of *Athalia spinarum* (the Turnip Sawfly) for several consecutive seasons. *Enquirer*.

BISULPHIDE OF CARBON.—R. H. understands that this is used in South Australia for the destruction of rabbits, and wishes to know how it is used. For insects in herbaria, moth in furs, &c., it may be employed by placing the infested articles in an air-tight receptacle with bisulphide of carbon, the vapour of which kills the insects. See a paragraph on fumigating machines on p. 497.

Answers to Correspondents.

AZALEA: E. & J. P. The variety sent appears to be the *Azalea obtusa*, introduced by the Horticultural Society from China.

BOOKS: C. H., Koda, Staby, Sweden. *A Practical Treatise on the Cultivation of the Grape Vine*, by William Thomson: London, Blackwood & Co. *Handy Book of Fruit Culture under Glass*, by David Thomson: same publishers.

CAMELLIA: E. P. The case is probably one of mere sporting, which is very frequent among Camellias, and not caused by the inarching of the red variety.

DONN'S "HORTUS CAMBRIGIENSIS": E. P. The thirteenth and last edition of this book was published in May, 1845. It can only be occasionally bought now at old bookstalls.

DRYING PLANTS: E. Straker. You may dry plants so as to preserve their shape, and in most cases their colours, by placing them in some suitable vessel and gradually introduce pure dry fine sand between the parts. Then set the whole in a slack oven for some hours till the moisture of the plant is absorbed by the sand. Of course both the running in and taking out of the sand must be done very carefully.

EPACRIS: G. E. C. Neither of the seedlings are of any value for commercial purposes. We do not know anything of the person you inquire about.

ERRATUM.—At p. 396, for "Mr. Yeo Hardy," read Mr. George Hardy.

FANCY PELARGONIUMS: Lower of Flowers. The following half-dozen may be safely selected as being good and diverse:—Ellen Beck, Fanny Gair, Princess Teck, Godfrey Turner, East Lynn, and The Shah.

FREMONTIA CALIFORNICA: R. Fryer. This fine shrub is neither so rare nor so costly as you appear to imagine. It is hardy against a wall, and as a standard or bush in Mr. Parker's nursery at Tooting, and will thrive in any good garden soil.

FUCHSIA, &c.: C. B. Green. We cannot say when *Fuchsia Royal Standard* was sent out; but *Pelargonium Happy Thought* was sent out by Mr. Cannell in 1875.

NAMES OF PLANTS: W. G. The old *Dendrobium*

speciosum. — *H. K.* There are so many seedling varieties of *Rhododendron arboreum* in cultivation that we cannot pretend to identify them. Yours is a very high-coloured flower, but probably not named. — *H. Jarvis.* The Orchid appears to be *Dendrobium lituiflorum*. We cannot pretend to name *Camellias* under any circumstances.

PLANT BOXES AND TUBS : *Lover of Flowers.* Do not use tar, but give the inside a coating of hot pitch, which will set hard as it cools. — *E. Straker.* The above will be an answer to your questions 1 and 2.

SHADING OR NO SHADING : *C. W.* Thanks for the hint. We will endeavour in a week or two to give you the desired information.

INSECTS : *W. B.* We found a number of very minute red six-legged Acari beneath the scales at the base of the buds on the Currant sprigs, but none within the scales of the buds, which were in too shrivelled a state to enable us to determine whether the flowers had been injured, and the insects were in too young a state for identification. *I. O. W.* — *W. O. W.* The minute black insects found in masses of myriads are the *Podura* (*Desoria*) *viatica* : see *Gardeners' Chronicle*, 1847, p. 221. They feed on decaying vegetable matter. *I. O. W.* — *W. C.* The grub which made such a formidable burrow in the stem of your Apple tree is the caterpillar of the Wood Leopard Moth (*Zeuzera rescuili*), illustrated in the accompanying woodcut (1), fig. 57.



FIG. 57. — ZEUZERA RESCUILI.

which also shows (2) the pupa, (3) the perfect moth, and (4) the eggs, which are oval in shape, and of a pale salmon colour, and which are deposited by the female moths, in July and August, in the crevices of the bark. Tobacco-smoke forced into their burrows will drive out the caterpillars, and a dressing of whale-oil, or train-oil, in summer, will protect the trees.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED : — Messrs. Ellwanger & Barry (Mount Hope Nurseries, Rochester, New York), Descriptive Catalogue of Select Roses, and also List of Plants. — Messrs. Woolson & Co. (P. O. Box 180, Passaic, New Jersey, U.S.A.), Descriptive Catalogue of Hardy Perennial Plants; also of North American Bulbs, Roots, &c., noteworthy—A. M. C. Jongkindt Coninck (Dedemsvaart, Zwolle, Holland), Catalogue of Hardy Perennial and Rock Plants. — V. Lemoine (Rue de l'Etang, 67, à Nancy), General Priced Catalogue. — J. B. A. Deleuil (Rue Paradis, Versailles), Catalogue of Amaryllis, Tuberosus Begonias, Succulents, &c. — Charles Turner (Slough), Catalogue of Florists' Flowers, &c. — Messrs. G. and W. Yates, 28, Market Place, Manchester), Descriptive Catalogue of Vegetable and Flower Seeds. — J. T. Lyles (15, Petty Cury, Cambridge), Price Current of Agricultural Seeds and Farm Roots, &c. — Messrs. Rodger McClelland & Co. (64, Hill Street, Newry), General Priced Descriptive Catalogue.

COMMUNICATIONS RECEIVED : — F. J. H. — W. G. — J. S. — M. H. F. — E. P. — G. T. — H. R. P. — Subscriber (next week). — A. Donaldson — J. C. — J. F. R. — A. Simpson (next week). — H. E. W. — J. D. — A. D. — J. B. — Hortus. — A. D. — Edinburgh. — G. S. — J. C. M. — G. T. — E. B. — E. H. K. — Heilmann Farmer. — M. V.

Markets.

COVENT GARDEN, March 27.

A bare market and quiet trade, Apples being nearly cleared out for this season, though small consignments still reach us from America. Late hothouse Grapes are inclined to recede in value, the demand not justifying the higher prices made last week. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, 1/2-basket | 1 6-5 0 | Oranges, per 100 | 4 0-8 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 3 0-12 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per oz. | 1 0-1 6 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 4 0-.. |
| Jerusalem, bush. | 6 0-.. | Lettuces, Cabbage, | |
| Asparagus, Fr. sprue, | | per doz. | 1 6-.. |
| per bundle | 1 6-.. | Mint, green, bunch. | 1 6-.. |
| Eng., per 100 | 0 15-0 | Onions, per bushel. | 6 0-7 0 |
| Fr. giant, p. bun. | 30 0-.. | — young, per bun. | 4 0-6 0 |
| Toulouse, bun. | 5 0-7 0 | Parsley, per lb. | 2 0-3 0 |
| Beans, French, p. 100 | 3 0-4 0 | Peas, per quart | 5 0-.. |
| Beet, per doz. | 1 0-2 0 | Potatoes, new, basket | 1 0-.. |
| Brus. sprouts, bush. | 10 0-.. | Radishes, Fr., bunch | 6 0-.. |
| Cabbages, per doz. | 1 0-2 0 | — New Jersey, doz. | 2 0-.. |
| Carrots, per bunch | 0 4-6 0 | Rhubarb, doz. | 6 0-8 0 |
| Cauliflowers, per doz. | 2 0-5 0 | Shallots, per lb. | 0 6-.. |
| Celery, per bundle | 1 6-2 0 | Seakale, per punnet | 2 6-.. |
| Chilis, per 100 | 2 0-2 0 | Spinach, per bushel | 5 0-10 0 |
| Cucumbers, each | 0 9-1 6 | Sweet Potatoes, per lb. | 0 6-.. |
| Endive, Batav. dozen | 1 6-.. | Tomatoes, per dozen | 2 6-3 0 |
| Garlic, per lb. | 0 6-.. | Turnips, p. 12 bunch | 3 0-6 0 |

Potatoes : — Regents, roots, to 130s. ; Champions, 80s. to 90s. ; Rocks, 70s. to 75s. ; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Foliage Plants, vari- | |
| ardia aethiop., doz. | 9 0-18 0 | ous, each | 2 0-10 6 |
| Azaleas, per dozen | 18 0-60 0 | Fuchsias, per dozen | 9 0-18 0 |
| Begonias, per doz. | 6 0-12 0 | Gemst., per dozen | 9 0-24 0 |
| Bouvardia, per doz. | 18 0-24 0 | Hyacinths, per doz. | 0 18 0 |
| Camellias, per dozen | 18 0-00 0 | Mignonette, per doz. | 6 0-9 0 |
| Cinerarias, per doz. | 6 0-18 0 | Myrtles, per doz. | 6 0-12 0 |
| Cyclamens, per doz. | 9 0-30 0 | Palms in variety, | |
| Cyperus, per dozen | 6 0-12 0 | each | 2 6-21 0 |
| Deliytra, per doz. | 9 0-18 0 | Pelargoniums, scar- | |
| Dracæna terminalis | 30 0-60 0 | lets, zonal doz. | 6 0-12 0 |
| — viridis, per doz. | 18 0-24 0 | Primulas, per dozen | 4 0-12 0 |
| Erica hyemalis, doz. | 9 0-30 0 | Solanums, per doz. | 0 12 0 |
| Eucyonium, var., doz. | 0 18 0 | Spiræa, per dozen | 12 0-30 0 |
| Ferns, in var., p. doz. | 4 0-18 0 | Tulips, per dozen | 8 0-12 0 |
| Ficus elastica, each | 2 6-15 0 | | |

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-----------------------|-------------|-------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Lily of Val., 12 sprays | 1 0-3 0 |
| Arum Lilies, 12 blms | 4 0-12 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Azaleas, 12 sprays | 0 6-1 6 | Narcissus, paper- | |
| Bouvardia, per bun. | 1 0-4 0 | white, 12 sprays | 1 0-2 0 |
| Camellias, per dozen | 1 0-6 0 | Pelargoniums, 12 spr. | 1 0-2 0 |
| Carnations, per dozen | 1 6-4 0 | — zonal, 12 sprays | 0 6-1 6 |
| Cineraria, 12 bunches | 9 0-18 0 | Primula, double, per | |
| Cyclamen, 12 blooms | 0 3-1 0 | bunch | 0 9-1 6 |
| Deutzia, 12 bunches | 6 0-12 0 | — single, 12 bunch. | 6 0-12 0 |
| Euphyllium, 12 blms. | 1 0-3 0 | Roses (indoor), doz. | 1 6-9 0 |
| Eucharis, per doz. | 4 0-12 0 | Snowdrops, 12 bun. | 1 0-6 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Tropæolum, 12 bun. | 2 0-6 0 |
| Gardenias, 12 blms. | 4 0-12 0 | Tuberose, per dozen | 3 0-6 0 |
| Heliotropes, 12 spks | 0 6-1 0 | Tulips, 12 bloom s. | 1 0-2 0 |
| Hyacinths, 12 spks | 4 0-12 0 | Violets, 12 bunches | 0 6-2 0 |
| — Roman, 12 spks | 0 6-2 0 | | |

SEEDS.

LONDON : March 26. — The return of winter has momentarily checked the demand for field seeds, and has had the effect of further retarding what was already a sufficiently late season ; nevertheless a fair amount of business characterises the trade, and stocks, under the influence of a steady consumptive demand, are being rapidly worked off. Of red Clover of all kinds the available supply in London is now reduced to a comparatively narrow compass ; the few arrived parcels of American are held with firmness. Some choice Canadian seed just come to hand meets with a ready sale. As regards the prices of home-grown seed, to-day's quotations show an appreciable advance on those of ten days since. Alsike and white Clover are firm—the offerings of fine qualities of either kind being by no means in excess of present requirements. Trefoils continue in favour, and the tendency of currencies continues adverse to the buyer. For grass seeds there is a lively sale, and full terms are obtained. The request for spring Tares keeps active, and a further slight rise must be noted. There is a good enquiry for Scotch Gores. For Lucerne and Sainfoin buyers are found on former terms. In Mustard seed there is just now scarcely anything doing. Rape seed hardens in value. Timothy seed on the spot is scarce. The consumption of Hemp and Canary seed keeps at a low ebb. Fine white Millet for birds is obtainable at moderate rates. There is a better demand for blue Peas and Haricot Beans, and, owing to the scarcity and dearth of green vegetables, higher prices are asked. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

POTATOS.

The Borough and Spitalfields Markets reports state that there are moderate supplies on hand, the better qualities moving off steadily at previous prices. Regents, 95s. to 120s. ; rocks, 65s. to 70s. ; Champions, 70s. to 95s. ; Victorias and flukes, 110s. to 135s. per ton. — The imports into London last week consisted of 45,705 bags from Hamburg, 224 Bremen, 2303 Ghent, 1938 Louvain, 8312 bags 165 tons Antwerp, 317 sacks Boulogne, 312 Dunkirk, 84 tons Dahonell, and 287 bags Harlingen.

COALS.

There was a good demand for house coals at market on Monday, and the price advanced 1s. per ton. There was a short supply on Wednesday, and a further rise of 6d. per ton. Quotations : — East Wylam, 15s. ; West Hartley, 13s. 3d. ; Walls End—Lambton, 18s. ; Wear, 16s. 3d. ; Tunstall, 15s. 9d. ; Salvin's Hutton, 17s. ; Radford Navigation, 15s. 6d.

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— Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100 ; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s. HELIOTROPES, strong, healthy, well-rooted cuttings, of light and dark named varieties, 6s. per 100. IRESINE LINDENI, HERBERTII and ACCUMINATA, strong young plants, from stores, 5s. per 100. FUCHSIAS, 100 plants in 12 splendid varieties, from store pots, for 8s. Terms cash. H. BLANDFORD, The Dorset Nurseries, Blandford.

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STOCK, East Lothian, very select strains. " Crimson, superb. For opinions of eminent Horticulturists, see Advertisement in *Gardeners' Chronicle* of Jan. 18. " Purple, Scarlet, White, and White Wallflower-leaved, per packet, 6d., 1s., and 2s. 6d. ASTER, Betteridge's superb Quilled Globe (seed direct from Mr. Betteridge). " 24 varieties, separate, including latest novelties, 2s. 6d. " 12 ditto ditto, 1s. 6d. " mixture of 24 splendid varieties : per packet 3d., 6d., and 1s. MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex. : per packet, 6d. and 1s. COCKSCOMB, Sim's superb strain, First Prize at Carlisle International Show, and wherever exhibited. Was shown at Edinburgh with comb over 40 inches long. Per packet, 1s. and 2s. 6d. PANSY, Show, from a superb collection of named Exhibition varieties : per packet, 1s. and 2s. 6d. " Fancy, from a first-rate collection of named flowers : per packet, 1s. and 2s. 6d. Above free by post. TODD AND CO., Seedsmen and Florists, Maitland Street, Edinburgh.

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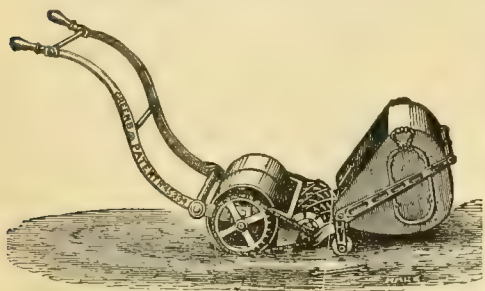
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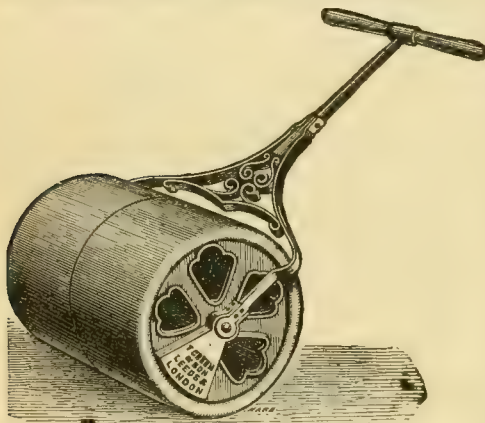
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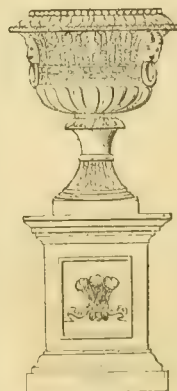
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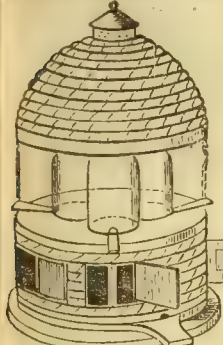
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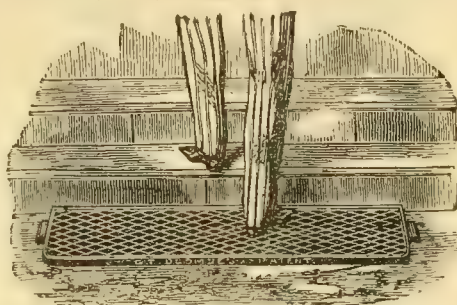
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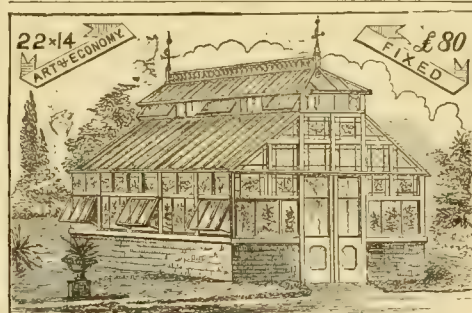
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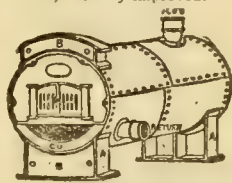
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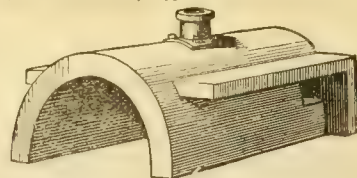
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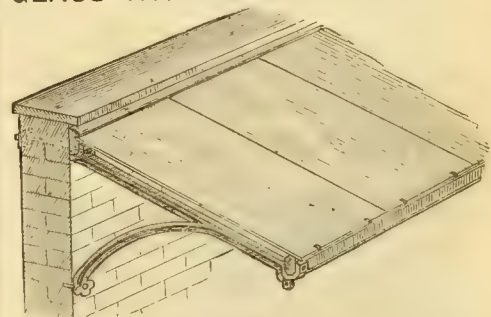


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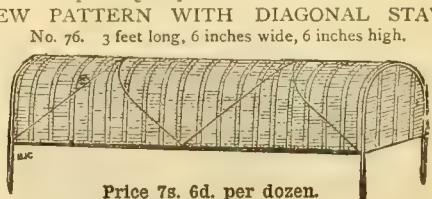
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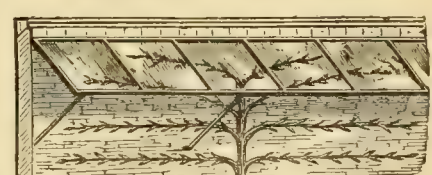
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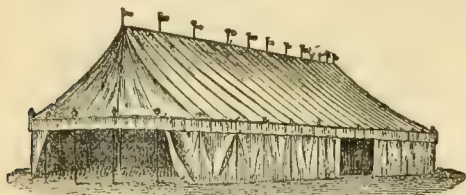
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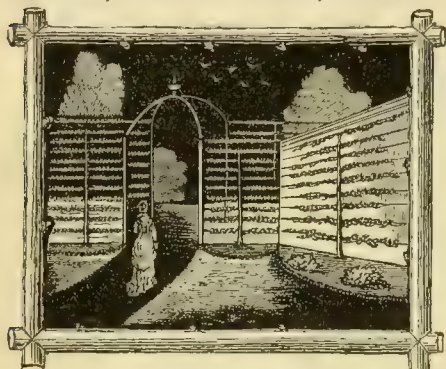
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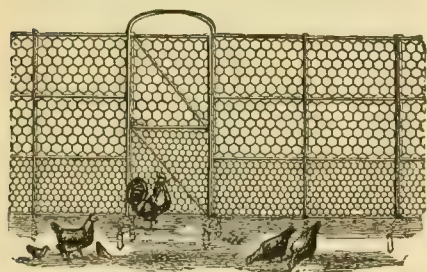
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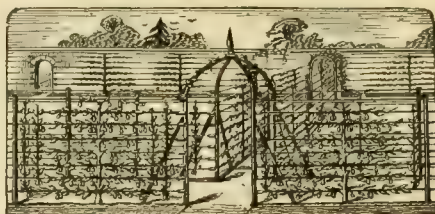
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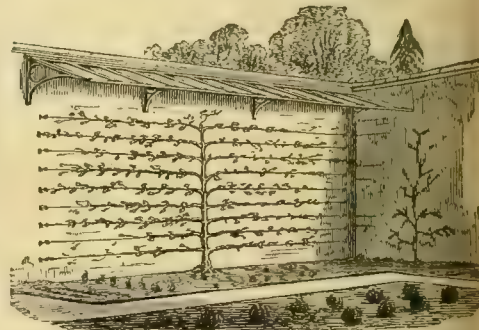
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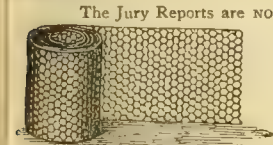
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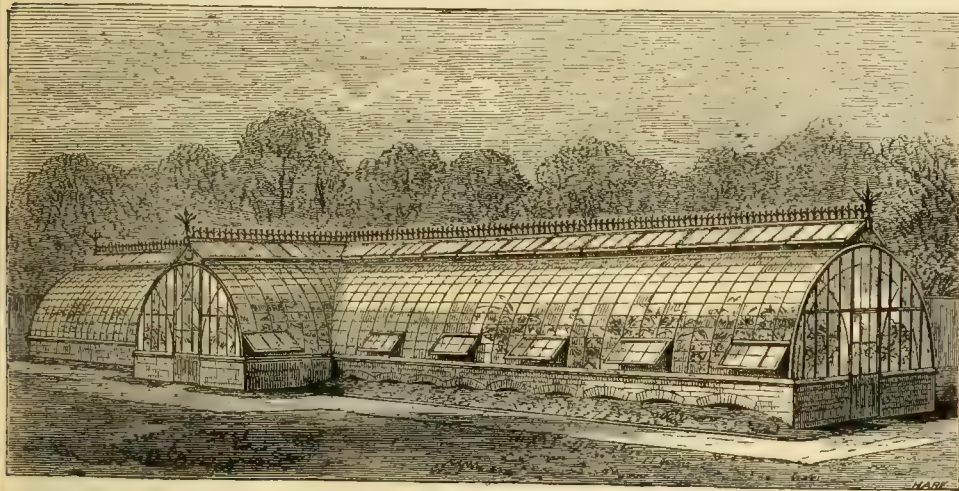
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| 2 | Rabbits & Hares | 19 | 3 | 18 | 3 1/2 | 17 | 0 4 1/2 |
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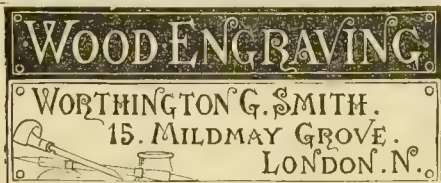
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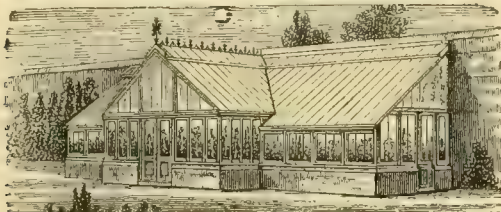
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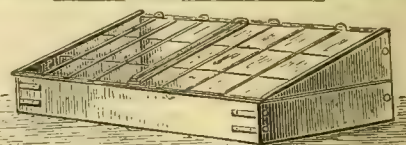
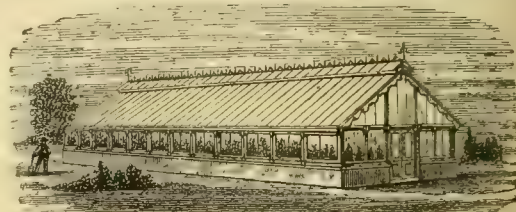
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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 275.—VOL. XI. { NEW SERIES. }

SATURDAY, APRIL 5, 1879.

{ Registered at the General Post Office as a Newspaper. } Price 5d. POST FREE, 5 1/2d.

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WILL SHORTLY be PUBLISHED, a Coloured Plate of "NEW CINERARIAS."

NOTICE TO ADVERTISERS. FRIDAY NEXT, April 11, being GOOD FRIDAY, the "GARDENERS' CHRONICLE" will be published on THURSDAY, the 10th inst., at 2 p.m.

ADVERTISEMENTS for NEXT WEEK must therefore reach the Office not LATER than WEDNESDAY MORNING, the 9th inst.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. NOTICE.—SCIENTIFIC, FRUIT, and FLORAL COMMITTEES' MEETINGS on TUESDAY next, April 8, at 11 o'clock. Competition for Prizes offered by an Amateur for Amaryllis. Band of Royal Horse Guards at 3 o'clock in the Conservatory. Admission, 1s.

THE INTERNATIONAL POTATO EXHIBITION will be held at the CRYSTAL PALACE, SYDENHAM, on September 17 and 18. Schedules and all particulars may be obtained on application to J. A. MCKENZIE, Tower Chambers, Moorgate Street, E.C.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY OF MANCHESTER. THE GRAND NATIONAL HORTICULTURAL EXHIBITION of 1879 will be opened by the President of the Society, the Right Hon. the Earl of Derby, on MAY 30. ONE THOUSAND POUNDS in PRIZES. Schedules may be had from the undersigned.

BRUCE FINDLAY, Curator and Secretary. Royal Botanic Gardens, Manchester.

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On view morning of Sale, and Catalogues had.

Odontoglossums and East Indian Orchids, a Splendid SALE, ALL OFFERED WITHOUT ANY RESERVE.

MR. J. C. STEVENS has received instructions from The New Plant and Bulb Company, to **SELL** by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY**, April 7, at half-past 12 o'clock precisely, **ODONTOGLOSSUM PISCATORUM**, **O. TRIUMPHANS**, **ONCIDIUMS**, **ADA AURANTIACA**, &c., and on **TUESDAY**, April 8, at half-past 12 o'clock precisely, **DENDROBIUM FREEMANI**, **D. LITIFLORUM**, **D. HETEROCARPUM**, **D. DENSIFLORUM**, **D. NOBILE**, &c., **VANDA CERULEA**, **V. GOWERI**, **V. CATHARTI**, **CÆLOGYNE BARBATA**, **CYMBIDIUM Eburneum**, **PLEIONES** of sorts, &c. The plants offered are in splendid condition, and of most kinds there are some extra fine specimens.

On view mornings of Sales, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, April 9, at half-past 12 o'clock precisely, a quantity of fine established plants of **PHALÆNOPSIS GRANDIFLORA**, **P. SCHILÆRIANA** and **P. AMABILIS**, rare **DENDROBIUMS**, **SACCOLABIUMS**, **AERIDES**, &c., all in fine condition; also several other drafts of **ESTABLISHED ORCHIDS**, being duplicates from well-known collections; a quantity of Specimen **STOVE** and **GREENHOUSE PLANTS**, the property of a Gentleman giving up their culture, 3000 **Lilium auratum** from Japan, 3000 **Double Italian Tuberoses**, and a consignment from New Jersey of **Sarracenia flava** and **rubra** and **Dionæa muscipula**.

On view morning of Sale, and Catalogues had.

Mr. Hovey's new Seedling Camellias, just arrived FROM AMERICA.

MR. J. C. STEVENS has received instructions from Messrs. Hovey & Co., of Boston, America, to **SELL** by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, April 17, at half-past 12 o'clock precisely, 700 Plants of three splendid Seedling **CAMELLIAS**, Mrs. Anne Marie Hovey, C. M. Hovey, and C. H. Hovey, which were exhibited at the last meeting of the Royal Horticultural Society, and awarded First-class Certificates. The plants have just arrived, and are in the finest condition. Three plants in flower will be exhibited on the day of Sale. Also 300 **AMPELOPSIS VEITCHII**, the beautiful Japan Creeper, grown in pots; 200 **Bon Silene ROSES**, the famous New York and Boston Rose for bouquets.

On view morning of Sale, and Catalogues had.

Specimen Camellias.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **SATURDAY**, April 19, the well-known **CAMELLIA PLANTS** grown in the conservatories of Major Walter in Cheshire, who is removing. This collection of the most approved varieties comprises about one hundred specimen plants in perfect health, many covered with hundreds of blooms.

On view morning of Sale, and Catalogues had.

First portion of the Magnificent Collection of Orchids AT EDGWARE.

MR. J. C. STEVENS has received instructions from the Rev. J. B. Norman to offer for **SALE** by AUCTION, without the least reserve, on **TUESDAY**, **WEDNESDAY**, and **THURSDAY**, April 29, 30, and May 1, at half-past 12 o'clock precisely each day, the first portion of this celebrated Collection. Amongst other things will be found some of the finest **CATTILEYAS** in cultivation.

As from ill-health Mr. Norman is entirely giving up collecting, every plant will be absolutely sold to the highest bidder.

On view mornings of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Important Sale of Camellias.

MR. J. C. STEVENS has received instructions from — Silverlock, Esq., to **SELL** by AUCTION, without reserve, on the Premises, 16, Wickham Road, Lewisham, about the end of April, a magnificent assortment of **CAMELLIAS**, comprising some of the choicest varieties in bud and flower. Further particulars will be announced shortly.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Important Sale of a First-class Collection of CARNATIONS and PICOTEES of fine growth, the superfluous stock of a celebrated grower; a superb assortment of 400 handsome Standard and Dwarf **ROSES**; selected **FRUIT TREES**, hardy **CONIFERÆ** **SHRUBS** and **AMERICAN PLANTS**; choice **Double CAMELLIAS**, **AZALEAS**, and other **GREENHOUSE PLANTS**, **SEEDS**, **DAHLIAS**, &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION the above, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on **WEDNESDAY**, April 9, at 12 o'clock precisely.

On view morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Harlington and Cranford, Middlesex.
About 13 miles from Covent Garden Market.
To **MARKET GARDENERS, FRUIT GROWERS, and OTHERS.**

MR. E. P. NEWMAN, will **SELL** by AUCTION, at the "Coach and Horses" Inn, Harlington, near Hounslow, on **WEDNESDAY**, April 9, at 2 o'clock, the **LEASE and INTEREST** in 20 acres of thriving young **FRUIT PLANTATION** and 8 acres of open **MARKET GARDEN GROUND**, the whole in good heart and condition. The Lease has 16 years to run, and is held at a low rental.

Particulars can be obtained of **R. H. HARRIS, Esq.**, 46, Finsbury Circus, E.C.; and of the Auctioneer and Market Garden Valuer, High Street, Uxbridge, and Hillingdon, Middlesex.

MESSRS. CAPES, DUNN and PILCHER, of Manchester, have the honour to announce that in pursuance of instructions from T. M. Shuttleworth, Esq., they will **SELL** by AUCTION, at Howick House, Preston, on **TUESDAY and WEDNESDAY**, April 15 and 16, without the slightest reserve, punctually at 12 o'clock each day, the unique and valuable **COLLECTION of STOVE and GREENHOUSE SPECIMEN EXHIBITION PLANTS**, comprising fine-foliaged plants, Azaleas, Gleichienias, Tree and other Ferns (British and Exotic), Orchids, Ericas, Crotons, Palms, and Cycads, embracing many noble and matchless specimens. Also three Exhibition Vans, in perfect condition.

Catalogues may be now had from the Auctioneers. The Plants will be on view on Wednesday and Thursday, April 9 and 10, between the hours of 10 A.M. and 6 P.M., by card only, obtainable from the Auctioneers or from Mr. Shuttleworth. Refreshment tent on the ground each day. Stable accommodation at the "Fleece" Inn, within five minutes' walk of Howick House. Omnibuses each morning and evening to and from the Sale, starting from W. Harding & Co.'s Yard, Fishergate, Preston, facing the Railway Station.

The Public will be admitted to the Grounds and Gardens on the days of Sale at 9 A.M. by the Farm entrance, beyond the Lodge Gate.

Mr. Shuttleworth will be happy to recommend **H. THORNER**, his **HEAD GARDENER**, to any Gentleman requiring a first-class Stove and Greenhouse Plantsman.

Knaresborough, in the County of York.

Important to Nurserymen, Seedsmen, Florists, Fruiterers, and Market Gardeners.

PRELIMINARY NOTICE.

MESSRS. RENTON and RENTON are instructed by Mr. Abbott, the owner, to **SELL** by AUCTION at the "Elephant and Castle" Hotel, Knaresborough, in the month of April, subject to the conditions of sale to be then read, and in the following or such other lots as may be determined upon, the extensive and highly productive **NURSERIES** of Messrs. Abbott & Son, who are retiring from business, situate close to the town of Knaresborough, within 4 miles of the fashionable watering place of Harrogate, and 18 miles from Leeds and York, at all of which places there are capital markets. The **NURSERIES** consist of about 12 acres of superior Freehold Land, thoroughly stocked with every detail required in the trade, as well as with three extensive Vineries in full bearing, large Greenhouse and three Cucumber-houses, all fitted on the most approved principle, and heated with Green's patent steam apparatus, and the land is partly surrounded with an excellent Fruit-wall. There are Stables, Chambers, Sheds, Wagon-houses, and other suitable storage accommodation. With the Property will be **SOLD** the **GOOD-WILL** of the **EXTENSIVE BUSINESS** conducted by the firm during the last fifty years, with immediate possession of the Retail Shops in Knaresborough and Harrogate, presenting an opportunity to the trade seldom to be found for securing a genuine and profitable undertaking. A portion of the Estate might be converted into tea and pleasure gardens, for which its favourable position and easy access of Harrogate by road and rail renders it admirably adapted.

For further information application may be made to Messrs. **ABBOTT and SON**, Knaresborough and Harrogate, or to the Auctioneers, Knaresborough and Harrogate.

WANTED, a Small **HOUSE** and a few Acres of **LAND**, suitable for Market Gardening and Fruit Growing. Near a railway station and within a few miles of Brighton or Hastings preferred. Apply to

W. M., 26, Harefield Road, Brockley, S.E.

FOR SALE, ACTON NURSERY and HOUSE, FREEHOLD—depth 275 feet, width 125 feet—for Building or other purposes. Cost £1500. Price £2000, £1200 of same can remain at 5 per cent. Apply to

W. BORER, 35, Queen Street, Gravesend, Kent.

BATH and WEST of ENGLAND SOCIETY (Established 1777) and **SOUTHERN COUNTIES ASSOCIATION.**



EXETER MEETING, 1879.
Commencing **MONDAY**, June 2;
Terminating **FRIDAY**, June 6.

HORTICULTURAL DEPARTMENT.

In requesting your assistance for the Horticultural Exhibition at the forthcoming Meeting at Exeter, by the **LOAN of PLANTS**, &c., the Steward of that Department begs to state that, in order to obviate the objections so often made against the system of Exhibiting Plants in competition for Money Prizes, it has been determined to give sums of Money, in proportion to the importance and value of the Plants exhibited, as gratuities to Exhibitors, Gardeners, &c.

Exhibitors are requested to forward to the Steward, before May 13, 1879, a description of the Plants proposed to be shown, and the name of the Gardener who will be in charge.

All Plants must be staged in their allotted places on **SATURDAY**, May 31, or not later than 10 a.m. on **MONDAY**, June 2. Plants may be changed during the Exhibition, but must not be removed between the hours of 10 a.m. and 6 p.m. on any day except the last, when they may be removed at 6 p.m.

N.B.—The Tent in which the Plants will be exhibited is closed with glass ends, and well ventilated, so as to afford perfect security to the most delicate flowers.

Any further information may be obtained on application to the Steward.

The Hon. and Rev. J. T. BOSCAWEN, Lamorran, Probus, Cornwall.

BATH and WEST of ENGLAND SOCIETY (Established 1777) and **SOUTHERN COUNTIES ASSOCIATION.**



EXETER MEETING, JUNE 2, 4, 5 and 6.

ENTRIES of LIVE STOCK, IMPLEMENTS, &c., CLOSE APRIL 16, after which date no Fees or Entries can be received.

POULTRY ENTRIES CLOSE MAY 1.

Forms and all information supplied on application to

JOSIAH GOODWIN, Sec.
4, Terrace Walk, Bath.

Borough of Wolverhampton.

To LANDSCAPE GARDENERS.

THE PARK and BATHS COMMITTEE of the Corporation of Wolverhampton invite **DESIGNS** for Laying-out the Interior of a proposed **PUBLIC PARK**, about 47 acres in extent, at an expenditure not exceeding £5000.

A Lithograph Plan and printed General Instructions and Conditions may be obtained from Mr. G. Eastlake Thomas, C.E., the Borough Engineer, at his Offices, Town Hall, on and after the 20th inst., on payment of One Guinea, which will be returned on receipt of *bona fide* Design.

The Committee offer Premiums of £50 and £25 for the best and second best Designs respectively. No premiums will be paid unless the works can be carried out for the sum named—£5000. If the competitor obtaining such first-named premium is employed to carry out the work the premium shall merge in his commission, the rate of such commission to be hereafter agreed upon by the Committee.

Designs, accompanied in each case by Specification and detailed Estimate, under Motto, must be left at the said Offices not later than 12 noon, on **SATURDAY**, May 3, next, addressed to "The Chairman of the Park and Baths Committee."

H. UNDERHILL, Town Clerk,
Town Hall, Wolverhampton, March 12.

PROTHEROE and MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSSES to be DISPOSED OF.

MESSRS. PROTHEROE and MORRIS' HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at 98, Gracechurch Street, E.C.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH and CO. (established 1822), Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the world.

YEWES.—3½ to 4½ feet, 90s. per 100; 3 to 4 feet, 84s. per 100; well adapted for hedges, &c.; also some prime well-rooted Green **HOLLIES**, 1½ to 2½ feet, 30s. per 100, in good condition for hedges; all recently removed in good condition. A good time for planting now.

JOSEPH SPOONER, Woking, Surrey.

SEEDLING SPANISH CHESTNUTS.—

A large quantity at 5s. per 1000. Address **G. CHORLEY**, Coster's Nursery, Midhurst, Sussex.

LILY OF THE VALLEY.—For Sale, Half an Acre. Strong flowering clumps, 10s. per 100, 80s. per 1000—suitable for immediate planting.

Also **RED and WHITE DAISIES**, 8s. per 100. Apply to **Mr. C. EDGE**, Florist, Turnham Green, W.

SEED POTATOS, &c.—Late Rose, 10s. per cwt.; Red-skinned Flourball, 9s. per cwt.; Ruby, 9s.; Sutton's Magnum Bonum, 12s. 6d.; White Emperor, 12s. 6d.; Porter's Excelsior, 12s. 6d.; Salmon Kidney, 12s. 6d., &c. Laxton's Standard PEAS, 8s. per peck. Hardy's Pedigree Windsor BEAN, 12s. 6d. per bushel. Terms cash. **HY. MINCHIN**, The Nurseries, Hook Norton, Oxon.

Roses, Roses, Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100. Price to the Trade on application.

POTATOS.—Surplus stock of a large variety of excellent sorts, to be cleared out at reduced prices. **HURST and SON**, 6, Leadenhall Street, London, E.C.

PRIMULA ROSEA.—For full description see *Gardeners' Chronicle*, p. 375. Good strong flowering plants are offered at 3s. 6d. each.

PRIMULA CASHMERIANA, a very fine form of *P. farinosa*, quite distinct; good strong blooming plants at 2s. 6d. and 3s. 6d. each.

RODGER McCLELLAND and CO., 64, Hill Street, Newry

Primula rosea.

THOMAS S. WARE has much pleasure in offering this charming new Plant, which was awarded a First-class Certificate at South Kensington on the 25th ult. It is unquestionably one of the most beautiful and distinct of this family, and is exceedingly free flowering, producing flowers in the greatest profusion.

Plants in flower, 2s. 6d. and 3s. 6d. each, 24s. and 36s. per dozen.

Hale Farm Nurseries, Tottenham, London.

To the Trade.

SEED POTATOS.

H. and F. SHARPE have still in stock most of the best varieties of **SEED POTATOS**, and are prepared to take reduced prices to clear out. Special offers on application.

Seed Growing Establishment, Wisbeach.

FOR SALE, strong healthy Cuttings of Purple, White, Scarlet, and Pink **VERBENAS**, 3s. per 100. Twenty good exhibition varieties, 4s. per 100, free by post. Cash with order.

S. BIDE, Alma Nursery, Farnham.

EVERGREEN OAKS.—A large quantity for sale, 4 feet, 5 feet, 6 feet, 7 feet, and 8 feet, at exceptionally low prices; also Standards, 6 feet stems, good heads. Prices on application to
T. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

MANETTI STOCKS.—A few thousands, of fine quality, still to offer. **QUINCE STOCKS**, also, very fine.

CHARLES NOBLE, Bagshot.

To the Trade.

ASH, ELM, SYCAMORE, BIRCH, BEECH, OAK, ALDER, POPLAR, fine trees, 6, 8, 10, 12, 15, and 18 feet. Weymouth **PINE**, 3, 4, 5, and 6 feet, well furnished Plants. Apply to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

CARNATIONS, PICOTEES, and CLOVES.

—A grand stock of the above, very fine plants, consisting of the choicest varieties in cultivation. For descriptions and prices see New CATALOGUE of Florists' Flowers, free on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

THE CHAMPION POTATO.—

Fine samples, for Seed, of this and other leading kinds. Prices on application to

The LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

MILES' NEW HYBRID SPIRAL

MIGNONETTE.—This being the best time to sow I beg to offer from the original stock, at 1s. per packet, or 12s. per dozen. The usual allowance to the trade.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown MANGEL WURZEL, and SWEDE and other TURNIP SEEDS of 1878 growth, and raised from transplanted Bulbs.

Seed Growing Establishment, Wisbech.

HARDY HEATHS.—60,000 good plants, in great variety—fine for Edging, Bedding, Covering Banks or raised mounds. The prices, which are very low, will be found in the CATALOGUE, free per post.

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.

The Ottershaw Nursery, Chertsey.

Hazel—Scotch Fir.

J. GEO. HILL has a quantity of Strong

HAZEL, 3 to 3½ feet; also **Scotch FIR**, 2 to 2½ feet, to offer on very liberal terms for cash.

J. GEO. HILL (late Scott), The Royal Nurseries, Merriott, Somerset.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.

THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.

CATALOGUES on application.

SURPLUS STOCK.—50,000 **MANETTI**

STOCKS and a few thousand **Fastolf RASPBERRY CANES**. Prices on application to
EWING AND CO., Eaton, near Norwich.

Aucuba japonica.

W. FROMOW AND SONS beg to announce that they have taken Mr. Kiddy's well-stocked Nursery, Hanworth Road, Hounslow, and can therefore offer perhaps the finest stock of **AUCUBAS** in the trade, good bushy tuft and beautifully rooted, at low prices for cash, delivered free within 6 miles of Sutton Court Nursery.

Turnham Green, London, W.

Guaranteed True Native Highland Scotch Fir.

W. WISEMAN AND SON have yet to offer the Trade extra strong 1 and 2-yr. seedling Scotch, 1-yr. 1-yr. ditto; **LARCH**, 1 and 2-yr. seedlings. Prices on application. The Nurseries, Elgin, N.B.

RASPBERRIES.—50,000 **Fastolfs** for Sale; also several tons of **CHAMPION SEED POTATOS**. This Potato is the best disease-resisting and heaviest cropping variety in cultivation. Price on application to
JOSIAH H. BATH, Manor Farm, North Cray, Kent.

FINE SPECIMEN AZALEAS to offer, fit for this season's showing, cheap. Apply to
ROBT. MACKELLAR, Abney Hall, Cheadle, Manchester.

Rhododendron Ponticum.

J. J. MARRIOTT has a fine stock of the above, and begs to offer 4-yr. seedlings, 2-yr. bedded, £245. per 1000; 4 to 6 inches, transplanted, bushy, 7s. per 100, 2s. per 1000; 6 to 9 inches, 9s. per 100, 80s. per 1000; 9 to 12 inches, 10s. 6d. per 100. Also 2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000. The Trade supplied. Highfield Nurseries, Matlock, Derbyshire.

Australian Plants and Seeds.

EUCALYPTUS GLOBULUS, PALMS, CYCADS, FERNS, and all kinds of **PLANTS** and **EEDS** indigenous to Australia, Fiji, &c., supplied on the most reasonable terms. Priced CATALOGUES and Special Quotations on application.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.) Agents: Messrs. C. J. BLACKITH and CO., Cox's Quay, Lower Thames Street, London, E.C.

DR. DENNY'S ZONAL PELARGONIUMS, Sixth Set.—This series will consist of the six splendid varieties that were awarded the Premier Prize for six varieties not in commerce, florists' class, at the Pelargonium Society's Exhibition of 1878.

Descriptive CATALOGUES forwarded on application to Mr. JOHN BALAAAM, Vine Nursery, Hackney Downs Road, Lower Clapton, N.E.

EVERGREENS.—

Plant in April.

HOLLIES, Specimen, 3, 4, 5, 6, to 15 feet.

LAUREL, bushy Portugal, 2, 3, 4, and 5 feet.

AUCUBAS, 2, 3, and 4 feet; perfect globes.

YEW, English, 3, 4, 5, and 6 feet.

Also other Evergreens, extra bushy and good.

Many thousands of splendid plants, hardy, thoroughly transplanted, therefore well-rooted and lifting with excellent balls. Special prices and samples sent on application.

Prices low to clear ground. Nurseries, 250 acres.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Carter's



PARIS GOLD MEDAL LAWN GRASS SEED

Has Beaten all other Competitors,

AND WAS AWARDED THE

FIRST PRIZE

AND

**ONLY GOLD MEDAL,
PARIS, 1878.**



Price, in sealed pkts., 1s., 1s. 6d., and 2s. 6d. per pkt.

Price, per bush., 25s. Price, per acre of 4 bush., 90s.

(A 1s. 6d. packet will sow 1 rod of ground.)

Ordinary Lawn Grass, per bushel, 20s.; per lb., 1s.

The beautiful Lawns on the Trocadero so much admired by Visitors, and to which the only Gold Medal was awarded, were sown with Carter's Lawn Grass Seeds on April 8, and were cut on April 29, and presented a perfect lawn on May 1.—*Vide Press.*

Practical Directions for the Successful Formation of Lawns will be sent gratis and post-free on application.

20s. Value

Carriage Free.

5 per Cent.

Discount for Cash.

**THE QUEEN'S SEEDSMEN,
HIGH HOLBORN, LONDON, W.C.**

Pinus Laricio.

CORSICAN PINE.—Now is the best time to remove them. For prices of this valuable Pine, which is seldom eaten by rabbits—never if they can get any other food—apply to JAMES SMITH, Darley Dale Nurseries, near Matlock.

RICHARD WALKER has to offer East Ham, Enfield Market, and Robinson's Drumhead **CABBAGE**; **BRUSSELS SPROUTS**, **SAVOY**, and **Red Dutch CABBAGE PLANTS**, all at 2s. per 100; **LEMON THYME** and **PENNYROYAL ROOTS**, 8s. per 100; **SAGE** and **BLACK THYME**, 5s. per 100; splendid **SEAKALE** for planting, 4s. per 100. Terms cash.
Market Gardens, Biggleswade, Beds.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's **SEED LIST** for 1879.

Extra Strong **SEAKALE**, 2s. per dozen.

RICHARD SMITH, Nurseryman, Worcester.

Verbenas in Single Pots.

WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 16s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.

Cemetery Nursery, Gravesend.

Special Offer of Pelargoniums.

WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

GLASTONBURY or HOLY THORN.—Strong plants of above, 3 to 4 feet high, 2s. 6d. each. Always blossoms at Christmas.

J. GEO. HILL, The Royal Nurseries, Merriott, Somerset.

Mangel Seed.

JOHN SHARPE is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs.

Bardney Manor, Lincoln.

ALTERNANTHERAS of Sorts, from Stores, 8s. per 100, or 70s. per 1000. Orders now booked and executed in rotation.

LIST of Carpet and other Bedding Plants free on application. Terms cash.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

Now Ready.

CRANSTON and CO'S TRADE LIST

of NEW ROSES for 1879.

King's Acre Nurseries, near Hereford.

Special Cheap Offer.

To SEEDSMEN, MARKET GARDENERS, and OTHERS **PEA**, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to
W. BALL and CO., Bedford Road Nursery, Northampton.

Florists' Flowers.

J. FORBES' CATALOGUE for 1879 (50 pages) of all the newest and best Carnations, Picotees, Pinks, Geraniums, Fuchsias, Pansies, Phloxes, Pentstemons, Antirrhinums, Begonias, Verbenas, &c., is now ready, and may be had free on application.

The Nurseries, Hawick, N.B.

MANGEL and SWEDE, Choice Stocks.—

We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.

SANDER AND CO., Seed Growers, St. Albans.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of **VINES** is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s **BULB CATALOGUE** for this year.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

BEDDING LOBELIAS,

PANSIES, and VIOLAS.

LOBELIAS, from cuttings.—St. Martin's Blue, very fine plants with a quantity of cuttings on, 7s. 6d. per 100; pumila grandiflora alba, a new white one, 2s. per dozen, post-free.

PANSIES, Cliveden Blue, Cliveden Purple, and Dean's White Bedder, 2s. per dozen, 6s. per 50, 10s. 6d. per 100; Viola Bluebell same price.

Also extra choice Bedding Violas, 2s. 6d. to 4s. per dozen.

J. J. MARRIOTT, Highfield Nurseries, Matlock.

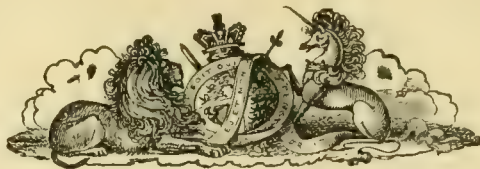
Hardy Permanent Carpet Bedding Plants.

As soon as the following valuable Moss-like Plants become known, our beds will be alike beautiful all the year.

H. CANNELL

begs to offer as under:—

Per 100—s. d.
MENTHA PULEGIUM GIBALTARICUM, cuttings .. 2 6
VERONICA REPENS, much higher emerald-green .. 5 0
ACENA MICROPHYLLA .. 5 0
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HERNIARIA GLABRA, dark Green .. 5 0
THYMUS LANUGINOSA, splendid tipped Gold .. 5 0
" ELEGANTISSIMA, totally eclipsing all other varieties, Golden edging .. 5 0
PYRETHRUM TCHIHATCHEW, emerald-green .. 4 0
ANTENNARIA TOMENTOSA, White .. 5 0
SEDUM ACRE ELEGANS, Silver .. 5 0
" CORSCUM, Mauve Silver-grey .. 5 0
" GLAUCUM, Grey .. 5 0
" LYDIUM, Green, very bright .. 5 0
STELLARIA GRAMINEA AUREA, Yellow .. 1 6
NERTERA DEPRESSA, innumerable Orange-scarlet berries, rooted cuttings .. 7 0
DACTYLIS ELEGANTISSIMA AUREA, very much the dwarfest and best of all: an acquisition. Rooted cuttings, 6s. per dozen.
STACHYS LANATA, very white and large, rooted .. 10 0
VERONICA GENTIANOIDES, var. very pretty, rooted .. 10 0
* * * For further and full particulars of the above Green Carpet Bedding Plants and other valuable Plants for this purpose in pots, see H. C.'s FLORAL GUIDE.
The Home for Flowers, Swanley, Kent.



B. S. WILLIAMS' NEW PLANTS FOR 1879.

B. S. W. has much pleasure in intimating that he is now sending out the following Novelties for the first time, believing them to be far in advance of anything hitherto offered to the Public.

[Extra-sized specimens may be had of nearly all the plants here enumerated, prices of which will be forwarded on application.]

ABUTILON "FIRE KING."

A very distinct and free-flowering variety of dwarf compact habit, producing a succession of bloom all the year round. The flowers are of fine form and substance, about 2 inches across at the widest part; the colour is bright orange-scarlet, beautifully veined with a richer tint of the same colour. This variety has the peculiarity of producing its flowers in pairs, instead of singly, as is the case with all other Abutilons. It cannot be too highly recommended where a succession of cut flowers is required.

Price 7s. 6d. each.

ADIANTUM WILLIAMSII (Moore).

The New Golden Maidenhair.

This splendid novelty is destined to become a general favourite, and for cutting purposes its value cannot be over-estimated. It succeeds well in a greenhouse temperature. It is in every respect quite as free and hardy as *A. cuneatum*, and will make a fine Exhibition plant.

The following description is taken from the *Gardeners' Chronicle* of July 13, 1878:—"This handsome Fern has somewhat the aspect of *A. chilense*, with the form of pinnule of *A. Veitchianum*. It is, however, quite different from the latter in the form of the sori, which are oblong-reniform and not circular. The straight base and nearly equal-sided pinnule are peculiar. The growth of the plant is free and vigorous. It has a castaneous stipes 6 or 8 inches long, golden at the base, and a somewhat zigzag rachis of about a foot long. The lower pinnule measure about 4 inches, and are of an ovate figure, attached by stalks $\frac{3}{4}$ inch long, and bipinnate. The pinnules are about $\frac{1}{2}$ inch broad, and attached by pedicels, about $\frac{1}{4}$ inch long, so that the parts are nowhere crowded; they are membranaceous, of a bright green colour, mostly semi-circular, i.e., with a straight base and equally developed on each side of the pedicel, occasionally slightly bilobed, one or two towards the apex of the fronds and pinnule subtriangular, and the terminal one very slightly tapered at the base, scarcely cuneate; the outer margin is divided about one-fourth the depth into 3 to 4 rounded lobes, and there are 5 to 10 sori around the edge, according to the size of the pinnule, each sori being separated by a notch about as deep as itself, breaking up the edge into crenatures. The sori occupy the whole of the outer semicircular edge, and occupy the crest of the crenature; they are kidney-shaped in outline, and are covered by membranous entire indusia. There is thus, as already intimated, a close relationship to *A. chilense*, but the plant seems to differ from that by its larger size and freer growth, by the peculiar form of the pinnules, and by the less curved sori, the ends of which in *A. chilense* point outwards, like a pair of horns. There is also a peculiar undulation of the surface of the fronds. The caudex is slowly creeping, and makes its way to the sides of the pot in which it is grown. It is a native of Peru, where it is found on the mountains growing at an elevation of 12,000 feet, whence it has been recently imported by Mr. B. S. Williams, after whom it is named. It was awarded a First-class Certificate at South Kensington on May 2, 1877, and was exhibited among Mr. Williams' plants at Preston."

Price 21s. each.

AMARYLLIS "DR. MASTERS."

We believe this will prove to be one of the best *Amaryllis* we have ever sent out. In form, substance, and colour it is all that can be desired. It is very free, and flowers in a very small state. The flowers of this fine variety are about 6 inches in diameter, the sepals and petals are broad and of fine form and substance; the colour of the petals is bright carmine-scarlet, shaded towards the base with purplish crimson. This variety has the peculiarity of being totally devoid of green in the interior of the flower. This plant is figured in the March number of the *Floral Magazine*, and was awarded a First-class Certificate of Merit at the Royal Horticultural Society's Meeting, January 14, 1879.

Price 42s. to 63s. each.

AMARYLLIS "MRS. RAWSON."

This is also a free-flowering and distinct variety, and is one of the showiest of the light margined kinds. Flowers about 6 inches across; petals of good shape and substance; colour bright crimson-scarlet, with a broad margin of pure white, which increases in breadth towards the base of the petals, and produces a charming effect. This *Amaryllis* was awarded a First-class Certificate at the Royal Horticultural Society's Meeting, March 4, 1878.

Price 63s. each.

ARALIA TERNATA.

This is a very elegant slender-growing foliage plant, suitable when small for table decoration. Leaves opposite, ternate; leaflets oblong-lanceolate, margins in some cases deeply serrate, in others sinuate; colour of the leaf light green. Introduced from New Britain.

Price 21s. each.

CHRYSANTHEMUM "LATE DUCHESS."

A dense-growing variety of free branching habit, producing an abundance of well-shaped flowers from October to February. The individual flowers are from 2 to 3 inches in diameter, pure white, with a small lemon-coloured centre. It is an intermediate form between the Anemone-flowered and Pompon sections. This variety will be found invaluable for cutting purposes, coming into bloom when white flowers are so scarce.

Price 3s. 6d. each; 30s. per dozen.

COLEUS "LORD OXFORD."

This handsome variety is especially recommended either for growing in pots or as a bedding plant. The leaves are from 3 to 4 inches long, by 2 to 3 inches broad, ovate acuminate in shape, margin deeply crenate; the ground colour of the leaf is bright magenta, irregularly blotched with brownish green of various shades, margin beautifully marbled with various shades of green and yellow.

Price 7s. 6d. each.

CROTON ALBICANS.

This is the most distinct Croton ever sent out, and will become a great favourite. It is dense-growing, with broad lanceolate leaves, from 12 to 15 inches long, by 2 to 3 inches broad; the ground colour is dark shining green, beautifully variegated with ivory-white. In some cases the white almost entirely predominates. The under-side is slightly tinted with crimson. This variety will make a splendid contrast with the golden-yellow and red kinds. It was awarded a First-class Certificate at the Royal Botanic Society's Meeting, March 26, 1879.

Price 31s. 6d. each.

CROTON "CROWN PRINCE."

This is an erect-growing bold-leaved variety, admirably adapted for Exhibition purposes. Leaves lanceolate acuminate, 12 to 15 inches long by about 2 inches in breadth; ground colour bright shining green, midrib and primary veins bright golden-yellow, extending in some cases to the margin, and forming a net-like termination. In some leaves the colours are beautifully marbled over the entire surface.

Price 31s. 6d. each.

CROTON DORMANIANUS.

A compact dwarf-growing kind, in habit resembling *C. volutum*, but the markings and the shape of the leaf are far superior to that species. The leaves are fiddle-shaped, of a bright shining green colour, richly mottled and spotted with orange-yellow; midrib and primary veins bright magenta. In the old leaves the green changes to a reddish-bronze colour, and the red markings become an intense crimson. The habit of this plant is very dwarf, and is well adapted for decorative purposes and to collections where the space is limited.

This Croton was sent out after the publication of my 1878 Catalogue, but has not been described hitherto.

Price 31s. 6d. each.

CROTON GOLDIEI.

A very distinct variety, with broad panduriform and trilobed leaves, 8 to 10 inches long, about 3 inches broad at the widest part; dark olive-green in colour; midrib, primary veins, and margin deep golden-yellow. The dark green markings are sometimes edged with bright light green. The colouring of this Croton is exceedingly rich, and must become a fine exhibition or decorative variety.

Price 31s. 6d. each.

CROTON HENRYANUS.

This handsome bold-leaved richly-coloured variety will become a great favourite as an exhibition plant or as an object of decoration for the stove. The leaves are oblong-ovate acuminate, 9 inches long by 3 inches broad, dark green, suffused and mottled with golden-yellow. In some cases the leaf is distinctly banded. It colours in small plants, and keeps its colour all the year round.

Price 42s. each.

CROTON MACFARLANEI.

A graceful and distinct variety, admirably adapted for table decoration, belonging to the narrow-leaved section; leaves pendulous, arching, linear-lanceolate, 9 to 12 inches long by 1 inch broad. In the young leaves the ground colour is rich yellow, irregularly blotched with dark green; midrib, primary veins, and margin light crimson. As the leaves become mature, the entire surface changes to dark fiery crimson.

Price 31s. 6d. each.

CROTON WILLIAMSII.

This is undoubtedly the handsomest and most richly coloured species of the Croton family. It is of free-branching habit, with bold foliage, and colours when in a very small state. It is well adapted either for the decoration of the stove or as an Exhibition plant. It might also be advantageously used as a dinner-table plant, as the rich fiery colour of its leaves has a most brilliant effect when seen under an artificial light. The leaves are obovate-oblong in outline, from 12 to 15 inches long by 3 to 4 inches broad, edges beautifully undulated. In the young state the leaves are irregularly banded with yellow, and the midrib and primary veins are of a bright magenta colour; in some instances very little green is seen, and the magenta is suffused over the entire surface of the leaf, which gives the plant a beautiful fiery appearance. As the leaves become mature this magenta colour changes to a rich violet-crimson, and the green becomes a dark bronze colour. The undersides of the leaves are rich crimson, which gives the plant a most distinct and rich appearance.

A fine well-coloured specimen, about 4 feet in height, was exhibited by me last summer at the Royal Horticultural Society's Gardens, at South Kensington, and was awarded a First-class Certificate. Every leaf of this plant was well coloured down to the pot.

This Croton was sent out after the publication of my 1878 Catalogue, but has not been described hitherto.

Strong well-coloured plants, price 42s. each.

Fine well-coloured Specimens may also be had. Price on application.

DRACÆNA CRISPATA.

The habit of this *Dracæna* is very distinct, the leaves being very thickly set upon the stem, which gives to the plant a dwarf stocky appearance, and are about 9 inches in length, by 3 inches in breadth; petioles short and thick. The ground colour is dark bronzy green, irregularly striped and blotched with dark crimson. The leaves present a peculiar crispate appearance, rendering this variety quite a new and distinct type. Introduced from the South Sea Islands.

Price 31s. 6d. each.

DRACÆNA SUPERBA.

This is without doubt the most slender and graceful growing variety ever offered, and is one of the finest hybrids we have seen. For table decoration and pot culture it is unsurpassed. The leaves are pendulous, arching, from 12 to 18 inches long, from 1 to 1½ inch broad, linear lanceolate, dark bronzy green, margined and striped with bright crimson. The young leaves are rosy-crimson. This plant has been awarded a First-class Certificate.

Price 42s. each.

ERANTHEMUM VARIABLE.

This species, as the name implies, assumes innumerable variations of character and colour. The leaves are lanceolate, with an irregular outline from 3 to 4 inches long by 1 inch broad variegated with different tints of bronzy green, intermixed with creamy white, crimson, and rosy pink. It is of slender growth, and may be advantageously used for baskets, rockwork, and plan cases, also for pot culture.

Price 10s. 6d. each.

B. S. WILLIAMS' NEW PLANTS, 1879—(Continued).

GLEICHENIA DICARPA LONGIPINNATA (Moore).

This fine form of *Gleichenia* has been recently imported by me from Australia. Mr. Moore observes that, "It has the general aspect of *G. dicarpa*, that is to say, the numerous segments are small, roundish, and pouch-shaped, as in that species. We have not seen it in a fertile state. We understand from Mr. Williams that it is remarkable for its free habit of growth, forming, as it does, specimen plants much more rapidly than the allied forms already in general cultivation. It will hence become valuable as an exhibition plant. The stem is of a rusty-brown colour, clothed with appressed fimbriated scales, as also is the under-side of the rachis. The fronds before us are three times dichotomously branched, the whole of the branches furnished throughout with pinnæ. The colour of the younger and fresher-looking fronds is a dark green, with a kind of metallic or bluish tint, and the under side is glaucous. In some fully grown examples before us the pinnæ are fully 5 inches long, so that the branch when spread out is over 10 inches broad. Altogether it is a very beautiful variety of a most charmingly graceful Fern, one which, in any form, has always been a favourite with cultivators." This plant has been awarded a First-class Certificate.

Price 42s. to 63s. each.

GRAPTOPHYLLUM NORTONII.

This is a beautiful and interesting form of the "Caricature Plant;" the grotesque markings are, however, quite distinct from the usual type. The leaves, which are broadly lanceolate, are from 4 to 6 inches long by $2\frac{1}{2}$ inches broad, pale green in colour; the markings are produced on either side of the midrib in irregular blotches and patches of creamy white and bright yellow, suffused with a rich rosy-salmon colour.

Price 21s. each.

LOBELIA SPECIOSA ALBA.

In habit of growth this variety resembles the old *speciosa*; the flowers are, however, pure white, and are produced in great abundance throughout the flowering season. For bedding purposes and pot culture this variety will be found invaluable.

Price 3s. 6d. each, 30s. per dozen.

PELARGONIUM "IMPROVEMENT."

For bedding purposes "*Vesuvius*" has long been an indispensable kind; we have, however, in "Improvement," a variety which altogether surpasses it. Being a seedling from the first-named variety it retains all its good qualities, while the trusses are much larger and brighter in colour, and are produced in greater profusion. As a bedding *Geranium* this must take the lead, and as a pot plant for winter decoration it cannot be too highly recommended.

Price 7s. 6d. each.

PANAX ROTUNDATUS.

A neat growing foliage plant suitable for table decoration; the leaves are closely set and much divided; leaflets somewhat round, serrated at the edge, the serratures being elongated with small spines. Native of the South Sea Islands.

Price 10s. 6d. each.

PEPEROMIA PROSTRATA.

This very pretty and slender-growing basket plant will prove to be a welcome addition to this popular class of plants: the leaves, which are round, are produced close together on long thread-like creeping rhizomes, are beautifully variegated with brown and light green; the mature leaves assume a somewhat globular shape, giving to the plant a distinct and unique character.

Price 21s. each.

PTYCHOSPERMA SEEMANNII.

An elegant dwarf-growing pinnate-leaved Palm, well adapted for table decoration and general decorative purposes. The pinnæ are erose-dentate, somewhat resembling those of a *Caryota* in appearance, and of a bright green colour. This Palm never attains large dimensions, the stem, when fully developed, is about an inch in diameter, and is used, on account of its strength and straightness, for spears by the natives of New Guinea, from whence it was received.

Price 21s. to 42s.

SALVIA BETHELII.

What can be more charming for the greenhouse and conservatory during the winter months than a good *Salvia* when well grown? This can easily be accomplished with varieties of good sturdy habit similar to the one now offered. It somewhat resembles the old "*splendens*," but is much more compact, and produces its flowers more profusely; colour bright rosy-pink, tipped with white. An invaluable variety for cutting purposes.

Price 7s. 6d. each.

SARRACENIA WILLIAMSII.

This species is intermediate between *S. flava* and *S. purpurea*, and was imported with a consignment of the first-named species. The pitchers are from 9 to 12 inches long, large, erect, and of a bright light green colour, streaked and veined with crimson, having a broad winged lid similar to that of *S. purpurea*. This is altogether a very desirable and distinct species. Awarded First-class Certificate by the Royal Horticultural Society.

This plant received a Gold Medal as a New Plant not in commerce at the Cologne Exhibition in 1875.

Price 63s. to 105s.

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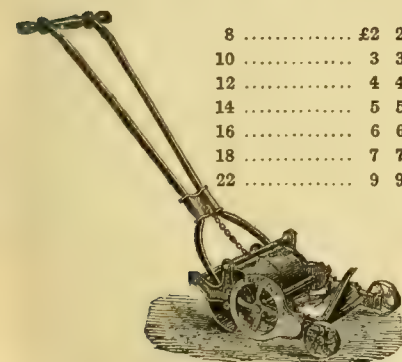
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FANCY POLYANTHUS, 4s. per dozen; Gold-laced do., 4s. per dozen; sweet-scented Hose-in-Hose Polyanthus, 4s. per dozen.

HOSE-IN-HOSE COWSLIPS, 3s. per dozen. All from my own selected strains.

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New Catalogue for 1879.

WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire, will have great pleasure in sending their Descriptive LIST on application. Their stock of Florist Flowers, Bedding and Soft-wooded Plants generally, is surpassed by very few, if any, either in extent or quality, all the newest and best varieties being constantly added to the various classes, and the greatest care is taken to keep the varieties true to name. Another great advantage to purchasers is that none of the plants offered are taken from a warm propagating house and sent off immediately, but are all carefully hardened, and most of them potted off singly, and thereby fitted for transit by rail or post without the slightest injury. A great proportion of the undermentioned are autumn-struck plants, and can be had in pots if required, and all in variety of sorts and colours. All good for exhibition or home decoration.

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Not less than 50 will be supplied at the rate per 100, or 6 at the rate per dozen.

From R. J. HAMILTON, Esq., Tonbridge, November 11, 1878.
 "Enclosed please find P.O. in payment of account for Rooted Cuttings, all of which have turned out splendidly, especially the Chrysanthemums, which are very fine."

From Mr. W. D. PENNY, Nairn, N.B., November 5, 1878.
 "I am very glad to say that the Rooted Cuttings I had of you in the spring turned out very well indeed, not a single failure in the lot."

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Handsome New Kinds.
 Saved from exceedingly beautiful varieties of the handsome-flowered tuberous-rooted section. The flowers have all been carefully fertilised, so that splendid new kinds may be expected from this seed. 1s. 6d. and 2s. 6d. per packet.

PRIMULA, CINERARIA, and CALCEOLARIA, from Prize strains, the best that can be purchased, each at 1s. 6d. and 2s. 6d. per packet.

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JOHN WATERER AND SONS, Bagshot, Surrey, beg to offer:—

5000 LAURELS, Portugal, 3 to 4 feet.
 5000 VIEWS, English, 3, 4, 5, and 6 feet.
 5000 FIRS, Spruce, 3, 4, 5, and 6 feet.
 5000 HOLLIES, Green, 2, 3, and 4 feet.
 Price on application.

SMITH'S BALSAM.—Seed of the above can be had from most Seedsmen throughout the world, in 1s. and 2s. packets mixed, and in 2s. 6d. collections of nine colours; also CINERARIA, PRIMULA and CALCEOLARIA, in 1s., 2s. 6d. and 5s. packets, or direct from
F. AND A. SMITH, The Nurseries, West Dulwich, S.E.
 N.B.—Blossoms from our superb collection of Cinerarias sent per post on receipt of four stamps.

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 Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.
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PELARGONIUMS, Show and Fancy choice varieties, good bushy plants, to bloom in May, in 48-pots, 50s. and 60s. per 100.
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ROBERT AND GEORGE NEAL, Wandsworth Common and Garrett Lane Nurseries, beg respectfully to call attention to their large and varied Stock of **HARDY ORNAMENTAL, FOREST, FRUIT TREES and SHRUBS**, which are grown at their Nurseries, especially those Trees, &c., which are most suitable for growing in or near large towns. An early inspection invited. All goods delivered free on rail in London, or at own residence, within five miles of the Nurseries.

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 Large and small-leaved, in eight kinds.
ROBERT PARKER, having a surplus stock of fine plants in pots of the above-named, will be pleased to dispose of them in quantities, at very low prices. Names, sizes, and prices per dozen, 100 or 1000, will be given on application.
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SCARLET RUNNERS and CANADIAN WONDER BEANS.
H. and F. SHARPE can offer the above, of English growth, and very fine samples, at moderate prices.
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VEGETABLE and FLOWER SEEDS
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Orchids in good plants can be supplied, at 3s. 6d., 5s. and 7s. 6d. each. An inspection is invited; or by sending name of those already possessed, a good selection of other kinds will be made.

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VERBENAS, VERBENAS, VERBENAS.

—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s.

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THE TWO FOLLOWING are very distinct new types; both have been introduced from the Islands of the South Pacific, and are totally different to anything before in cultivation:—

COLEUS DISTINCTION, deeply crenated leaves of a bronzy green colour shaded with violet-crimson, the centre of the leaf prettily feathered with creamy yellow, the midrib and veins rosy purple. 7s. 6d.

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Also *MENTHA PULEGIUM GIBALTARICUM*, 8s. per 100; and *NERTEA DEPRESSA* 20s. per 100.

Terms cash.

WM. BALCHIN, Hassock's Gate Nursery, Keymer, Sussex.

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autumn-struck plants from store pots, of *Vesuvius*, Dr. Lindley, Indian Yellow, Christine, Stella, Tom Thumb and other varieties, 10s. per 100; Madame Vaucher, Crystal Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of Calderdale, &c., 12s. per 100.

HELIOTROPE, Light and Dark, 6s. per 100.

CALCEOLARIA, Golden Gem, 6s. per 100, package free for cash.

CENTAUREA CANDIDISSIMA, autumn-struck, good plants in large 60's, 30s. per 100.

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To the Trade.

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GEORGE COOPER, SEED MERCHANT, Hertford, begs to offer the following, of the choicest stocks:—

BEEF, Red, Cooper's Excelsior

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Large Purple-top

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ONION, White Spanish

White Globe

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CELERY, Cooper's Improved

White

BROMPTON STOCK,

Giant Scarlet

CYCLAMEN PERSICUM,

from large flowers.

Special List of Cheap Orchids.

B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

| Established.—s. d. | Established.—s. d. |
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| <i>Aerides roseum</i> 10 6 | <i>Dendrobium bigibbum</i> 7 6 |
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| „ <i>virens</i> 10 6 | „ <i>chrysanthum</i> .. 3 6 |
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| <i>Cattleya Mendelii</i> (im- | <i>Lycaste Skinneri</i> .. 5 0 |
| ported) 10 5 | <i>Masdevallia Lindenii</i> .. 15 0 |
| „ <i>Aclandiae</i> 10 6 | „ <i>polysticta</i> 5 0 |
| „ <i>citrina</i> 3 6 | „ <i>Harryana</i> 7 6 |
| „ <i>Trianae</i> 10 6 | „ <i>igneæ</i> 7 6 |
| „ <i>Warszewiczii deli-</i> | <i>Odontoglossum Inseayi</i> |
| cata 15 0 | „ <i>leopardinum</i> .. 5 0 |
| „ <i>Warnerii</i> 15 0 | „ <i>Halli</i> 7 6 |
| „ <i>lobata</i> 10 6 | „ <i>hystrix</i> 10 6 |
| „ <i>crispa</i> 5 0 | „ <i>cirrhosum</i> 3 6 |
| <i>Calanthe Veitchii</i> .. 7 6 | „ <i>pulchellum majus</i> 3 6 |
| „ <i>vestita luteo oc-</i> | „ <i>Phalaenopsis</i> (im- |
| culata 2 6 | ported) 7 6 |
| „ <i>rubro oculata</i> 2 6 | „ <i>Rossii majus</i> (im- |
| <i>Cœlogyne cristata</i> .. 5 0 | ported) 7 6 |
| <i>Cymbidium eburneum</i> .. 15 0 | <i>Oncidium aurosum</i> .. 5 0 |
| „ <i>Mastersii</i> 15 0 | „ <i>Baueri</i> 5 0 |
| <i>Cypripedium barbatum</i> | „ <i>sphaacelatum</i> .. 5 0 |
| „ <i>superbum</i> 3 6 | „ <i>incuratum</i> 7 6 |
| „ <i>insigne</i> 2 6 | „ <i>verrucosum</i> 5 0 |
| „ <i>spectabile</i> 3 6 | „ <i>concolor</i> 10 5 |
| „ <i>Boxalli</i> 5 0 | „ <i>flexuosum</i> 3 6 |
| „ <i>Pearcei</i> 3 6 | „ <i>Papilio</i> 7 6 |
| „ <i>Harrisianum</i> .. 7 6 | „ <i>Krameri</i> 5 0 |
| „ <i>niveum</i> 5 0 | <i>Pleione lagenaria</i> .. 3 6 |
| <i>Dendrobium formosum</i> | „ <i>Wallichiana</i> .. 3 6 |
| „ <i>giganteum</i> 5 0 | <i>Saccolabium ampul-</i> |
| „ <i>chrysotis</i> 10 6 | laccum 5 0 |
| „ <i>crataecum</i> 3 6 | „ <i>Blumei majus</i> .. 7 6 |
| „ <i>Pierardii</i> 3 6 | „ <i>curvifolium</i> .. 7 6 |
| „ <i>pulchellum purpu-</i> | <i>Vanda tricolor insignis</i> 10 6 |
| reum 3 6 | „ <i>tricolor</i> 10 6 |
| „ <i>Findleyanum</i> .. 10 6 | „ <i>Roxburghii</i> .. 15 0 |

Specimens of the above can be supplied, prices of which will be forwarded on application.

B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, London, N.

RHODODENDRONS—Ponticums, hybrids

No. 1 and No. 2, Catawbiense and its hybrids. The best named kinds, and thousands of dwarf kinds.

Forty Acres are covered with Rhododendrons, and the plants are suitable for any Garden, and cheap enough to plant for Covert, and are mostly grown on land 1000 feet above the sea.

For 5000 or 10,000 of one kind special offers will be made.

CATALOGUE free per post.

JAMES SMITH, Darley Dale Nurseries, near Matlock.

Cheap Plants by 100 or 1000.

WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter.

VERBENAS, purple, white, scarlet rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 15s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.

LOBELIA Emperor William and Bluestone, two of the very best, 2s. 6d. per 100, 20s. per 1000.

CALCEOLARIA Golden Gem, best yellow, 5s. per 100, 50s. per 1000; Kayii, yellow, 4s. per 100.

PELARGONIUMS, *Vesuvius* and *lean Sisley*, best scarlets, 7s. per 100, 60s. per 1000; *Madame Vaucher* and *Virgo Marie*, fine white, 10s. per 100; *Master Christine*, best bedding pink, 10s. per 100; *Striped Vesuvius* (New Life), 6s. per dozen, 40s. per 100; *White Vesuvius*, 6s. per dozen, 45s. per 100; *Dr. Denny*, nearest to blue, the best Zonal of 1878, 9s. per dozen.

„ *Silver variegated*, *May Queen* and *Flower of Spring*, 10s. per 100; *Prince Silverwings* and *Waltham Bride*, 15s. per 100.

„ *Gold-leaf*, *Crystal Palace Gem*, 10s. per 100; *Happy Thought*, 15s. per 100.

„ *Tricolor*, *Mrs. Pollock*, 15s. per 100; other good sorts, as *Sir R. Napier*, 18s. per 100.

„ *Double*, *Smith's Wonderful*, good plants, 15s. per 100, or from stores, 12s. per 100; *Madame Thibaut*, finest double pink, 12s. per 100.

AGERATUM, *Imperial Dwarf*, 5s. per 100.

COLEUS and *IREFINE LINDENI*, crimson, 6s. per 100, 50s. per 1000.

HELIOTROPIUM, light and dark, 6s. per 100, 50s. per 1000.

DAHLIAS, all the best sorts, 15s. per 100.

CENTAUREA CANDIDISSIMA, 18s. per 100.

Note: 25 of any sort can be had at 100 rate.

Packing included. Terms cash. Cemetery Nursery, Gravesend.

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We are commissioned by a Large Grower to Sell the undermentioned valuable varieties of choice selected SEED POTATOS, grown expressly for seed and warranted sound:—

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| 40 tons AMERICAN EARLY ROSE | Per ton, £6 10 0 |
| 40 „ GLOUCESTERSHIRE KIDNEY | 6 0 0 |
| 30 „ SUTTON'S HUNDREDFOLD FLUKE | 6 0 0 |
| 30 „ AMERICAN LATE ROSE | 7 0 0 |
| 20 „ FLUKE | 6 10 0 |
| 40 „ SCOTCH CHAMPION | 5 0 0 |

Terms cash with order. Cheques crossed London and County Bank. Post-order Orders payable to D. BRINKWORTH AND SONS, Reading, Berks.

NEW CHRYSANTHEMUMS.—Strong

young plants of the following first-class new Japanese Chrysanthemums now ready:—

M. Crousse, the only variety that received a First-class Certificate last year; M. Ardene, and M. Lemoine, 2s. 6d. each. Bouquet fait, Cœur fidèle, Fleur parfait, Gloire de St. Martin, Hiver fleuri, La Frisure, l'Amie du Cœur, Madame Bortier, Rendantier, Mdle. Moulise, M. Barat, M. Morlet, M. Delaux, Miel d'Automne, Orphée, Père Delaux, Reine des Beautés, Tendresse, 1s. 6d. each.

The 20 varieties for 25s.

Also a large stock of all the leading older varieties.

T. JACKSON AND SON, The Nurseries, Kingston-on-Thames.

**TREE FERNS and PALMS.**

THE LARGEST AND BEST STOCK IN EUROPE.

ALSO MANY OTHER

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

3000 ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS will SELL by AUCTION, WITHOUT THE

LEAST RESERVE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 7, at half-past 12 o'clock precisely, a magnificent Consignment of

ODONTOGLOSSUM ALEXANDRÆ, in Lots to suit the Trade and Private Buyers.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

ODONTOGLOSSUMS AND EAST INDIAN ORCHIDS.

A Splendid Sale, all offered without any reserve.

MR. J. C. STEVENS has received instructions from the NEW PLANT

and BULB COMPANY to SELL by AUCTION, WITHOUT RESERVE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 7, at half-past 12 o'clock precisely, ODONTOGLOSSUM PESCATOREI, O. TRIUMPHANS, ONCIDIUMS, ADA AURANTIACA, &c.; and on TUESDAY, April 8, at half-past 12 o'clock precisely, DENDROBIUM FREEMANI, D. LITUIFLORUM, D. HETEROCARPUM, D. DENSIFLORUM, D. NOBILE, &c.; VANDA CÆRULA, V. GOWERI, V. CATHCARTI; CÆLOGYNE BARBATA, CYMBIDIUM EBURNEUM, PLEIONES of sorts, &c. The plants offered are in splendid condition, and of most kinds there are some extra fine specimens.

On view mornings of Sales, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.



WEBBS'

POPULAR COLLECTIONS OF

CHOICE FLOWER SEEDS

| No. 1. | No. 2. | No. 3. | No. 4. | No. 5. | No. 6. |
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| 5s. | 10s. 6d. | 15s. | 21s. | 31s. 6d. | 42s. |

Other Collections at 2s. 6d., 7s. 6d. and 63s. each.

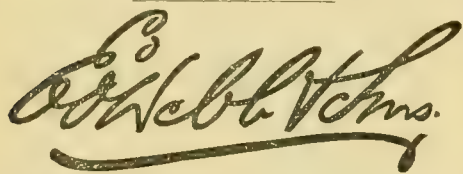
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| WEBBS' New Petunia .. | 1 | 6 | and | 2 6 |
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| WEBBS' Selected Cyclamen | 1 | 6 | .. | 2 6 |
| WEBBS' Miniature Aster .. | 1 | 0 | .. | 2 0 |
| WEBBS' Choice Auricula .. | 1 | 0 | .. | 2 6 |
| WEBBS' Show Pansy .. | 1 | 6 | .. | 2 6 |
| WEBBS' Choice Verbena .. | 1 | 0 | .. | 2 0 |

 All Flower Seeds Free by Post or Rail.

Webbs' Prize Medal Lawn Grasses,

1s. per lb., 20s. per bushel.

Seeds of 20s. value carriage free. 5 per cent. discount for cash.



THE QUEEN'S SEEDSMEN,
WORDSLEY, STOURBRIDGE.

Surplus Nursery Stock.
SPECIAL OFFER.—CASH PRICES.

WOOD AND INGRAM beg to offer the following, at clearance prices:—

APRICOTS, dwarf cut-back and maiden, 9s. per dozen, 6s. per 100; dwarf-trained, 24s. to 30s. per dozen.

CHERRIES, standards, Mayduke and others, 75s. per 100.

PEACHES, dwarf cut-back and maiden, 9s. per dozen, 10s. per 100.

ACACIA INERMIS, standards, 18s. per dozen.

AUCUBA JAPONICA, 1 to 1½ and 1½ to 2 feet, 21s. to 40s. per 100.

ARBOR-VITÆ ELEGANTISSIMA, 1 to 2 feet, 18s. p. doz.

ELLWANGERIANA, 2 to 3 feet, 12s. per dozen.

BEECH, 4 to 5 feet, 10s.; 5 to 6 feet, 12s.; 6 to 7 feet, 16s. per 100.

CUPRESSUS LAWSONIANA, 3 to 4 feet, 40s. per 100.

HAZEL, 2 to 3 feet, 18s.; 3 to 4 feet, 25s. per 1000.

LAURELS, 2 to 3 feet, 12s. per 100.

PORTUGAL, 1 to 4 feet, 10s.; 4 to 6 feet, 20s. per dozen.

TIMES, 6 to 8 feet, 25s.; 8 to 10 feet, 50s. per 100.

TOPLARS, Black Italian, 4 to 5 feet, 20s. per 1000; 8 to 9 feet, 20s. per 100.

.. LOMBARDY, 4 to 5 feet, 35s. per 1000; 6 to 8 feet, 45s. per dozen.

PICEA NORDMANNIANA, 3½ to 5 feet, 35s.; 5 to 6 feet, 45s. each.

ROSES, best vars., W. & I's selection, standards, 60s.; dwarfs, on Manetti, 21s. per 100.

WELLINGTONIA GIGANTEA (transplanted spring, 1878), 1½ to 2 feet, 21s.; 2 to 2½ feet, 23s. per dozen.

WILLOW, old Weeping, standards, 8s. per dozen, 50s. per 100.

YEW, common, 3 to 4 feet, 18s. per dozen, 120s. per 100; 4 to 5 feet, 24s. per dozen.

.. IRISH, 4 to 5 feet, 15s. per dozen, 110s. per 100.

Nurseries, Huntingdon.

CALCEOLARIA FUCHSIÆFOLIA.

RODGER McCLELLAND & Co.

Will be prepared to send out, on and after April 10, this superb Novelty,

Which they with confidence recommend as the most sterling plant of recent introduction.

In habit it is erect and branching, growing from 1½ to 2 feet or more high, and, as its name implies, the leaves resemble those of a Fuchsia, in fact, so much is this the case that few persons unacquainted with it will believe it to be anything else. The inflorescence is produced in terminal spikes, is clear yellow in colour, and produced from October and November on through the winter months.

Apart from its totally new and distinct character it will supply a felt want—that of a beautiful plant with yellow flowers, coming naturally into bloom through the dreary months of winter. It was unanimously awarded a First-class Certificate by the Royal Dublin Horticultural Society on March 15, and was beautifully figured in the *Garden* of March 29, where it is also technically described.

On the principle that good wine needs no bush, we consider it quite unnecessary to repeat any of the flattering things that have been said about it.

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SUTTON'S PRIZE LAWN GRASS SEEDS,

Which produced three beautiful Lawns at the Paris Exhibition, 1878.

(See above Illustration, from a Photograph.)

These Lawns were awarded a Prize Medal, and thus referred to by "L'Echo Agricole," November, 1878:—

"The Lawns shown by Messrs. Sutton's Agent are at least equal in beauty, vigour, and luxuriance to those shown by any other exhibitor. They are of extraordinary beauty and evenness, and form throughout one charming velvety carpet."

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From Mr. E. HILLMAN, Gr., Fenny Hall, March 11, 1879.
"I have been very much pleased with your new Primula coccinea, so much so that I gave a note of it in the Garden some weeks since. I consider it well worthy the name of 'coccinea.'"

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From H. MAYGOOD, Esq., Coombe House, June 8, 1878.

"Will you send me a packet of your superb strain of Calceolaria? I have a splendid collection of flowers from the packet I had last year, none equal to them in the neighbourhood."

CINERARIA, Weatherill's extra choice strain, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.

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"Please send me seeds named on the other side. My Cinerarias from your seed this year are very fine."

BEGONIA, New Bedding, finest mixed, tuberos rooted, 2s. 6d. per packet.

From Mr. R. CAMPBELL, Ulva, N.Y., January 16, 1879.

"Please send the enclosed seed order as soon as possible. The Begonias I have raised from the seed purchased from you surpass anything I have ever seen or dreamt of."

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WILLIAMS' LAWN GRASS,

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SATURDAY, APRIL 5, 1879.

ORCHIDS AT HOME.

IT is now well known that Orchids generally are very widely distributed, they being found in nearly all parts of the world, but in the tropics they occur in such immense numbers and in such diverse localities and situations as to become especially attractive to the general traveller, be he botanist or not. But although the order and one or two genera—notably Cypripedium—are world-wide almost in their distribution, yet the individual species are, as a rule, extremely local, so much so that the difference of even a few miles is often marked by a corresponding variation in the plants peculiar to the district. In Europe, North America, and the more temperate portions of Africa and Asia, Orchids exist mainly in the form of tuberous or thick-rooted herbaceous plants, of which our native species of *Orchis*, so common in moist woods and pastures everywhere, and the variable *Bee Ophrys* of the Surrey chalk downs, are familiar examples. In the warmer meadows and on the sunny mountain sides of southern Europe more showy species unknown to our own land appear, and our species of *Orchis* and *Ophrys* have either become altered in character, or are represented by other, and, in many cases, more beautiful forms.

In North America terrestrial Orchids abound, perhaps the most beautiful being the "mocassin flower," or Cypripedium, but the focus of the true terrestrial division, both as to beauty and numbers, would appear to be at the Cape of Good Hope—how curiously the name stands as reflected in the warlight of the past few months!—where we have *Disas* varying in colour from nearly white through all the shades of pink, rose, orange-scarlet, and crimson, to a deep blue colour; *Habenarias* of the most singular structure, *Eulophias*, and others less well known but not the less beautiful. Terrestrial Orchids, indeed, although confined for the most part to temperate climes, or to the cooler or more elevated portions of sub-tropical and tropical countries are found, albeit more sparingly, in the hottest and most humid tropical lowlands, where, however, they frequently lose their herbaceous character and become evergreen perennials. Thus in the East we find *Liparis*, *Spathoglottis*, *Calanthe*, *Arundina*, and several other genera, and in the West *Bletias* and Cypripediums amongst many more. The true epiphytes are mainly confined to the tropics of Asia and America, not forgetting the *Ansellias* and *Angræcums* of Madagascar, Sierra Leone, and the mainland of Africa. In both hemispheres we find genera, some species of which grow by preference in the earth, indeed purely terrestrial in their habits, while other nearly related species are epiphytes found only on trees. *Cœlogynes* in the East are both epiphytal and terrestrial, and in Peru the long-tailed Cypripedium caudatum grows on earth and moss-covered rocks and trees alike, and some *Odontoglots* are credited with the same peculiarity. In the East we find some species of *Dendrobium* of semi-terrestrial habits, and others purely epiphytal in every way, just as are the tree-loving species of *Aerides*, *Vandas*, some *Cymbidiums*, and *Phalænopsis*. The last-named are rarely found on rocks, their roots exposed

to light and air, but never I believe with their roots actually buried in the soil.

The broad distinction of terrestrial and epiphytal is becoming rather too general a classification however, and we must at least propose an intermediate section for plants such as are the *Anætochili* and some species of *Cystorchis*, *Microstylis*, *Cypripedium*, and, perhaps, also *Goodyera*, which never, so far as we have seen or know, are to be found by any chance at all elevated or dendrophilous in their habits—in a word, they never aspire, like many of their friends, to that position known in the vulgar tongue as “up a tree,” nor, on the other hand, do they root freely into the earth. An odd root or two may have penetrated for an inch or so perhaps to secure a sort of anchorage; but most of the roots are found exposed to air, and in a more or less degree to the light also, as they ramble among the loose dead leaves, moss, and humus or forest *débris* which blankets the ground. *Anætochili* may be picked up quite easily, as they are not generally attached to the earth in any way, and *Liparis bicallosa*, and one or two species of *Microstylis*, attach themselves only to the layer of dead leaves in the forests, and not to the soil beneath. Again, of the many Orchids which are found on trees and so included in the general epiphytal class, another division may fairly be made, and this in the interest of cultivators must be clearly set forth as worthy of their especial notice. Thus the true epiphytes, such as *Aerides*, *Angræcum*, *Vanda*, *Phalænopsis*, and others, not only grow on the smooth branches of trees alive or dead, but actually clasp them with their flattened thong-like roots, which adhere so tightly that the plant cannot be dislodged without a good deal of trouble, and nearly total destruction of the roots. Again, the roots of this class are generally very large—scarcely root-like in fact—but thick and green at the apex—a sort of compromise between a root and a leaf! They are root-like in form and in the position they occupy, and also in function—so far as securing the plant in its place and the absorption of nourishment is concerned, but apart from these duties they evince at least another distinct trait which is removed somewhat from those ordinarily essential to root-life; this is exposure to the light, and its result in this case is the development of leaf-green or chlorophyll. In connection with these observations we must draw especial attention to the fact that there are some Orchids which, so far as is known, never produce leaves proper at any period of their existence: such as some of the species of *Angræcum*, of which *Angræcum funale* may be mentioned as the type, or *Aerides tæniale*. In the case of these peculiar leafless species the functions usually performed by the leaves are entirely carried out by the chlorophyll-producing band-like “roots.” This class of Orchids is a very distinct one, and must not be confounded with merely deciduous Orchids such as some *Dendrobiums* and *Phalænopsis Lowii*, which, growing on sun-scorched limestone rocks in Moulmein, loses its leaves during the dry season. Here in our shaded hothouses it often retains them all the year, or even longer, as do its congeners.

The fact that roots are but modified ramifications of the stem is generally recognised, and the production of true roots from *Gloxinia*, *Begonia*, and other leaves under certain artificial conditions is well known to cultivators, but the fact that some Orchids have roots which naturally prefer exposure to the light, and actually to a certain extent perform the functions of true leaves, has perhaps not met with the attention that it deserves from Orchid cultivators generally.

There is, however, another class of Orchids which, although generally tree-loving, being thereon for the most part found, are not true

epiphytes, that is to say, they affect only rugged and decaying trunks, growing in the hollows and crevices into which leaf and bark *débris* has been washed by rains, or their thin roots obtain a footing on the moss-covered branches. They are only epiphytal in the sense that some mosses and Ferns are epiphytal, and are quite easily removed from their positions, since their roots never adhere to smooth living branches, but bury themselves among the loose moss and *débris*. Their roots are white, thin, and much branched, and evidently they love shade, if not the actual darkness, in common with roots in general, rather than the light so welcome to the green-tipped thong or band-like “roots” of the purely epiphytal kinds already noted.

Now some *Aerides*, one or two *Vandas*, *Cleistoma*, and other true epiphytes are not unfrequently found growing on the naked branches of dead trees, in open clearings, or even on rocks, which are exposed to the glare and heat of a tropical sun, and often enduring this baking process for from two to five months without a drop of rain. It is only the truly epiphytal species which can hold their own under these circumstances. The sub-epiphytes, as a class, such as Orchids, Ferns, Aroids, &c., are found together, but in the shade of the tall forests, and generally by streams, or in otherwise moist localities. If by chance the forest near them is cleared they soon die out, but some true epiphytes, on the other hand, seem benefited by the admission of light and air, as was markedly the case with *Vanda Cathcartii* when the forests of Darjeeling were cleared somewhat for *Cinchona* cultivation. Hence it seems that Orchids may for cultural purposes be divided into at least four distinct classes, as follows:—

| Roots Air and Light-Loving, or Epiphytal. | Roots Air and Shade-Loving, or Sub-Epiphytal. | Roots Air and Shade-Loving, and Semi-Terrestrial. | Roots Dark-Loving, or Earth-Loving, or Terrestrial. |
|---|---|---|---|
| <i>Phalænopsis</i> | <i>Dendrobium</i> (in part) | <i>Anætochilus</i> | <i>Orchis</i> |
| <i>Angræcum</i> | <i>Bolbophyllum</i> | <i>Microstylis</i> | <i>Ophrys</i> |
| <i>Aerides</i> | <i>Eria</i> | <i>Cystorchis</i> | <i>Habenaria</i> |
| &c. | &c. | &c. | &c. |

Only a few genera in each section are given as examples, and it should be borne in mind that this arrangement is merely an artificial one, since all the sections naturally slide into each other. For example, the epiphytal *Phalænopsis* are found on rocks as well as on trees, and again in suitable situations *Dendrobies* and other of the sub-epiphytal group are found growing upon the ground, but whether on trees or on the surface of the ground their roots are freely exposed to air, as they ramify only in loose moss and leaf *débris*.

It is not all true epiphytes, however, that naturally seek and enjoy, or that will exist even, in the full sunshine. Some species of *Phalænopsis* appear to enjoy moist, shady localities best, and are never naturally found fully exposed to its influence, while to other species the matter seems immaterial; they evince no decided choice whatever, of which I must say more anon. It is the same with species belonging to the sub-epiphytal and semi-terrestrial sections. In the case of terrestrial species the same rule holds good: we find some Orchises and the *Ophrys* wander afield; they enjoy the full sunshine of the fresh breezy meadows, the chalk downs, or the pure zephyr which sweeps the mountain-side, while *Habenarias*, *Listeras*, and other of the Orchises, show a marked preference for the moist shady woods—that is, if we may judge by their more vigorous vegetative and floriferous growth, which, as is well known, is often a very different thing to vigorous constitutional or reproductive vigour. Nature, as an Orchid grower, strives to propagate her plants. We want healthy plants and large quantities of flowers, but she cares little for flowers, except so far as they are means to the great end of reproduction by seed. Orchids are like many other cultivated plants—very ready to adapt themselves to circumstances, and it is in a great measure their natural adaptability which has enabled us to grow them successfully for a time

from our point of view under what are in many cases adverse and artificial circumstances.

After what we have here said of the root-growth of Orchids, it will be seen how essential it is that the cultivator should know the conditions under which the plants he cultivates are naturally found to grow best in their native habitats, or, failing this, he will do well to ask himself to which of the aforementioned divisions his Orchids belong ere he supplies them with material upon or into which they are to make their root-growth. *F. W. Burbidge.*

New Garden Plants.

HYMENOCALLIS MACROSTEPHANA, Baker, n. sp.*

This is a very distinct plant, of which I first received a scrap from the *Gardeners' Chronicle*, and we have since had a complete plant alive from Sir Philip Egerton, and now from the Duke of Northumberland's collection at Sion House, in the charge of Mr. Woodbridge. It has a corona much longer than in any described species of *Hymenocallis*, and much shorter free filaments. It comes about midway between *Hymenocallis caribæa* and *Ismene calathina*, and I suspect may prove to be a garden hybrid. All that I can learn about its history is that it reached England many years ago from a Continental nursery. It flowers in February and March, and as the flowers are sweet-scented it forms a valuable accession to our stock of cultivated stove *Pancratieæ*.

Bulb ovoid, a couple of inches in diameter, with brown tunics and a produced neck. Leaves eight or nine, basal, not distichous, not petioled, contemporary with the flowers, oblanceolate, loosely arcuate, bright green, $2\frac{1}{2}$ to 3 feet long, 2 to 3 inches broad three-quarters of the way up, narrowed to 1 inch above the dilated base, the tip deltoid. Scape shorter than the leaves. Umbel six to eight flowered; pedicels very short. Ovary $\frac{1}{2}$ inch long, green, oblong-trigonus. Perianth with a green tube, white at the summit, about 3 inches long, and six falcate segments a little longer than the tube, $\frac{1}{2}$ inch broad. Corona regularly funnel-shaped, 2 inches long and the same diameter at the throat, which does not spread at all, as in *H. rotata*, and measures 1 inch between the base of each filament, where it has three obscure teeth. Free part of the filament 1 inch long, arcuate incurved; anther yellow, linear, $\frac{1}{2}$ inch long. Declinate green style protruded $1\frac{1}{2}$ to $1\frac{3}{4}$ inch beyond the corona; stigma capitate. *J. G. Baker.*

BIFRENARIA HARRISONIÆ BUCHANIANA.

This is an undescribed beauty, though it has been well known to me for a long time. It has white flowers, the base of the sepals light green (nearly emerald-green); the tepals washed with nice violet-purple inside and outside; the lip as in *B. Harrisoniæ*, but the yellow much deeper in lieu of that light colour, and the hairs at base of front side of column red. It is very like *B. tyrianthina*, so much distinct by a longer mentum and naked callus of lip. It may be compared to *Maxillaria pubigera* of late Klotzsch of Berlin (Otto and Dietrich, *Allgemeine Gartenzeitung*, 1855, 106), but that one (*B. Harrisoniæ pubigera*) has much smaller reddish-painted flowers. It is inscribed to H. L. Buchan, Esq., of Wilton House, Southampton, who most kindly sent it. *H. G. Rehb. f.*

THE SANDWICH ISLANDS CIBOTIUMS.

CIBOTIUM MENZIESII, Hooker, *Sp. Fil.* i., 84, fig. 29 c; *DICKSONIA MENZIESII*, Hook. and Baker, *Syn. Fil.* 49. (Fig. 59.)

Arborescent; fronds bipinnate, ovate, coriaceous, glabrous; pinnæ ovate; pinnules stalked below, sessile above, apical ones confluent, linear-oblong, shortly acuminate, pinnatifid about half-way to the rachis into rounded blunt lobes, dull green, paler beneath, and there marked by small scale-like warty bodies as if punctate; veins prominent on both surfaces, running out into the cartilaginous nearly entire margin, the sterile ones forked, the fertile simple; sori several on each margin of the lobes, the rows placed near the sinus; involucre horny, the inner valve oblong, narrower than the outer.

A fine bold greenhouse evergreen Fern of arborescent habit. The trunk is stoutish, from 3 to 4 feet high, the crown together with the base of the stipes densely enveloped in dark chestnut-coloured black-

* *Hymenocallis macrostephana*, Baker, n. sp. — Bulbo ovoideo longicollis; foliis 8–9 multifariis oblanceolatis laxè arcuatis viridibus $2\frac{1}{2}$ –3-pedibus supra medium 2–3 poll. latis; scapo foliis breviori; umbellis 6–8 floris; pedicellis brevissimis; perianthii tubo tripollicari, segmentis tubo subequalibus; coronâ infundibulari bipollicari margine haud patulo inter filamentos obscure tridentato; filamentorum parte libero arcuato pollicari, antheris parvis.

tipped hair-like scales. The stipes is stout, clothed, especially at the base, with black spreading hair-scales, which become deciduous as well as smaller and shorter upwards; the rachis is smooth. The fronds are ovate in outline, 5-6 feet long, spreading, bipinnately divided, remarkably leathery in texture, smooth both above and below, the upper surface of a deep green, the underside of a much paler green hue, and studded over with small blunt excrescences, or warts, which give it a distinctly punctate appearance. The pinnæ was 12 to 18 inches long, ovate in outline, distinctly pinnate, the pinnules connected by a cartilaginous line running down the side of the rachis, the lower ones

are distinctly raised both above and below, so that the surfaces appear striate.

The plant is a native of the Sandwich Islands—Oahu and Honolulu, and has not till recently been known amongst our garden Ferns. Within the last year or two it has, however, appeared in the collections of Mr. W. Bull and Mr. B. S. Williams, in both cases we believe imported directly from the Sandwich Islands, and from both of whom we have received specimens. According to our observation of the growing plant it differs from *C. pruinatum* in the less acuminate pinnæ and pinnules, and in the somewhat larger size and shorter more entire lobes of the latter, and also in the thicker texture and much

slightly cartilaginous with shallow distant teeth having a thickened point; sori 3-6 on each margin (Kuhn); inner valve of the involucre oblong-linguiform, horny, narrower than the outer.

Like its near ally, *C. Menziesii*, this plant is a native of the Sandwich Isles, and like it also, it is of arborescent habit. The trunk is stoutish and from 3 feet to 4 feet high, the crown furnished with a dense shaggy covering of dark chestnut hair-like scales, which are dark-coloured towards the tip, so that, massed together about the bases of the stipites, they appear of a blackish-purple hue. The fronds are 6-8 feet long, and form a noble spreading head; they are bipinnately divided, firm or subcoriaceous in texture, smooth on both surfaces; the upper surface is deep dull green, the lower surface pruinose or glaucous, and dotted over with small stellate bodies which give it a punctulate appearance. The pinnules are linear-oblong, much acuminate, 5-7 inches long, divided for about two-thirds of their width on each side the costa into oblong slightly falcate lobes which are bluntish, though not so distinctly rounded as in *C. Menziesii*; they are also unequally and bluntly though manifestly toothed, the short distinct teeth having a thickened point. The apical lobes, are confluent into a long acuminate point, which is serrulate. The sori are produced on the basal part of the margins of the lobes, and resemble those of *C. Menziesii*, the outer valve of the involucre being broad and rounded, and the inner valve little more than half its width.

In their general features this plant and *C. Menziesii* bear a considerable resemblance to each other, but they differ in several respects. The fronds of *C. pruinatum* are much less coriaceous than those of *C. Menziesii*; the pinnules, and especially the pinnæ, are much more acuminate or drawn out; the under surface is distinctly glaucous; and the venation, which in *C. Menziesii* is very distinctly raised on both surfaces, is in *C. pruinatum* very slightly raised on the lower surface, and, excepting the costa, scarcely at all on the upper surface. Both are evergreen arborescent Ferns, exceedingly desirable as ornamental plants, the more acuminate pinnules and glaucous under-surface giving perhaps the preference to *C. pruinatum* from a decorative point of view. They are both cultivated by Mr. W. Bull and Mr. B. S. Williams. *T. Moore.*

HELLEBORES.

LEAVING *Helleborus niger*, the Christmas Rose, in its several forms out of the question, the only Hellebores which are of much importance for the ornamentation of flower gardens are the forms—species or varieties it matters not—which are associated together as the respective representatives of *H. orientalis*, *H. viridis*, and *H. fetidus*. The former is the more ornamental of the two, and presents also the greater variety, but in both there are plants well worth cultivating for qualities altogether beyond the attractions they present from a botanical point of view, though on this ground also they are full of interest.

Some few years since Mr. Baker published a monograph of the genus *Helleborus* from this, the botanical point of view. See *Gardeners' Chronicle*, n.s. vii., 432, 464 (1877). The greater part of the known Hellebores were in this paper presented as varieties of either *H. orientalis* or *H. viridis*. We have herein followed in the main Mr. Baker's arrangement, with this exception, that what he has regarded as mere varieties of two species we prefer to treat as distinct plants belonging respectively to two types or groups, since for garden purposes they are quite sufficiently different to offer materials for selection, and therefore, as we think, are more conveniently distinguished by binomial than trinomial titles. Those who prefer to consider them as varieties merely of the two typical species can by this arrangement readily do so, whilst those to whom the words species and varieties have become unmeaning terms, in consequence of the uncertainty in their application, will be able to understand that what we have set down as different, are at least not synonymous plants.

The present paper originated in a boxful of Hellebore flowers sent us by the Rev. H. N. Ellacombe, of Bitton, whose collection of herbaceous plants has an enviable notoriety. These being supplemented by specimens from Mr. Barr, led to a visit to Mr. Barr's bulb grounds at Tooting, where probably is to be found the most complete collection of Hellebores which at present

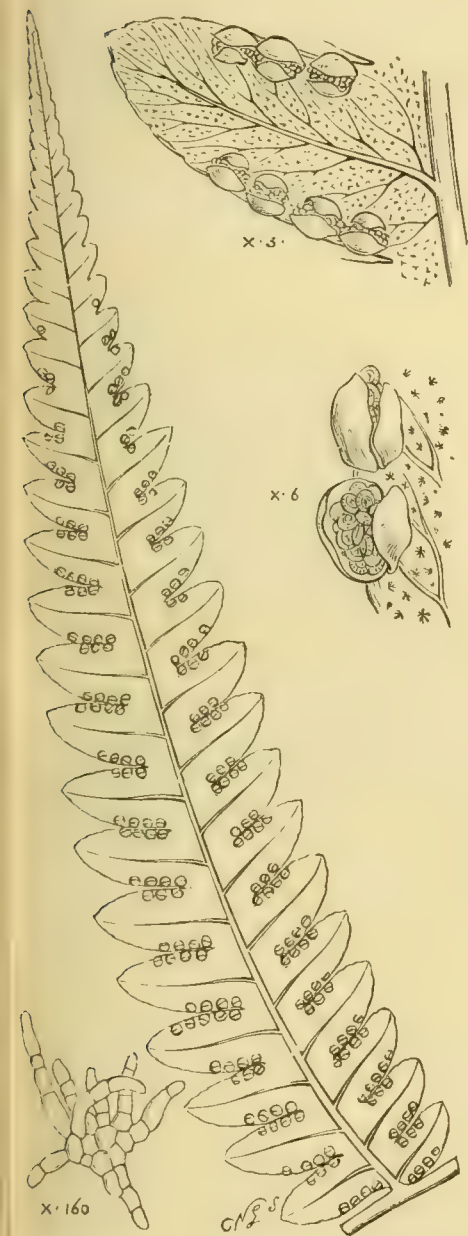


FIG. 58.—*CIBOTIUM PRUINATUM*.

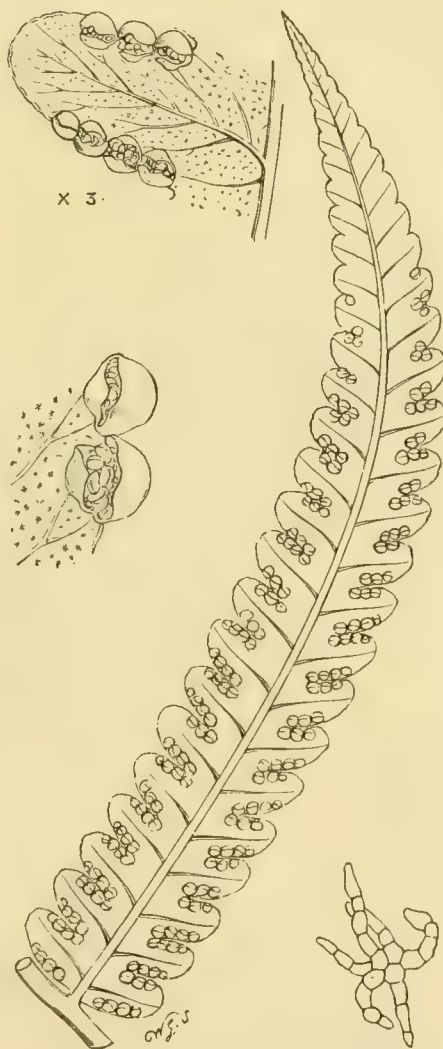


FIG. 59.—*CIBOTIUM MENZIESII*.

stalked, the upper sessile, and the uppermost confluent. The pinnules are linear-oblong, acuminate, 4-6 inches long, pinnatifid, i.e., divided halfway to the rachis into oblong blunt segments which have a thickened distantly and obscurely-toothed margin, the teeth cartilaginous. The sori in this genus consists of a marginal cup containing the spore cases, this cup being unequally valved, and very much like a small box with a lid, the outer valve forming the box and the inner the lid, which in this case is the smaller of the two and oblong. These sori commence at the sinus, from two to four being developed on each margin; owing to the position of these sori the central part of both pinnule and lobe show a wide interval between the sori on each side the rachis and costa respectively. The veins, which are mostly forked,

greater prominence of the veins, especially on the upper surface.

CIBOTIUM PRUINATUM, Mettenius: Kuhn, *Linnaea*, xxxvi., 150; *C. NIGRESCENS*, Hort. Williams; *DICKSONIA MENZIESII*, var. *PRUINATA*, Baker, *Syn. Fil.* 460. (Fig. 58.)

Arborescent; fronds bipinnate, ovate, subcoriaceous, glabrous, deep green above, glaucous beneath; pinnæ ovate; pinnules stalked below, sessile above, apical ones confluent, linear-oblong, much acuminate, pinnatifid below the middle, the lobes oblong, slightly falcate, bluntish, the glaucous under-surface studded over with small stellate wart-like excrescences, and there apparently punctulate; veins slightly prominent beneath, scarcely so above, except the costa, which is strongly marked, the sterile forked, the fertile simple; margin

exists, since it contains all that can be purchased both at home and abroad, or obtained from the most likely sources by other means. It is certainly a wonderfully fine collection, and with his characteristic energy Mr. Barr has imposed on himself the task of working these crude materials into order; crude they were indeed as regards nomenclature, for the utmost diversity in the application of names was found to exist. These Mr. Barr has reduced, with much success, as it appears to us, to the standard laid down by Mr. Baker, and we have endeavoured to profit by his experience. Our notes are, as will be seen, merely descriptive of the flowers as they appear at this season of the year. Later on it may be possible to look up the leaf characters of the same collection, and this may afford an opportunity for correcting any errors of observation which may occur in the notes which follow.

We take the two groups in the order of their importance as garden plants, and from this point of view have no difficulty in awarding the pride of place to the Hellebores of which *H. orientalis* is the type.

ORIENTALIS TYPE.

The plants of this affinity are known at once, or with very few exceptions, by their leaves, which are much more freely developed than those of *H. viridis*, being larger, more coriaceous and persistent, and consisting of larger and more conspicuously toothed segments. The inflorescence also is more developed, being produced on tallish branching stems, two or three times forked, and forming a dichotomously branched panicle, often of a very showy character. The flowers, moreover, are larger, taking them generally, than those of *H. viridis*, and are much more frequently and fully imbricated in consequence of the breadth of the sepals, so that these organs—the most conspicuous parts of the flower—by reason of their convergence, collectively assume an inverted cup or bell-shaped form. For the same reason, namely, that they considerably overlap each other, the opposite margins of the sepals in many cases vary much in colour, since those portions which are covered in the bud by the overlying of one sepal upon its neighbour, are paler than the exposed outer edges, the manner of arrangement being what is called imbricated, or overlying like the tiles of a roof. Of this group we find three series, one with flowers more or less deeply coloured red or purple, one with the flowers whitish, and one with the flowers green or greenish. The two first are of most importance for the flower garden.

PURPLE-FLOWERED SERIES.

H. orientalis.—A very free-flowering and exceedingly showy Hellebore, with green stems and a two or three-times forked inflorescence. The flowers are generally large and well imbricated, moderately expanded, so as to acquire a bell-shaped or inverted cup-shaped outline, which is the case in the broader sepaloid forms; sometimes, however, the sepals are less rounded at the tips, and then the rim of the cup is less perfectly filled. The sepals are of a dull purplish hue on the outer side, paler at the edge where overlaid by the adjoining sepal, and sometimes almost white, but generally more or less purple-flushed; inside they are greenish towards the base and purplish towards the edge. The three exterior sepals are the deepest coloured throughout this group.

H. orientalis Hofgarten-Inspector Hartwig. —The flowers of this sort are well-formed, like those of *H. orientalis*, and similar though dull in colour, the inside being of a dull veiny green-purple.

H. orientalis F. C. Heinemann. —A mottled form of *H. orientalis*, in which the flowers are of a dull livid purple colour and of expanded form, venose and dotted on the inner surface. It is, however, a dull-looking and unattractive variety.

H. orientalis Frau Irene Heinemann. —This variety exactly resembles the pale forms of typical *H. orientalis* as to form and size, and the colouring of the outer surface of the flower which is flushed with dull pale purple on the outer edge. The inside is greenish white, heavily spotted with purple, on which account it may be welcomed as a pretty border flower.

H. abchasicus. —A somewhat slender form, with brownish-purple spotted stems. The sepals are moderately expanded, roundish obovate, of a deepish plum-purple on both the outer and the inner surfaces. It was not flowering in the Tooting collection. See *H. ruber*.

H. atrovirens. —A seedling Hellebore, which may be characterised as a paler form of *H. atrovirens*. It is a most profuse bloomer, and well worth growing for its decorative qualities. The stem is greenish, and the flowers in size and form resemble those of *H. atrovirens*. The sepals are of a bright pale rosy purple, paler at the edges, while the inside is of a rosy hue, with greenish tips.

H. atrovirens. —A plant of rather vigorous habit, producing an abundance of flowers, which from their deep colouring are very ornamental. It has purple-spotted stems, and the flowers are imbricated as in *H. orientalis*, which it much resembles in its general tone of colouring—a dull rosy-purple, which is, however, in this case much deeper and more uniformly distributed than in the plant just named, in which the shaded edges of the sepals are distinctly paler than the exposed parts. The inner surface is of a clear rosy-purple hue, which sometimes almost attains to brightness.

H. colchicus. —This plant is of a rather slender habit of growth, and has a purple-spotted stem. The flowers are of medium size, and of a deep plum-purple colour with a fine bloom on the surface. The sepals are rounded and closely imbricated, so that the flowers are of a neat bell-shaped figure, their inner surface being also of the same rich purple as the outer, and venose. The young leaves are purplish. In some forms the flowers appear of a bluer or more glaucous shade of purple, apparently caused in great measure by the greater intensity of the bloom on the surface.

H. colchicus punctatus. —This is undoubtedly a form of *H. colchicus*, having the same habit and general features; but it differs in having the flowers deeper in hue, with a more distinct bloom spread over the surface, and is exquisitely mottled inside with small innumerable deep purple dots. This is probably the handsomest of all the Hellebores at present known.

H. fulvus. —A fine seedling variety of *H. atrovirens*, of remarkably vigorous habit, with brownish-purple mottled stems. The flowers are large and expanded, the sepals reddish-purple with a pale brown or coppery-fawn flush on the outer surface especially towards the base, while inside they are of a deep purple with fawn-coloured or tawny tips. It is a remarkably handsome variety, with splendid foliage.

H. lividescens. —A profuse blooming and showy plant with purple stems. The flowers are of medium size and of the expanded form, of a pale dull livid purple, the inner surface being of a glaucous green tinged with purple.

H. orientalis Dr. Moore. —This fine profuse-blooming variety or hybrid was raised at Glasnevin by Dr. Moore, after whom it is named, and is one of the finest forms known in cultivation. It has greenish stems, slightly spotted with purple, and is of robust vigorous habit, a free-bloomer, with large neatly imbricated flowers, which take on the bell-shaped outline characteristic of *H. orientalis*. The colour is also distinct and pleasing, being of a lively rose on the outer side, paling off to white on the shaded edges, and of blush-white internally. Our note of this is taken from cut specimens grown at Glasnevin, communicated by Mr. Barr.

H. rubellus. —A seedling variety which has the stems and young leaves purplish. The flowers are of medium size. The sepals are imbricated, of a pretty pale rosy-tinged purple, quite reddish in the sunshine, and covered with a glaucous bloom; on the inner surface they are green at the base, and of a rosy-purple at the tips.

H. rubidus. —This is one of a batch of seedlings sent by M. Leitchlin to Mr. Barr, and is a very desirable form, quite worth perpetuating. It belongs to the group of *H. orientalis*, amongst the high-coloured forms of which it takes a prominent position. The flowers are of medium size, with expanded sepals, of a reddish-plum colour, rather pale inside, and there spotted with purple. The petals are of a bright reddish-brown, and afford the only instance known to us in which the petals are other than green.

H. ruber. —A distinct looking form, of vigorous growth, with purple stems, and remarkable for its beauty. The flowers are above medium size, somewhat imbricated, the sepals acutish, of a reddish-purple or plum colour, over which a distinct bloom is spread; they are greenish purple inside. This comes near to *H. abchasicus*.

H. rubro-purpureus. —A seedling from *H. atrovirens* and a very handsome and distinct form, with purplish stems and bold well-marked foliage. The flowers are of the expanded form, of full medium size, and of a rich deep plum-purple colour. It is almost equal to *H. colchicus* in richness of coloration, but has none of the mottled reticulation which marks that very handsome species.

WHITE-FLOWERED SERIES.

H. antiquorum. —A large-flowered form, with green mottled stems. The flowers are moderately expanded, the sepals being broad and closely imbricated; the outer surface greenish, the inner white. The colour is the same as in *H. olympicus*, but the sepals are more imbricated, always maintaining the bell-shaped figure. It is to be regarded as one of the more ornamental forms.

H. guttatus. —A vigorous-growing plant with green stems. The flowers are expanded, greenish on the outer and white on the inner sepals, the inner surface being moreover elegantly spotted with purple-crimson dots, which extend from the base upwards for about one-third of their length. The spotting, however, varies in amount and intensity in different plants, probably in consequence of their having been propagated by seeds.

H. orientalis Commerzienrath Benary. —A very charming form, with green stems, and medium-sized, neatly-cupped imbricated sepals, which are white, prettily and freely spotted with crimson over the greater portion of the surface. It is one of Heinemann's seedlings, and is superior to *H. guttatus*, which it most nearly resembles, forming a very desirable and ornamental plant.

H. olympicus. —A rather slender-growing plant, with green stems, and by comparison rather smaller but expanded flowers. The sepals are green on the outer surface, and white inside. Though comparatively small-flowered, it forms a very neat and pretty plant, from its producing its flowers abundantly.

H. olympicus major. —A very fine form, of tall vigorous habit and a very free bloomer. The flowers are large and expanded in form, the outer surface greenish in the outer sepals and in the inner ones white; the inner surface white, with a greenish tinge on those sepals which are exterior.

H. pallidus. —A free-flowering variety of medium growth, with green stalks and a fine spreading head of flowers, which are of the expanded form, and not exceeding the medium size. The sepals are oblong, and generally mucronate in form, and greenish white in colour.

GREEN-FLOWERED SERIES.

H. caucasicus. —Not flowering in Mr. Barr's collection. It has moderate-sized expanded pale green flowers, with round much imbricated sepals. It is of vigorous habit, with a strong branching flower-stem.

H. cyclophyllus. —In this plant the stems are greenish, and the leaves vigorous, coriaceous, and enduring, like those of *H. orientalis*, to which group the plant clearly belongs; they are also pubescent beneath. The flowers are medium-sized, numerous, pale green, with a tinge of yellow, the sepals oblong-ovate in form, and moderately expanded.

H. odoratus. —In this form, which has green stems, the flowers are of full medium size, with the sepals ovate and imbricated, having a short acute point; they have a very delicate and pleasant hay-like scent when fresh, and are of a glaucous green colour.

VIRIDIS GROUP.

Though affording considerable variety, the plants of this group do not vary so much as those of the preceding series. They are distinguished by their foliage, which is annual, and does not survive the winter, being of thinner texture, and having also narrower segments of more uniform breadth. Here also we find three subdivisions, those with deep purple flowers, those with green flowers, and those which are green tinged with purple.

GREEN-FLOWERED SERIES.

H. viridis. —A moderately-vigorous plant, with annual obscurely pedate leaves, consisting of crowded narrow oblanceolate sharply incised-segmented segments. The flowers are half expanded, the oblong-acute sepals being distinct, incurved, but not imbricated so as to become cupped, and of a bright sea-green, which appears to be permanent.

H. Bocconi. —This is described as having green flowers, with roundish or obovate sepals an inch long, and many-cleft leaves, which have the nerves pubescent beneath. Mr. Barr has a plant with pubescent ribs to the leaves, under the synonymous name of *H. multifidus*, but the plant has not bloomed.

H. dumetorum. —In this form the flowers are small and expanded, the sepals obovate and of a bright sea-green colour.

H. gracilis. —A seedling variety or form, of medium vigour, the leaves of which are furnished with numerous lanceolate segments. The flower-stems are two-flowered, with tufted bracts, and the flowers are small, drooping, and half expanded. The sepals are lanceolate, obovate, narrowed to the base, so that there is an interval between them, and thus the flowers are suggestive of those of a *Sarracenia*. The flowers are green. The plant is altogether one of slender and very graceful character.

H. laxus. —A very free-blooming sort, the sepals broader than in *H. dumetorum*, moderately expanded, so as to form a shallow bell-shaped flower of a full green colour.

PURPLE-TINGED SERIES.

H. graveolens. —A tall-growing and profuse-flowered form, with mottled green stems. The flowers are expanded, of medium size, with ovate sepals, of a light sea-green inside, and tinged, sometimes dotted, on the exterior surface with brownish purple. It represents the first gradation from green to purple in the coloration of the flowers.

H. erubescens. —The flowers of this variety are freely produced, the sepals of a vivid but pale yellowish green, slightly but prettily flushed with pink; the inside very pale whitish green.

PURPLE-FLOWERED SERIES.

H. cupreus. —The name cupreus does not at all suit the present variety, though it is cultivated thereunder in many gardens. It has a darkish or spotted stem, and the flowers are of a dove-tinted or greyish-purple, glaucous green inside; the sepals are ovate, separate, so as to form an expanded flower of a very elegant character.

H. intermedius. —The flowers have in this form obovate-oblong sepals, which are of the same form and colour outside as those of *H. purpurascens*, but the colour of the inner surface is green.

H. purpurascens. —This is the finest and deepest-coloured plant of the group of *H. viridis*. It has the stems spotted with brownish purple, and these bear numerous flowers of medium size, and of a deep dove-purple colour outside, and with a greenish flush inside; the sepals are roundish, imbricated, and moderately expanded; and the numerous flowers render it a showy and attractive plant. It is without doubt the most ornamental form of the group to which it belongs. T. Moore.

A MINIATURE CAMELLIA.

IN the accompanying illustration (fig. 60) Mr. Smith has happily hit off the size, form, and general characteristics of a model miniature white seedling *Camellia* sent us a week or two ago by Mr. E. J. Lowe, of Highfield House, Nottingham. The flowers are pure white, only $1\frac{1}{2}$ inch across, and shell-petalled; and appear to be, as before observed, exactly the thing or button-hole bouquets.

PLANTA UNIVERSALIS
GERMANICA.

THOUGH the laws of nomenclature are pretty well established, some one or other still considers himself independent of such laws, and names are occasionally published which quite astound the botanical world. People in Germany are said to be on the eve of the tobacco monopoly; and if a writer in some Berlin journal—perhaps a passionate smoker—proposes another plant instead, worth, at least for our statesmen, further consideration, I dare say no one will find fault with him; but the reader must decide if the strange-sounding name, "*Planta universalis germanica*," is to be accepted without comment. At

"By-and-bye we shall have the pleasure of passing through the centre of large Coffee plantations," was the reply. Meanwhile an honest-looking peasant stepped into the carriage and lighted his pipe; but, sad to say, after the first few whiffs, such a nauseous atmosphere was created that the American began to feel quite sick. To raise his spirits up, after all these trials, a glass of sugar-water was ordered as soon as the train stopped again. But even this innocent liquid did not find grace in his eyes. He pronounced the sugar "not good at all—not sweet enough; it presents a peculiar taste, and is of an extraordinary bluish colour." Poor man! he quite ignored the fact that German sugar has to be dyed ultramarine to cover a too yellowish shading.

However, his curiosity to learn where the sugar plantations existed could at last be satisfied. Traversing vast plains uniformly covered with broad-leaved plants, it was with a feeling of satisfaction that the German pointed them out to his companion as the blessed thing which gave origin to sugar and coffee, brandy and tobacco. "From her juice," said he, "we get our sugar; the roasted roots furnish the coffee; her leaves are mixed up half-and-half with cheap tobacco; and out of the sugar refuse the spirit is distilled which chemists, by means of formic and butylic ether, transform into that delectable beverage



FIG. 60.—MR. E. J. LOWE'S MINIATURE WHITE CAMELLIA.

all events, I will try to show how this plant satisfies an infinity of human wants.

Two gentlemen, one of the true Teutonic race, the other American by birth, but of German parentage, met in a railway carriage; and, after some preliminary conversation, the discussion turned upon the natural products of their respective native countries, and which were warmly commended on both sides. At a small station where the train stopped for a few minutes the Yankee asked permission to offer something in the way of refreshment to his newly-made acquaintance. Two glasses of brandy were ordered and swallowed, notwithstanding its nasty taste and smell. "And this you call brandy?" the American exclaimed, after having got into the train again; "well, I confess that I never drank such stuff before in my life!" The German, feeling mortified at such contemptuous language, thought he would have his revenge at the next station, where he invited his companion to take a cup of coffee. At the very beginning the German began to sip it, and the Transatlantic man, looking hard at the other, asked, in a not over affectionate manner, "if this beverage really deserved the name of coffee?" "To be sure," the other replied, "and even a true German one, of a first-rate growth." As an act of courtesy the tepid liquid was swallowed like the brandy; but in the way of compensation, the American wanted to know in what localities of Germany the Coffee was grown.

sold as rum or brandy." "Oh, I understand," the American observed; "your *Planta universalis germanica* supplies a multitude of good things. Happy the German constitution, that can enjoy these various gifts!" And in these days of monopolising, the Sugar-Beet cannot, and must not, be overlooked. *G-c.*

MEXICAN AND CENTRAL
AMERICAN ORCHIDS.

Continued from p. 368.)

- EPIPACTIS, Camer. Epit., 187; Lindl., Gen. and Sp., p. 460. About ten or twelve species, with this one exception, natives of Europe and Asia from Asia Minor to the mountains of North India.
- E. americana, Lindl., Ann. Nat. Hist. iv., p. 385. E. gigantea, Dougl. Mexico to British Columbia.
- ERYCINA, Lindl., Fol. i. The only species.
- E. echinata, Lindl. *Oncidium echinatum*, H. B. K., Nov. Gen. et Sp. i., p. 345, t. 79. Gard. Chron. i. 1874, 436. Mexico, 3500 to 6000 feet.
- EUCNEMIS, Lindl., Gen. and Sp. Orch., p. 161.
- E. brevilabris, Lindl., *l.c.* Mexico.
- EULOPHIA, R. Br., Bot. Reg., t. 686. A large genus spread all over tropical Africa and Asia, and represented in Australia by two species, in Brazil by one.
- E. filicaulis, Lindl., Ann. Nat. Hist. x., p. 184. Mexico.
- FREGEA, Rchb. f., Bot. Zeit. 1852, p. 712. The only species.
- F. amabilis, Rchb. f., *l.c.* Veragua.

- GALEANDRA, Lindl., Ill. Orch. Pl. Gen., t. 8. About ten species, ranging from Mexico, through the West Indies and Guiana to Brazil, and represented by one species in West tropical Africa.
- G. Baueri, Lindl., Illustr. Orch. Pl. Gen., t. 8; Batem. Orch. Mex. and Guat., t. 19. Mexico, New Grenada, and Guiana.
- GONGORA, Ruiz et Pav. Fl. Peruv. Prodr., p. 117, t. 25. Nearly twenty species, extending from Mexico to Peru, Trinidad, and Brazil.
- G. armeniaca, Rchb. f., Walp. Ann. vi., p. 593.
- Acropera armeniaca, Lindl., Bot. Mag., t. 5501.
- A. cornuta, Kl. Central America.
- G. aromatica, Rchb. f., Otto et Dietr. Allg. Gart. 1854, No. 36; Walp. Ann. vi., p. 594. Nicaragua.
- G. ("Acropera Batemani", Hb. Lindl.), Nicaragua.
- G. cassidea, Rchb. f., Gard. Chron., n.s. ii., p. 322. Guatemala, Mexico.
- G. galeata, Rchb. f.; Maxillaria galeata, Lindl., Lodd. Bot. Cab., t. 1645. Acropera Loddigesii, Lindl. A. flava, Kl. Mexico.
- G. Galeottiana, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 25. —G. flexiglossa, Rchb. f. Mexico.
- G. quinquenervis, Ruiz et Pav. Fl. Per. Syst., p. 227.
- G. maculata, Lindl., Bot. Reg., t. 1616. G. leucochila, Lem., Fl. Serres, i., t. 37. G. fulva, Lindl. Mexico to Peru.
- G. truncata, Lindl., Bot. Reg., t. 56. Gard. Chron. 1843, 523. Mexico.
- GOODYERA, R. Br., Ait. Hort. Kew. v., p. 198. From fifteen to twenty species spread over Europe, Asia, Mascarene Islands, New Caledonia, and North America, to Mexico, West Indies, and Guiana.
- G. striata, Rchb. f., Linnaea, xviii., p. 409. Physurus brachyceras, Rich. et Gal. Mexico.
- GOVENIA, Lindl., Lodd. Bot. Cab., t. 1709. About fifteen species dispersed from Mexico and the West Indies to Peru and Brazil.
- G. alba, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 25. G. deliciosa, Rchb. f. Mexico.
- G. Andrieuxii, Rchb. f., Bot. Zeit. 1852, 835. Mexico.
- G. capitata, Lindl., Bot. Reg., sub t. 1795. Mexico.
- G. fasciata, Lindl., Bot. Reg., Misc., 107. Gard. Chron. 1845, 839. Mexico, New Grenada, Venezuela.
- G. liliacea, Lindl., Bot. Reg. 1838, t. 13. Maxillaria liliacea, Llav. et Lex. Guatemala, Mexico, 7500 to 8500 feet.
- G. mutica, Rchb. f., Bot. Zeit. 1852, 836. Mexico.
- G. pauciflora, Lindl., Ann. Nat. Hist. x., p. 184. Mexico.
- G. quadruplicata, Rchb. f., Beitr. Orch. Centr. Am., p. 75. Costa Rica.
- G. superba, Lindl., Bot. Reg., t. 1795. Maxillaria superba, Llav. et Lex. Mexico.
- G. utriculata, Lindl., Bot. Reg. 1839, Misc., No. 66; Bot. Mag., t. 4151. G. lagenophora, Lindl. Mexico, West Indies.
- HABENARIA, Willd., Sp. Pl. iv., p. 44.—A very numerous genus spread over the temperate and warm regions of nearly the whole world.
- H. dlypeata, Lindl., Gen. and Sp. Orch., p. 311. Mexico.
- H. crassicornis, Lindl., Gen. and Sp. Orch., p. 310. Mexico.
- H. diffusa, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 28. Mexico and Guatemala.
- H. entomantha, Lindl., Gen. and Sp. Orch., p. 311. Orchis entomantha, Llav. et Lex. Mexico.
- H. flexuosa, Lindl., Gen. and Sp. Orch., p. 311. Mexico.
- H. lactiflora, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 28. Mexico.
- H. macroceratitus, Willd., Sp. Pl. iv., p. 44. Orchis Habenaria, Linn. Hab. macroceras, Spreng., Bot. Mag., t. 2947. Costa Rica, Jamaica.
- H. maxillaris, Lindl., Hooker's Journ. Bot. i., p. 5. Platanthera, Ad. Brongn. Guatemala to Peru.
- H. novemfida, Lindl., Benth. Pl. Hartw., p. 94. Guatemala.
- H. odontopetala, Rchb. f., Linnaea, xviii., p. 407. Mexico.
- H. Cæstedtii, Rchb. f., Bonpl. iii., p. 213. Nicaragua.
- H. petalodes, Lindl., Gen. and Sp. Orch., p. 316. Brazil.—Var. micrantha, Rchb. f., Beitr. Orch. Centr. Am., p. 5. Panama.
- H. repens, Nutt., Gen. Amer. Pl. ii., p. 190. Carolina to Florida, Cuba, and in Guatemala.
- H. setifera, Lindl., Ann. Nat. Hist. iv., p. 381. Mexico.
- H. spathacea, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 29. Mexico.
- H. strictissima, Rchb. f., Linnaea, xviii., p. 407. H. pyramidalis, Lindl. Mexico.
- H. tripteris, Rchb. f., Linnaea, xxii., p. 814. Mexico.
- HARTWEGIA, Lindl., Bot. Reg., sub t. 1970. The genus is limited to the following species:—
- H. gemma, Rchb. f., Gard. Chron. 1878, x., p. 8. Central America (?).
- H. purpurea, Lindl., Bot. Reg., sub t. 1970; Ref. Bot., t. 94. Mexico.—Var. angustifolia, Lindl. Guatemala.
- HEXADESMIA, Ad. Brongn., Ann. Sc. Nat., 2 série, xvii., p. 44. About ten species; one West Indian, one Brazilian, and the following:—
- H. bifida, Rchb. f., Ref. Bot. ii., sub t. 113. Mexico.
- H. brachyphylla, Rchb. f., Beitr. Orch. Centr. Am., p. 89. Costa Rica.
- H. crurigera, Lindl., Bot. Reg. 1844, Misc., No. 4. Hexoplia crurigera, Batem., Ref. Bot. ii., t. 92. Guatemala, Costa Rica.
- H. fasciculata, Brongn., Ann. Sc. Nat., 2 série, xvii., p. 45. H. Lindeniana, Rich. et Gal. Mexico, Guatemala.

- H. lurida*, Batem., Orch. Mex. and Guat., enumeration. Mexico or Guatemala.
- H. micrantha*, Lindl., Bot. Reg. 1844. Misc., 95; *Rehdb. f.*, Xenia, i., t. 59, iii. Guatemala to Veragua.
- H. rhodoglossa*, *Rehdb. f.*, Bonpl. 1856, p. 328. Mexico.
- H. sessilis*, *Rehdb. f.*, Ref. Bot. ii., sub t. 113. Mexico.
- H. stenotepala*, *Rehdb. f.*, Bonpl. iii., p. 221. Xenia, i., t. 59, ii. Nicaragua.
- HEXISEA*, Lindl., Hook. Journ. Bot. i., p. 7. About five species, ranging from Mexico to Brazil, though hitherto not (?) detected in the West Indies.
- H. bidentata*, Lindl., Hooker's Journ. Bot. i., p. 8. Costa Rica, Panama.
- H. oppositifolia*, *Rehdb. f.*, Walp. Ann. vi., p. 470. *Epidendrum oppositifolium*, Rich. et Gal. *Eothonæa oppositifolia*, *Rehdb. f.* *Diothonea oppositifolia*, *Rehdb. f.* Mexico.
- HOULETTIA*, Brongn., Ann. Sc. Nat., 2 série, xv., p. 36. About six species, ranging from Central America to New Grenada and Brazil.
- H. Lansbergii*, Lind. et *Rehdb. f.*, Walp. Ann. vi., p. 617. Costa Rica.
- IONOPSIS*, H.B.K., Nov. Gen. et Sp. i., p. 348. About ten species, extending to Peru, West Indies, and Brazil.
- I. brevifolia*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 26. Mexico.
- I. utricularioides*, Lindl., Coll. Bot., t. 39. *I. tenera*, Lindl., Bot. Reg., t. 1904. Widely dispersed in tropical America.
- ISOCHILUS*, R. Br., Ait. Hort. Kew, v., p. 209. About ten species, inhabiting the West Indies and Mexico to Peru.
- I. crassiflorus*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 22. Mexico.
- I. latibracteatus*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 22. Mexico.
- I. linearis*, R. Br., Ait. Hort. Kew, v., p. 209; Bot. Reg., t. 745. Widely spread in tropical America.
- I. major*, Schl., Linnæa, vi., p. 60. Mexico.
- LACENA*, Lindl., Bot. Reg. 1843, Misc., 101. Gard. Chron. 1844, 687. The only species known.
- L. bicolor*, Lindl., Bot. Reg. 1843, Misc., 101; 1844, t. 50. *Peristeria longiscapa*, Rich. et Gal. Guatemala, 7000 feet; Mexico.
- L. spectabilis*, *Rehdb. f.*, Bonpl. ii., p. 92. *Nauenia spectabilis*, Kl. Costa Rica.

(To be continued.)

Florists' Flowers.

THE AURICULA.—The time is nigh when the fine florists section of the Auricula will be in full beauty, and intending exhibitors should take note that they will be rather late this year, and that the Southern show is on the 22d inst. The early-flowering varieties, which comprise a considerable number of selfs and a few edged flowers—notably Glory (Taylor)—will not require any artificial aids to get them in. There are some flowers, such as Smiling Beauty (Heap), G. Lightbody (Headly), Alex. Meiklejohn (Kay), which are always improved by a little artificial warmth. It has been persistently stated that no one, if they could help it, would subject their Auriculas to a higher temperature than that of a matted frame; and I well remember my first attempt to hasten the flowering of the Auriculas by a little artificial warmth. It was rather a late season, and the exhibition was on April 12—just ten days too early. A few common sorts were tried first, and presently it was found that the Auricula could be forced easily; and all that wanted forcing were placed in a little heat, the result being that the whole collection nearly was pushed into flower about ten days earlier than they would have been if left in the frames. Those who have no other accommodation for their plants than ordinary frames have no need to despair of getting their plants into flower. In our own frames we had many plants with fully expanded pips on the last week in March. Charles J. Perry had a truss fully expanded; Eliza had open pips; and amongst edged flowers may be cited Smiling Beauty, Catherine, Confidence, and some others. All those well advanced should be placed in a frame by themselves, the frame to be placed with its back to the south. Those that are late must be placed in a frame facing south, and the lights must be kept rather close by day, shutting up early, and placing the mats on to retain the heat, even if it is not likely to be a frost. It is quite necessary to shade from hot sunshine, even if the pips are not quite open. The foliage flags in the sun, and the plants suffer.

Nearly all the best growers place their plants in houses now, and it is a considerable advantage to have a heating apparatus; we may expect 8° or 10° of frost on any night in April, and coverings will scarcely keep the inside temperature of the house above the freezing point under such circumstances. But the greatest mischief not unfrequently results from close, damp weather. If the flowers should be found

covered with moisture in the morning, many of them will be sadly defaced during the process of drying. A gentle heat from hot-water pipes or flues generally prevents moisture from settling on the pips.

It may be as well to notice that a clause in the schedule of the Southern section recommends that the truss (one only is allowed on each plant) be supported by a neat stick. This keeps the stem perfectly upright, and if a slender stick is used, not thicker than the stem, it is not noticed. Growers from a distance can turn their plants out of the pots and pack them securely in boxes; a man can place sixty plants in two boxes, and carry one easily in each hand. Pots are provided at the exhibition in which to place the plants, to be dressed on the surface with green moss. Other exhibitors take their plants a very long distance without removing them from the pots; in that case the conveyance is more expensive, but it saves time on the morning of the exhibition.

We do hope that growers will muster from all directions, and make such an exhibition of Auriculas as has not been seen in England before. The show will be held in the gardens of the Royal Horticultural Society, South Kensington, S.W. J. Douglas.

THE HYACINTH.—As an adjunct to the usual reports of the Hyacinth shows, a few remarks may be useful. The uniform excellence of the spikes has seldom been exceeded in any previous year. The grand collection of Messrs. Veitch, although it comprised so many new sorts, did not contain one spike that could be said to be of inferior merit. Our own collection was entirely made up of spikes good enough for any exhibition, and we certainly never before had so few inferior ones. It would be very interesting to investigate the cause of this. What were the conditions under which the bulbs were grown and ripened last summer? I believe there was an idea abroad that climatic conditions last year were not over-favourable to vigorous development and perfect maturation of the bulbs. The bulbs when received seemed fairly well ripened but were not large. They were potted and placed out-of-doors in the usual way, and left out about ten days later than on previous occasions; this was unavoidable owing to the very cold weather, which arrested the development of roots. Very little growth indeed had been made by the end of January, and the house wherein the pots were was kept very cool until the roots were in active growth. I would rather keep them quite cool until the pots are well filled with roots, and then push on more rapidly in heat within ten days of the time that the flowers were wanted. It may also be as well to dispel the delusion that exhibition Hyacinths are very dear, and that expensive new kinds are necessary. A glance at the list of winning flowers ought to be sufficient; it will be found that the prices of the largest proportion of them average a shilling each. It is not the varieties that are difficult to obtain, but the quality of the bulbs; but even in this there is not any trouble to those who are willing to pay the best price. The principal growers and exhibitors do this, and those not willing to follow their example had better leave exhibiting alone.

Just a word about the treatment of the bulbs after flowering. Many persons make short work of this by throwing them on the rubbish-heap; this seems to be wilful waste, and ought not to be permitted. Our plan is to cut the flower-stem off as soon as the flowers fade, taking care not to injure the leaves. If the weather is mild the pots are placed in a warm, sheltered position out-of-doors, and are supplied with water until the leaves die naturally. The bulbs are then cleaned and stored away until potting time, when they are potted three in a 6-inch pot. Fairly good spikes are produced from these, and we generally force them very early. It is quite unnecessary that any further remarks should be made about the new Hyacinths. The splendid selection exhibited by the Messrs. Veitch, of Chelsea, obtained and well deserved universal admiration. The judges at the Royal Botanic Society are men of large experience, and know the Hyacinth well; and they awarded no less than ten First-class Certificates to Messrs. Veitch's new flowers. This shows that improvement is being made, and also that there is a considerable margin still left for improvement. Take, for instance, the deep red or crimson colours; a comparatively new Hyacinth, *Vuurbaak*, is the best, but it lacks many good qualities; what a prize it would be if we could get a Hyacinth the colour of *Vuurbaak* with the spike

and bells of King of the Blues or La Grandesse. There is not yet a really good yellow that can be depended upon. *Ida* has the bells irregularly placed on the spike, and it is a pale straw after the first few days. Bird of Paradise has grave faults, one of which is to have the bells near the apex of the spike tipped green. We also sadly lack a purple with a good spike: Sir Henry Havelock is certainly the best as yet, but it is seldom up to exhibition standard. There was a new variety named Josephine exhibited some ten years ago; but like nearly all the new ones, it was seen once and gone for ever. It was quite new in colour—an orange-red or crimson; it had a small spike and good bells. If such a sort could be crossed with *Solfaterre*, colours much wanted would be obtained. The question may well be asked—Where are all the fine new Hyacinths that have received First-class Certificates during the last six or eight years? I have noted the flowers as they appeared, but have as yet looked in vain for the names of them in the lists received from our nurserymen and seedsmen. It would be better not to exhibit them at all until sufficient stock had been worked up, so that they could be sent out in a year or two after having been certificated. I note your remarks on the Floral Committee last week, but I cannot see what would be gained by appointing sub-committees. The certificates given to the new Hyacinths call for some remark. It does seem strange that but four varieties should be awarded First-class Certificates from Messrs. Veitch's collection by the Floral Committee, and ten from the same collection by the censors at the Royal Botanic show on the following day. The Floral Committee is variously constituted, and some of the members may have but scant knowledge of Hyacinths. Many of them do possess this knowledge, and if those who do not know would leave the matter in the hands of those who do, a sub-committee would be unnecessary. This remark would be even more pertinent in the case of florists' flowers, such as the Auricula, Polyanthus, Pink, Pansy, &c., flowers the properties of which are not yet well known to the general body of horticulturists. J. Douglas.

Garden Operations.

FLOWER GARDEN, ETC.

A busy time is upon us, and a considerable amount of the display in the summer and autumn will depend upon the attention which is paid to many important operations through this month, amongst which one of the most prominent is the general sowing of tender annuals; these, in their great variety, play so important a part in the decoration of the flower garden, whether as beds or in the mixed borders, as to deserve that their preparation should be particularly attended to. Where there is a great convenience for pricking out they may be sown in pans or boxes, and placed on a brisk bottom-heat to germinate; the nearer the glass the better, as they must not be allowed to draw up weakly, but as soon as the first rough leaves are formed they should be pricked out in rows on the heat of a dung-bed, still keeping them as near the glass as possible, and commencing to give air after a day or two, and so gradually accustoming the plants to a free exposure during the day. Another way, involving perhaps less trouble, but not ensuring such good plants, is to make up the necessary extent of hotbeds with frames, and sow the seed at once in drills; this answers very fairly for most of the requirements of the mixed borders, but for bedding purposes the pricking-out system is most to be commended. Amongst them *Helichrysums* in their differing shades of colour should be liberally used, as they are not only ornamental, but also most useful for cutting purposes. A portion should be sown at once in heat, and quickly hardened off, to be planted out for early flowering, and a further batch on a warm border for later planting; these will flower continually up to the advent of severe frost, and will not be so rampant in growth as the forced plants, and as a rule the various colours are more brilliant and decided. *Zinnia elegans flore-pleno* and *Z. Haageana flore-pleno* must not be neglected; the former by their brilliant diversity of colour are always very attractive, and the latter with their subdued shade of chrome-yellow form an unique and pleasing contrast to the more glaring colours, but they must have a richly manured compost to do them justice. Another most useful class of plants for bedding and border purposes are the improved dwarf varieties of French Marigolds; a course of careful selection has entirely removed them from the old sprawling, weedy-looking plants of olden time; and the excellent way in which they stand the weather renders them very valuable. *Tagetes signata pumila* is also a valuable late autumn-flowering plant, and furnishes a very desirable yellow

colour at the season when Calceolarias are becoming weedy and rampant. Dianthus Heddeggii and the many fine varieties of that type cannot now be brought forward too rapidly for planting out, as they like hot weather, and should be making a fine show by the end of summer. The yellow and orange African Marigolds, which are so useful in the backs of the mixed borders in the autumn, should be sown at once, and are much benefited by being pricked out to get a good size before finally planting out, as snails are very partial to them, and small plants are liable to vanish very quickly where such pests prevail, and I do not see that the late winter has had the slightest effect upon them; they are as numerous as ever and more voracious, if anything. The soil, too, appears to be more than usually full of worms, for which reason a slight sprinkling of quicklime during the process of digging will be found serviceable. The very favourable weather we have lately experienced has afforded a favourable opportunity for digging over and regulating the borders of mixed herbaceous plants, and as the soil generally is in better condition than usual the planting out of early prepared hardy annuals may be proceeded with, and a sowing of most of the hardy varieties made in patches in the open borders at once, taking care to mark each place with a small stick.

Asters, which play so important a part in the floral display later in the season, being neither tender nor quite hardy, should have the protection of a warm border and handlights, and by sowing thinly and timely hardening they afford sturdy plants without pricking out previous to final transplanting. The roots of *Farvel* of Peru should be potted and placed in a temperature secure from frost, so as to be started ready for transplanting in the open borders in May. Look well now to the stock of Dahlias required; all blanks should be filled up by immediate propagation, as plants derived from later-struck cuttings are not to be depended upon for much more than stock purposes. The process of hardening-off the general stock for free exposure must be carefully attended to, but protection at night will be absolutely necessary for several weeks yet, which must be glass at present, but later on the protection of mats will suffice for the treacherous early morning frosts. *Verbena*, *Golden Feather*, and *Lobelias* of sorts pricked out under glass should have abundance of air on all favourable occasions, and free exposure when the sun has power. Where *Mignonette* is largely required the main sowing in the open air should be made at once. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

By this time pruning and nailing should be nearly, if not quite finished, but where such work is not yet completed no effort should be spared to bring it to a speedy termination except in the case of newly planted trees, which will be all the better for being left free for a while so that they may settle down in their new stations in a gradual and natural way. A canful or two of water will facilitate the settling without doing the trees any harm, and a good mulching of half-rotten manure placed over and a little beyond the area occupied by the roots will very materially help to keep the latter in a healthy growing medium. Where movable blinds are used for the protection of blossoms they should now be regularly and carefully rolled up and down according to the state of the weather, as in most places the trees will now be so far advanced as to render it unsafe to try to retard them any longer. In many places however such things as roller blinds have to be regarded as expensive luxuries, and much more primitive means have to be adopted to secure the same end, one of the commonest and best being Spruce branches, which if placed and secured with judgment and discretion form an efficient protection against all ordinary spring frosts. They should not be put in too thickly, nor too near the wall, but should be so managed as to project a little. Pieces of common bracken, too, worked deftly in among the branches are decidedly better than no protection at all, and the same may be said of fish netting and of ropes of straw loosely made and stretched along the length of the wall and secured to poles. These and other similar makeshifts often require only a little skill and ingenuity on the spot to turn them into efficient protectors. Standard and other trees that have been headed back with a view to regrafting them will now require attention. They succeed best when the sap in the stock is a little in advance of the scions as regards activity. Place one or two grafts on the end of each stump by making a slit in the bark, and slightly raising it. The scions should not be too long—4 or 5 inches is long enough. Cut the lower end with a longish slant, and carefully push it under the bark, after which a little of the usual clay mixture should be well rubbed into parts where the graft is inserted, afterwards adding a little more clay, and ultimately covering the clay over with green moss to keep it from cracking prematurely. Clear away all prunings, and lightly prick up the borders, so as to leave them in a healthy as well as tidy condition. *F. Harrison, Knowsley.*

FRUIT HOUSES.

MELONS.—The stopping, thinning, and tying of the shoots will now be the order of the day, and must be attended to regularly, for if neglected for only a few days the shoots would become overcrowded, which would be a state of things to be avoided as a great evil in Melon culture, inasmuch as the energies of the plant, under such circumstances, would be wasted instead of the sap being concentrated to its proper function—the development of the fruit and the consolidation of the necessary wood and foliage. Plants now swelling off their fruit will probably require water at the roots, when, if bottom-heat be supplied with hot water-pipes, they should receive a thorough soaking. Moreover, if the roots of the plants are growing in a rather confined space, such, for instance, as pots, boxes, or narrow and shallow borders, and where the drainage is ample and perfect, tepid liquid manure in a weak state should be applied whenever the application of water to the roots is necessary, which will in a great measure compensate for the inadequate scope of root-action. Ventilate in accordance with the state of the weather, and shut up at 90° with plenty of atmospheric moisture, and run up to 95°, which will be none too high a temperature for houses or pits in which the fruits are swelling, which should now have the supports put to them in order to relieve the plants of the weight of the fruit. These supports can be made of an ordinary piece of broad deal or Lime, 6 inches or 7 inches square and $\frac{1}{2}$ inch thick, and suspended in a sloping position, to prevent a lodgment of water, by four pieces of wire from the trellis. See that successional plantings receive due attention, and that a somewhat dry and airy (weather permitting) atmosphere is maintained where the plants are in flower until they have set their fruit. The linings of dung frames will also require being looked to weekly or fortnightly, according to weather and other circumstances existing at the time. *H. W. Ward.*

FIGS.—The early kinds, such as *Early Violet* and *Prolific*, that were started in gentle bottom-heat in November will soon show signs of taking their last swelling for ripening, and as this is the most critical stage in Fig culture, checks of all kinds must be carefully guarded against. To ensure flavour the favourable state of the weather will admit of a higher and somewhat drier temperature with increased ventilation on fine days; but the withholding of water must be gradual, and anything approaching dryness at the roots must be avoided. The safest and best way is to give established pot trees a thorough soaking with water a few degrees warmer than the bed, and then to cover them up with some light mulching. An old Mushroom bed forms an excellent material for this purpose, as it absorbs moisture when the trees are syringed and gives off genial vapour for some hours afterwards. *Brown Turkey*, still one of the best for forcing, started with the above, will not be quite so forward; but judging from the appearance of our own trees they will not be far behind. To these give good liquid manure twice a week and syringe well, twice on fine days and once when the weather is dull. Let every part of the foliage be thoroughly bathed, and see that the second syringing takes place in time for the leaves to get moderately dry before nightfall. Increase the night temperature to 65° when mild, with a range of 75° to 85° by day, as Figs enjoy an abundance of heat, and light and full exposure to sunshine. Keep the stopping and thinning of side shoots well in hand, and train terminals forward where space remains unfilled and this can be done without shading the fruit. Large succession trees growing in inside borders will now require generous treatment in the way of liberal mulchings with good manure, copious supplies of water and thorough syringing twice a day. Damp the paths and walls frequently, and keep the mulching constantly moist. Ventilate freely through the early part of the day, and close with a brisk heat not later than 3 o'clock in the afternoon. In low cold situations, unfavourable to the ripening of Figs in the open air, excellent crops of the finest kinds may be grown in unheated houses having a full exposure to the south or south-west. The trees should be planted out in well-drained narrow borders, composed of suitable but not over-rich materials, trained up the back wall, then downward under the glass, not more than a foot away from it. The principal points to be observed in their management are few and simple. They should be kept dormant as late as possible in the spring; but when they begin to grow the treatment should be generous. The growths should be kept thin and neatly tied up through the summer, with more freedom in the autumn, when the points will draw up to the glass and be ripened by the warmth. When the leaves have fallen the borders may be covered with dry Fern, and some slight protection will be required for the branches, as fruit trees in cold houses often suffer more from intense frost than they do under open-air treatment against good walls. *W. Coleman, Eastnor.*

CUCUMBERS.—Where fine fruit is a special object for exhibition or other purposes, crop lightly and

place the fruit in glasses to grow clean and straight; and, presuming the plants to be making vigorous growth, and the soil and allotted space being rapidly filled with hungry roots, water copiously with tepid liquid-manure in a diluted state, and otherwise maintain a moist and growing atmosphere. The stopping, thinning, and tying of the shoots, ventilation and other cultural points being attended to as occasion may arise, satisfactory results will inevitably follow. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

Another spell of winter, with dull leaden clouds hiding the sun, but disheartening as this state of things is to plant cultivators, the season is now so far advanced that such adverse influences cannot much longer prevail, and the luminary that has been hidden for so long from us, will soon break through with great power. This sudden increase of solar light will be found very trying for plants that have for such a length of time been unaccustomed to even a glimpse of its presence, and it will be necessary therefore to be prepared with shades that they may be run down at a moment's notice. These, as a rule, are much thicker than is requisite, as so long as they break the fierce rays of the sun, the less light they shut out the better, and yet they must be stout as it is a matter of importance that they be used outside. I have found nothing so durable or to answer the purpose better than a loose open material called "strainer," the threads of which are very strong and soon dry after rain, so that it is not subject to rot in the way other kinds of canvas are when of a different texture. With care in using and storing, the make alluded to will last many years, but for *Camellia*-houses and ferneries there is no occasion for going to the expense of any such appliance, as a thin shade made with lime and put on with a brush may be made to look almost as neat and nice as ground glass, and be no further trouble for the rest of the season. The way we manage to have it in this desirable condition is to have a quantity mixed up to about the consistency of paint, and this one man puts evenly on and is immediately followed by another, who dabs it over with a clean handbrush before it has time to dry, and this imparts the finished appearance. Of course this permanent shade only does for such plants as those above-named, that are in light lofty structures, but in all such cases it may be used with much advantage and benefit to the inmates. The only thing to guard against is not to put too much on or overdo it so as to impede the light, and thus cause weak attenuated growth, or prevent a proper ripening and maturing of the same. Now that the young fronds of Ferns are fast pushing up, the old ones should be gradually removed to make way for them, and an increased supply of water and atmospheric moisture given in order to encourage a free and healthy development, this being the time when they are fast beginning to make larger demands on the roots. Where an increase of such kinds as the *Gleichenias* may be desired, the safest way is to layer some of the rhizomes that stray over the pots and let them remain a year or so before severing, at the end of which time they will have become established and able to support themselves without any aid from the parents. Most other kinds will bear division or may be raised from spores when ripe, which sown on the surface of nice fresh loam in pots and covered with glass soon germinate and make useful little plants for many purposes. To keep the soil regularly moist, the pots should be stood in pans containing about half an inch of water, the supply of which should be kept up to replace what they daily absorb.

GREENHOUSES.—Next to the tuberous rooted *Begonias* in point of usefulness for the embellishment of greenhouses and conservatories during the summer and autumn, *Zonal Pelargoniums* rank high. These, since they have been taken in hand by Dr. Denny, Pearson, and others, are greatly improved, and have now become almost indispensable as decorative subjects. Old plants flower the freest, and any of these that may have been wintered, partially shaken out and treated to a little fresh soil, will be gay with bloom early, to be succeeded later on by others propagated during the summer. No place suits them better than a very light house or pit where they can be kept well up to the glass and have the full benefit of all the sun we get, which exposure renders them close and short-jointed and makes them much more floriferous than they otherwise would be. The show and fancy sections of this most useful family now require their side branches drawing down a bit to afford room for the lateral shoots and increase the size of the heads, in doing which the object should be, while giving the necessary support, to do with as few sticks as possible, and so use them that they do not obtrude, as nothing detracts so much from the natural beauty of a plant as to see it studded all over with a forest of wood. With a more active growth now commencing and the pots full of roots, weak liquid manure will be found of great benefit, and if made partly from soot, the foliage is not slow in showing how well that stimulant agrees, by the fine dark green it assumes. *J. Sheppard.*

THE
Gardeners' Chronicle.

SATURDAY, APRIL 5, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, April 7 | Sale of <i>Odontoglossum Alexanline</i> at Stevens' Rooms. |
| TUESDAY, April 8 | Royal Horticultural Society: Meeting of the Fruit and Floral Committees at 11 A.M., and Scientific Committee at 1 P.M. Sale of Orchids from Assam, at Stevens' Rooms. |
| WEDNESDAY, April 9 | Newcastle-on-Tyne Horticultural Society's Spring Show (two days). Sale of Established Orchids, at Stevens' Rooms. |

SO many dwellers in the Great Metropolis are interested in the subject of opening up existing or forming new, if small, PUBLIC GARDENS IN CROWDED LOCALITIES, and the planting of trees in the more open streets and roadways—so practical an objection was made at the West End the other day, by what we may style the Anti-tree-planting Association—that possibly a little space devoted to the matter here may be acceptable to some of our readers; the more so as the subject has recently been brought under the notice of the Society of Arts, though not in very practical fashion, by Mr. MATTHIEU WILLIAMS. That gentleman advocated the covering of back-yards with tiffany, or canvas, beneath whose protecting shelter luscious Pears, rather Peaches, and all the rest of it, were—in imagination, at least—to be grown in the back-yards of London. Tiffany houses are good enough things in their way, in suitable localities, but we do not think it worth while to discuss Mr. WILLIAMS' scheme. We will approach our subject from the standpoint of one who has read his *Chronicle* for many years, and who says:—"For five-and-twenty years—up till the other day, in fact—I lived in the heart of the Metropolis surrounded by bricks-and-mortar, and the one dwelling-house occupied by me during all that period was of brick also. My neighbours and I, however, managed to import and retain around us during most of the time, a little bit of the country, in the shape of heaven-sent flowers, that, somehow, with the aid of Time, mellowed the hideousness of the dominant colour, and helped to brighten up our homes. Care for flower-pets on roof and in window, got many of us out of bed very soon after the barber's larks took their morning strut over their sods of turf, and shrilly whistled care to the wind as a fitting prelude to the daily 'concert in season,' for amid bricks-and-mortar great and constant care must be exercised in keeping plants clean, and therefore beautiful; in this respect reminding me of the lines—I quote from memory—relating to the youthful inhabitants of a hospital for foundlings, who

'All are dressed in blue clothes,
To warm each little limb;
Where they smell of yellow soap, and sing
Like little cherubim'—

the sweet singing evidently being attributable in part to the steady application of soap and towel—to cleanliness in fact. Well, for a quarter of a century this pleasant quiet home life had been progressing, all of us having our trials within doors, as well as trying weather without; little offshoots sprang up by our firesides, and twined themselves around our hearts, giving promise, some of them only for a season, and then drooping, drooping, until there was nothing to be done by us but reverently assist in the transplanting." Now, it would appear, all these flower associations, all the little gardening schemes, have been rudely torn up by the roots, and cast idly to the winds by speculators! That which it took so many years to build up has taken but a few brief weeks to destroy. The large area of flower-pot-environed brick houses, it appears, was "wanted" by a tribe

of speculators, who probably have trees as well as flowers in their suburban gardens, and the happy though smoky spot that has known our correspondent so long, will, he writes, "know us no more. True, the brand-new brick warehouses and workshops to be erected may have gathered within their walls many happy workers, but this result will have been achieved at a heavy cost of unhappiness and discomfort." Several old humble "flower friends," it would seem, have sought refuge in "model" barracks, wherein there are no "lifts," fearfully hideous buildings those we now have in our mind's eye, to light up certain "aspects" of which the sun will have to get up very early in the morning and mount high into the heavens. The very children playing in the courts of these barracks seem to have been brought up in darkened rooms and suddenly turned out into such damp air as there is, so blanched do they look. No trees here, nor within half-a-mile radius—no gardens—no flowers—no playground for them, even, that can be seen; and we ask ourselves over and over again why it is that so very little attention is given to the real wants of the poor, in the shape of providing open spaces here and there—counter attractions to what Sir WILFRID LAWSON is striving so bravely to strangle, however wrongly he may have set about the work. Give a stimulus to the satisfaction of real wants, and the artificial stimulants may pretty nearly be left to themselves. No man, woman, or child, with heart to love and soul to foster but can read the real language of humble flowers; for true it is of them that "Solomon in all his glory was not arrayed like one of these."

Con over a coloured map of London, and note where most of the green colouring is to be found. Easy to say that cheap conveyances will rapidly take the hardy toiler to the greenest parts of the metropolis; but why should he not have a little of "the green" ever present with him—about his dwelling, out-of-doors? A green tree here and there in the streets is invigorating and a pleasant sight—a pleasant sight is it to witness the numbers of wayfarers gazing at the few ancient tree-citizens remaining in City back streets and generally "round the corner." People with some of the most lovely scenery in England at their doors clamour for the opening of Kew Gardens at an earlier hour in the day, could not they think of the requirements of the inhabitants of back slums and crowded streets, who see Kew only once a year, and seek for even the partial opening up of gardens in metropolitan squares here and there, and keep dinning into the ears of vestrymen and men of the Board of Works the necessity for decent homes, grass, flowers, trees? Ventilate, purify, cleanse—and the ill weeds, all too rapidly generated in crowded localities, would have but little chance of a prolonged existence. "So many millions expended last year in the purchase of intoxicants!" In the name of all that is lovely and sweet, how much was done during that interval to turn men from things bad to those that are beautiful? An enormous amount of talk and a trifle of legislation—the pulling down of hundreds of homes, the dispersion of old associations, the huddling together in more limited space of families really "driven from home," and the planting of—how many trees? Cannot those planted in all this vast metropolis be reckoned up in three humble figures? Were there 100 planted by our roadsides in 1878? How much ground was opened up, say within the City proper, for the free use of the workers? Was there a square yard? And as we pass through the more populous neighbourhoods we notice immense temples being raised to the worship of BACCHUS—every possible evil allurements held before "him of the horny hand." Surely we require missionaries in the cause of gardens and trees as well as teetotal lecturers—GOUGHS

to advocate the mercies contained in fresh air and flowers, as well as GOUGHS to show up the hideousness of vice.

We recommend to the philanthropist a careful study of the map of London, so far as its "greenery" is concerned, and bid him remember whilst engaged in his task that the dwellers in, or at least the owners of, these green areas are nearly all provided with gardens, exquisitely kept. Having done this, then let him turn to where there are no green spots—let him realise where they are most required—where there is nothing to brighten even the eye of the sun!—and let him vow within himself, and let him keep the vow, to do his utmost for the promotion of small gardens in crowded localities and for the planting of trees in city streets, and thus secure for those who need it sorely a larger measure of bright, cleanly, wholesome, pleasant life.

— ONLY A THISTLE.—In popular opinion only Scotchmen and donkeys are fond of Thistles, but if so we must say they show very good taste. Among our hardy plants there are few finer subjects in point of foliage or flower than some of our common Thistle. There are few more beautiful plants than the *Milk Thistle*, *Carduus nutans*; while the large *Spear Thistle*, *C. lanceolatus*, and *C. eriophorus* are really noble plants. *C. Marianus*, too, with its spotted leaves stained with drops from the Virgin's milk, according to the Catholic legend, is a grand plant for the back rows of the herbaceous border. The *Cotton Thistle*, *Onopordon Acanthium*, is another stately plant, with its foliage densely covered with white cottony hairs. In the present issue we give a figure (fig. 61) of another Thistle, *Cnicus altissimus*, a common plant in the United States, for specimens of which we are indebted to Mr. WILSON SAUNDERS, who tells us that he received the seeds from Kew, where it forms in its season one of the ornaments of the herbaceous ground, the seedlings being placed in the open ground, where, in the course of the summer, the plants attained a height of 11 feet, while at 4 feet from the ground the plant was 7 feet through. The form of the plant is very symmetrically conical. The flowers opened from above downwards. The lower leaves measured some 2 feet in length and a foot or more in breadth. Reverting to the *Scotch Thistle*, we may recall to our readers the interesting communications of the ex-Curator of the Royal Gardens, Kew, and of Mr. EDWIN LEES, in our volume for 1873, pp. 365 and 436, from which it appears that no authentic information relating to the use of the Thistle as a badge or emblem is known prior to 1488—the story of the Danes attempting to invade a Scottish camp in the night, and pricking their feet with the Thistles to such an extent that they were forced to cry out and so reveal their presence, having no foundation. The historical evidence is that the Thistle was first used as the badge of Scotland by King JAMES IV. In 1514 JAMES V. placed the representation of the Thistle on his coins. JAMES VI. added the proud motto—"Nemo me impune lacessit." In Scotland *Onopordon Acanthium* is generally accepted as the plant (see illustration in *Gardeners' Chronicle*, 1876, vol. v., p. 140), but it is curious to find from Mr. LEES, who quotes Dr. JOHNSON, that "initiated gardeners" understood the *Milk Thistle*, *Carduus Marianus*, to be the true plant, and that they therefore (why "therefore"?), usually stuck the heads of the latter on the strong spines of the *Onopordon* or *Cotton Thistle*. It is doubtful whether either the one or the other of the plants named is a genuine native of Scotland.

— GARDENING LOOKING UP.—An evidence of the increasing taste for gardening may be gathered from the number of periodicals, weekly, monthly, and annual, devoted to the subject. Quite recently a new weekly journal, entitled *Gardening*, has been issued for the small price of one penny, and a very good penny-worth it is, though at the money the reader must not expect original matter, nor original illustrations.

— FORGET-ME-NOT AND VIOLETS.—The vicissitudes of a season of unusual severity has left the pretty light blue *Myosotis dissitiflora* in a state of unusual backwardness, and the Light Blue partisans of Cambridge will at the boat-race to-day have to dispense with this usually pretty adjunct to their button-



holes. Sometimes in full bloom in the middle of March it will this spring not be in its height of beauty until the middle of the present month—a result not simply due to lateness of the season, but also to the severe effects of the frost. Another effective example of the superiority of seedling plants over those propagated by division is seen in the fact that whilst the former are all alive, the latter are scarcely able to recover to any extent. The followers of the Dark Blue will not, on the other hand, be wanting in their floral emblem, the sweet-scented Violet. The floral crop of those is now at the full, and buttonholes of them will not be lacking. Whether this result of the season's changefulness may be accepted as an omen of to-day's race or not—and to horticulturists as a body that result is not of the slightest moment—it is at least a matter for regret that the most lovely pale blue flower produced by hardy plants at this season of the year should not be sufficiently forward to shed its lustre over the great aquatic contest between the seats of learning and muscularity.

— **PRIMULA ALLIONI.**—Amongst numerous other things now flowering freely on the rockwork in the York Nurseries we noticed a beautiful little species of alpine Primrose, *P. Allioni*. The flowers are of a rich rosy purple, about 1 inch in diameter, stems very short. It may readily be distinguished from other species of the genus by its small, nearly round, entire, densely pubescent, glutinous leaves, and by forming, as it does, singular hemispherical masses, reminding one of tufts of the stemless Catchfly—*Silene acaulis*. It is found on calcareous rocks in loamy soil, and is a native of the Maritime Alps.

— **AWARDS AT SOUTH KENSINGTON.**—Mr. WILLS informs us that, at the Royal Horticultural Society's show last week, he was awarded two gold medals, one for a group of plants arranged for effect, and the other for new and rare plants. In our report we only gave Mr. WILLS the credit for one.

— **PRIMULA ROSEA.**—This very charming new species is very attractive at Chiswick Gardens, quite small plants in pots flowering freely in a cold frame. It, in common with some others, was raised from seed sent to Mr. BARRON last spring, and this fact lends an additional value to it—that it blooms so quickly from seed. What might perhaps be regarded as representative of *P. cashmeriana* is also in flower. This partakes of the *P. denticulata* character, with flowers of a bright blue-purple colour, but deeper and yet brighter in hue than those found in *P. purpurea*. *P. rosea* appears to be somewhat plentiful, as seed was distributed to several persons, who were successful in raising it. It should have a place in every collection of hardy Primulaceæ, however select, because of its thoroughly distinct character. It is thoroughly hardy, quite small plants of it having been frozen hard for weeks during the past winter when fully exposed in the open ground.

— **THE SECRETARYSHIP OF THE SCOTTISH ARBORICULTURAL SOCIETY.**—We learn from the *Journal of Forestry* that Mr. JOHN SADLER has tendered his resignation of the secretaryship of this Society, a post which he has held for the last seventeen years, greatly to the interest of the Society, and much to his own credit.

— **THE PALM-HOUSE AT KEW.**—At all times and at all seasons there is much to admire in this house, but we never remember to have seen it to better advantage than at present. The plants have lately been rearranged so as to show their stately proportions to the best advantage. Many of them are making their growth for the season, and revealing a variety and delicacy of tint which is wanted at other seasons when the colour is apt to be monotonous. The contrast of forms and the graceful way in which the young leaves of such rigid-looking plants as many of the Cycads unfold can hardly fail to attract attention. Altogether the sight is one of imposing majesty and of superb beauty, so that we counsel all those who delight in noble and graceful plant forms to pay an early visit to the Palm-stove.

— **LANDSCAPE GARDENING.**—We have to announce the publication of an important work on this subject, entitled *L'Art des Jardins, Traité Général de la Composition des Parcs et Jardins*. The author is M. ANDRÉ, well-known for his successful work as a

landscape gardener in Paris, as the editor of the *Illustration Horticole* and as a botanical traveller, and favourably known also in this country. The work in question is a large 8vo of nearly 1000 pages, richly illustrated with excellent woodcuts and a few coloured plates. As a detailed notice of this work will be a necessity, we confine ourselves at present to the announcement of the publication of the volume by Messrs. MASSON.

— **ASTILBE JAPONICA.**—There is nothing like imported clumps of this useful plant for early forcing. They come on much quicker than plants of home growth, however well they may have been managed. The latter grow on into fine specimens, but appear to be greatly insensible to the stimulus of forcing. This should be borne in mind by those who grow this useful decorative plant for exhibition in March and early in April. The market growers depend entirely on imported clumps.

— **POTATOS FOR EXHIBITION.**—We are indebted to the *Gardeners' Magazine* for the following extract from a seasonable paper by Mr. PETER MCKINLAY—a sound authority upon the subject of Potatoes for exhibition:—

"I have made a few selections for the guidance of beginners who may wish to exhibit creditably and at the same time put upon their tables the finest Potatoes known for appearance and quality. All growers of collections may consult these lists with advantage, because they do not include a single sort that is not A 1 of its class, and of such constitution that any fairly good soil with fairly good cultivation will ensure satisfactory results.

Twenty Sorts to be Grown to Select Eighteen from for Exhibition.

| | | | |
|-------------------------|------|------------------------|------|
| Woodstock Kidney .. | W.K. | Snowflake .. | W.K. |
| Trophy .. | C.K. | Red Emperor .. | C.R. |
| Lapstone .. | W.K. | Rector of Woodstock .. | W.R. |
| Early Rose .. | C.K. | Blanchard .. | C.R. |
| Early King .. | W.K. | Schoolmaster .. | W.R. |
| Radstock Beauty .. | C.R. | Grampian .. | C.R. |
| Porter's Excelsior .. | W.R. | Model .. | W.R. |
| Scotch Blue .. | C.R. | Triumph .. | C.R. |
| International Kidney .. | W.K. | Purple Ashleaf .. | C.K. |
| Vicar of Laleham .. | C.R. | Avalanche .. | W.K. |

"Fourteen Sorts to be Grown to Select Twelve from for Exhibition.—Trophy, International Kidney, Snowflake, Lapstone Kidney, Red Emperor, Blanchard, Schoolmaster, Grampian, Porter's Excelsior, Radstock Beauty, Early Rose, Early King, Triumph.

"Ten Sorts to be Grown to Select Six from for Exhibition.—Woodstock Kidney, International Kidney, Lapstone Kidney, Snowflake, Schoolmaster, Trophy, Radstock Beauty, Blanchard, Porter's Excelsior, Grampian.

"The best two white kidney varieties are Woodstock Kidney and Lapstone." The initials W.K. represent White Kidney, C.K. Coloured Kidney, W.R. White Round, C.R. Coloured Round.

— **DENDROBIUM BRYMERIANUM.**—This new, distinct, and strikingly curious Dendrobe is now flowering in fine condition in Messrs. JAMES VEITCH & SON'S nursery at Chelsea. The plant, which we should imagine is the finest in the country, is carrying two dozen blooms, which are of a rich orange shade of yellow, and which are remarkable for the broad, deeply lacinated, beard-like character of the lip, a distinguishing feature which Professor REICHENBACH describes (1875, vol. iv., p. 323) as having given him "a little shivering of fright," and caused him to be suspicious as to whether the plant would prove constant in its originality, or turn out to be a monster of a species quite unknown. Be that as it may, could the worthy Professor see the plant now in flower we are sure it would give him a shivering of delight.

— **"FLORE DES SERRES."**—We note the issue of a new part of this important publication, to which we shall refer more at length on another occasion. In the meantime we may mention that among other illustrations is a copy of one which appeared originally in MONGREDIEN'S *Trees and Shrubs for English Plantations*. Concerning this book a review appeared in the leading literary journal, written, as we have reason to know, by the late Dr. SEEMANN, and who, if we remember rightly, expressed the opinion that the plate in question more nearly represented *A. excelsa* than *A. imbricata*. This was contested at the time, it being pointed out that the picture represented (that is to say, was intended to represent) the well-known tree of *A. imbricata* at Dropmore. Dr. SEEMANN was, of course, well aware of the artist's intentions, but the fact remained that the latter succeeded in depicting a tree much more like *A. excelsa* than *A. imbricata*. This being

the case, we are not surprised to find the writer in the *Flore des Serres* declaring that during his fifteen years connection with that publication he was never in so great perplexity over a plant to be figured therein. To clear it up he wrote to Mr. FROST, at Dropmore, and so learnt what the illustration was really intended for. The writer of the notice in the *Athenæum* referred to in the *Flore* was informed at the time that *A. excelsa* was not hardy in Britain, a piece of information in Dr. SEEMANN'S case which was rather superfluous.

— **EPACRIS AT EALING PARK.**—Some very pretty and attractive varieties have been in bloom in one of the plant-houses at Ealing Park, and they were conspicuous for their bright and striking hues of colour. One named *Vesuvius* is of a very bright pale red, of a particularly pleasing character. *Tauntoniana* has a pale magenta tube, with a rosy-pink mouth and sepals: this also was very attractive; *Miniata splendens* is deeper in colour than *Vesuvius*; *Viola*, white, very chaste; and *Ardentissima*, deep rosy-red. The foregoing varieties should be included in every choice collection.

— **ORCHIDS IN FLOWER AT MESSRS. VEITCH'S.**—The following Orchids are now in flower at Messrs. JAMES VEITCH & SON'S Royal Exotic Nursery, King's Road, Chelsea:—

| | |
|------------------------------|----------------------------|
| Ada aurantiaca | Epidendrum eburneum |
| Angraecum sesquipedale | Wallisii |
| Arpophyllum giganteum | × <i>Lælia</i> Pilcheriana |
| Broughtonia sanguinea | „ <i>cinnabarina</i> |
| Cattleya amethystoglossa | Lycaste cruenta |
| „ <i>citrina</i> | „ <i>Skinneri</i> |
| „ <i>Skinneri</i> | „ <i>alba</i> |
| „ <i>Triane</i> | Masdevallia othodes |
| Chysis Limminghi | „ <i>Chimera</i> |
| Cymbidium eburneum | „ <i>igneæ</i> |
| „ <i>Lowii</i> | „ <i>Trochilus</i> |
| Cypripedium Argus | Maxillaria grandiflora |
| „ <i>Boxalli</i> | „ <i>nigrescens</i> |
| „ <i>barbatum</i> | Miltonia cuneata |
| „ <i>biflorum</i> | Odontoglossum Alexandræ |
| „ <i>Dayanum</i> | „ <i>maculatum</i> |
| „ <i>eurycardum</i> | „ <i>curiosum</i> |
| „ <i>× Dominianum</i> | „ <i>cordatum</i> |
| „ <i>× Harrisianum</i> | „ <i>gloriosum</i> |
| „ <i>longitolum</i> | „ <i>Halli</i> |
| „ <i>hirsutissimum</i> | „ <i>nevadense</i> |
| „ <i>× Sedeni</i> | „ <i>odoratum</i> |
| „ <i>Roezlii</i> | „ <i>Pescatorei</i> |
| „ <i>× vernixium</i> | „ <i>purpureum</i> |
| „ <i>villosum</i> | „ <i>Phalaenopsis</i> |
| Dendrobium crassinode | „ <i>Roezlii</i> |
| „ <i>album</i> | „ <i>Rossii</i> |
| „ <i>Barberianum</i> | „ <i>triumphans</i> |
| „ <i>Devonianum</i> | „ <i>Cervantesi</i> |
| „ <i>chrysotextum</i> | Oncidium aureum |
| „ <i>Brymerianum</i> | „ <i>concolor</i> |
| „ <i>Falconeri</i> | „ <i>amplatum</i> |
| „ <i>fimbriatum oculatum</i> | „ <i>flexuosum</i> |
| „ <i>Findleyanum</i> | „ <i>fuscatum</i> |
| „ <i>japonicum</i> | „ <i>Marshalli</i> |
| „ <i>lituiflorum</i> | „ <i>serratum</i> |
| „ <i>moniliforme</i> | „ <i>pratextum</i> |
| „ <i>luteolum</i> | „ <i>sarcodes</i> |
| „ <i>Pierardi</i> | Phaius grandifolius |
| „ <i>nobile</i> | Phalaenopsis Lobbi |
| „ <i>Cambridgeanum</i> | „ <i>rosea</i> |
| „ <i>Bensoniæ</i> | „ <i>Ludemanniana</i> |
| „ <i>lasioglossum</i> | „ <i>Veitchii</i> |
| „ <i>Veitchianum</i> | Restrepia elegans |
| „ <i>Wardianum</i> | Sarcophilus Fitzgeraldi |
| „ <i>album</i> | Trichoplia suavis |
| „ <i>primulium</i> | Vanda cœrulescens |
| „ <i>giganteum</i> | „ <i>suavis</i> |
| „ <i>thys-silorum</i> | „ <i>tricolor</i> |
| Dendrochilum glumaceum | „ <i>cristata</i> |

— **STAUNTONIA LATIFOLIA.**—It is surprising how little is known of this fine evergreen climbing plant, yet it belongs to a class which is none too numerous represented in our lists of garden plants, and is of much greater merit than many more commonly cultivated wall plants (see *Gardeners' Chronicle*, 1876, vol. v., p. 245, fig. 46). Its flowers, which are produced in clusters, are, it is true, not particularly showy, but their fragrance is delicious, excelling even that of the deciduous *Chimonanthus fragrans*. It is, moreover, a desirable plant for pot culture, as we are reminded by some small specimens in 6-inch pots now in full bloom in Mr. B. S. WILLIAMS' nursery at Holloway.

— **CAMELLIAS AT GUNNERSBURY HOUSE, ACTON.**—In the conservatory at Gunnersbury House, the residence of H. J. ATKINSON, Esq., among the Camellias planted out are specimens of *Donkelaari* and *Countess of Orkney*. The plants are large and in vigorous health, and literally laden with beautiful flowers. Especially is this true of the *Countess of Orkney*, the delicate beauty of which commands general admiration. So freely are these plants flowering that a great quantity of flowers could be taken from them.

— **SHOULD SPARROWS RECEIVE PROTECTION?**—Some of our readers will perhaps remember our

reference to the outcry raised by the farmers in Algeria against this bird and the Gum-trees combined. It was (and may be still) illegal to destroy sparrows; and under the protection of the law and the shelter afforded them for nesting by the Gum-trees they had increased to such an extent as to become a serious scourge to the farmers, stripping acres upon acres of their cornfields bare of grain, and even carrying away waggon-loads of straw—behaving, in fact, far worse than the locusts, which they ought to have eaten instead of grain, but the ungrateful creatures preferred the latter, and left the farmers to kill the former. In the kingdom of Saxony sparrows, according to the German agricultural papers, have proved equally undeserving of protection, and the Council of Agriculture has decided to petition the Government to repeal the law which makes it an offence to destroy them. Indeed the feeling against sparrows has become so strong in some parts that the inhabitants have threatened to destroy them in defiance of the law. It is asserted that a microscopical examination of their crops proves that sparrows live upon grain during eight or nine months of the year, and are only insectivorous when reduced to it by necessity. It is the same cry from far and near, from America and Australia, where the "dissolute, unmusical rover" has been introduced and protected by stringent enactments, in return for which he was expected to eat a great many insects and very little else. Probably the sparrow has as few friends as any bird in this country, but he contrives to hold his own, nevertheless.

— THE PROFESSORSHIP OF BOTANY AT EDINBURGH.—We learn that Dr. ALEXANDER DICKSON, heretofore Professor in the University of Glasgow, has been elected to the Professorship of Botany in the University of Edinburgh, in the room of Dr. BALFOUR, resigned.

— AMERICAN CAMELLIAS.—Specimen plants of Mr. HOVEY's beautiful new Camellias are now in flower in Mr. BULL's nursery at Chelsea. The plants will be sold at Stevens' Rooms on the 17th inst.

— THE WEATHER.—From the report issued by the Meteorological Office for the week ending March 31, we learn that the weather was very changeable; cold, dull, and showery over England and Ireland at the commencement of the week, but finer in Scotland, and becoming rather finer in southern districts towards the close of the period, but more unsettled in the North. The temperature was again below the mean in all districts. The thermometer was lowest during the early part of the week, when the maxima were less than 40° in all places, and below the freezing-point in some parts of Scotland and central England. A general rise occurred on the 28th, and the day temperatures during the remainder of the week were about 20° higher than those previously experienced; minima not showing so large a change. The rainfall was a little more than the mean in Ireland and "England, E.," less in Scotland and in "England, N.E., N.W., and S.W.," and showing scarcely any departure in the Midland Counties and "England, S." Snow and sleet showers were very general over England and some parts of Scotland during the earlier portion of the week. Wind easterly to south-easterly, strong to a gale on the 25th and 26th, veering to the south on the 28th, and continuing southerly or south-westerly until the close of the period. Fresh to strong southerly gales in the west and north-west on the 28th and 30th.

— FLOWER SHOW FIXTURES.—The summer show of the Brighton and Sussex Horticultural Society is fixed for June 25 and 26, and the autumn show for September 10 and 11. The Maidenhead Horticultural Society's show will take place in Kidwell's Park on August 14. The Kingston and Surbiton Chrysanthemum Society's third annual display will be held at Kingston on November 20 and 21, and the Borough of Hackney Chrysanthemum Society will again hold its show at the Westminster Aquarium on November 19 and 20. The first exhibition of the Canterbury and East Kent Rose Society will be held in Canterbury on July 3. The eighth annual exhibition of the Teddington Horticultural Society will be held in the grounds adjoining Park House, Teddington, on July 3. The second annual exhibition of the Putney, Fulham, and Wandsworth Chrysanthemum Society will be held in the Assembly Rooms, Putney, on November 11 and 12.

Home Correspondence.

The Proposed International Horticultural Exhibition.—That the committee have acted wisely in deferring the holding of this exhibition is the opinion of all I have heard mention the subject. With the present commercial depression, which has been of such long duration, and the almost unprecedented number of calls which have been made upon the public during the last twelve months, the committee in the face of these facts would have been I think most unwise to have gone on with the project. Better times will come no doubt soon; then means will be forthcoming which will enable the executive to carry out the exhibition in a manner that will redound to the credit of all concerned. One admires Mr. Wills' enthusiasm, but this is a dangerous element when not tempered with soberness of judgment. Enthusiasm led to the holding of the disastrous Preston Show last July. Sound judgment said months before the exhibition was held, that the result would be a financial failure. I very much doubt the wisdom of Mr. Wills' suggestion to Her Majesty's Commissioners. I think Her Majesty's Commissioners would have their hands full if they paid attention to the numerous claims of "the humble workers in the great hive of industry within Her Majesty's dominions." *Alpha.*

Chionodoxa Lucilæ.—Of the great beauty of this plant there can be no doubt. I saw a pot of it in flower to-day for the first time, and the effect of its thirty bright sky-blue flowers, each with a snow-white centre, each upwards of 1 inch in diameter, and quite star-like in form and brightness, and "thrown well up to the sun," was, without a doubt, far more impressive than those of any known Scilla can possibly be, which is saying a good deal. The whole plant is Scilla-like in habit, "the foliage is very like that of Scilla bifolia," and 3–6 flowers are borne on Scilla-like scapes 2–4 inches in height. It is the boldness and vivid blue and white colouring of its erect stellate fully expanded flowers which constitute its chief charm. The pot I have alluded to was plunged in an open-air bed, along with rosy and blue Scillas of various kinds, so that I can speak of its beauty in comparison with these, and there can be no doubt that it is one of the most effective of all the Scilla-like hardy bulbs now grown in our gardens. The plant here alluded to grew in Mr. Barr's bulb grounds at Tooting. *F. W. B.* [We can endorse this from our own observation. *Eds.*]

Chionodoxa Forbesii.—I may say that the plant improves under cultivation. I have here a scape with eight flowers, making quite a show. There is also variation in the colour; some are pale, others bright, the colour approaching to sky-blue, with a tinge of slate or violet. It is quite hardy here, and will soon rank among our choicest spring flowers. *Max Leichtlin, Baden-Baden.*

Botanical Certificates.—It is some time since I read anything that surprised me more than the unwarrantable attack which appeared in last week's *Gardeners' Chronicle* upon the Floral Committee, through their refusing to award a certificate to *Chionodoxa Lucilæ*. How stood the matter? Mr. Elwes, a member of the committee, brought the flower in question with a leaf or two, something in the condition of a button-hole flower, or as a single spike of Lily of the Valley, with its leaves attached, laid it down on the table and advocated its merits to the committee for a certificate as a hardy plant. The question was put to Mr. Elwes, was it grown out-of-doors? He replied not; it was grown in a frame, but was perfectly hardy. There is a trite old saying which well fits the present case, that before people begin to find fault they should make themselves acquainted with the grounds upon which their fault-finding rests; this the writer of the communication in question has evidently not done. The committee have a rule, and a very necessary one, that they do not award certificates to a simple fragment, or portions of a plant that admits of being shown all together, except it is a florist's flower, and that of a character that only the flower is required when exhibited, such as a Dahlia, a show Pansy, a spike of *Gladiolus*, or the like. In confirmation of this, only a few minutes before *Chionodoxa Lucilæ* was laid before the committee a First-class Certificate was awarded to Mr. Melville's variety of the common Snowdrop, and which had been refused it on several occasions before, not that the committee doubted its merits, but through its not being brought before them in accordance with the rule requiring the roots to be attached so as to show correctly its habit. The committee are charged with withholding a certificate, as the plant was of little commercial value: this accusation is as unjust as it is uncalled-for. I feel that I express the sentiments of the committee collectively in saying that this is a matter which never has the slightest

weight with them, the certificates they vote being given on the merits alone of the plants for the particular purpose they are suitable, be it the stove, the greenhouse, or out-of-doors. The committee appear to be in the unfortunate position of never doing right! If they happen to make an award to a plant that after coming under general cultivation turns out not to sustain the expectations which its condition, when laid before them, appeared to warrant, they are rated for being too lax; and now, when a plant is refused a certificate until it is shown in accordance with the rules of the committee, they commit an unpardonable offence in the opposite direction. Are they, forsooth, to grant certificates on the verbal evidence of this or that member of the committee who happens to be present? If they did, I submit that they would stultify themselves in a most ludicrous manner. The committee, instead of being what the unfair notice charges them with—a number of individuals lamentably wanting in knowledge of many of the things brought before them consist—of some forty men, selected with care from the knowledge they possess individually, and as a body—not of a few specialties, but of cultivated plants collectively; they give their time, and many of them come long distances to attend these meetings, and it is a little too bad to be subjected to such attacks as this. Respecting what Mr. Elwes (p. 398) has to say on the subject, I think a little reflection will show him that as a member of the committee his remarks are out of place, and I consider that either he or any other member who drags "the doings" of the committee—so long as they are fair and honourable—before the public owes the committee an apology for so doing, even if, as is evident, he has not made himself acquainted with the regulations which the committee have made for their guidance. I subjoin Rule 7, as printed for the guidance of the committee, and which bears on the subject, so that your readers may judge whether the committee or their accusers are right: "Every object exhibited must be sufficient in quantity or number to enable the committee to form a fair opinion of its quality. In all practical cases the growing plant will be required; but cut specimens, if sufficient, will be admissible in cases where the habit of the plant is well known; as, for example, in many newly-imported varieties of cultivated species of Orchids." *T. Baines.* [Mr. Baines is, of course, quite right from his point of view—the committee, as we have stated (p. 404), could do no other than abide by their rules. On the other hand, it is high time, as we also pointed out last week, that effect should be given to the regulations already made but not systematically acted on, with a view to secure a fitting recognition of novelties and interesting plants of sufficient merit to receive such an award. It is absurd to pass over such plants as we have mentioned and at the same to multiply awards for such things as seedling Dahlias. At the same time, those who show such subjects should bring them in a condition to show their real merits. The introduction of a plant like the *Chionodoxa* is, to our thinking, a much more meritorious matter than the addition to our already over-weighted lists of new seedling flowers. We have no scruple in saying it is one of the finest of dwarf Scilla-like bulbs ever introduced, or in the words of a well-known cultivator of these plants, "the grandest spring-flowering hardy bulb we have." *Eds.*]

— The complaint made by Mr. Elwes as to the indifference displayed by the members of the Floral Committee towards plants that have special botanical interest is a strange one to come from a member of the Council of the Royal Horticultural Society. Unless that body is a mere nonentity in the hands of certain of its members, it certainly ought to be held responsible for the appointment of those who constitute the committees. But there is yet another reason for surprise at the source of this complaint. Some time since in these pages it was pointed out that these committees needed reorganisation, and that the bodies should be fused into one, with divisions only for special objects. Thus the plants and other exhibits of strictly botanical interest should go before the scientific or botanical members, the florists' flowers should be dealt with by the florists, and all the other miscellaneous exhibits by the remaining general members. In this way the work would be fairly allotted, and the members of the Fruit Committee would be spared the frequent recurrence of such a solemn farce as was enacted on the 25th, when that body had to sit in state over a few score of Apples only, whilst the Floral Committee, anxious to knock off their work to meet the Belgian King, had their hands full. Why does not Mr. Elwes make his complaint in the Council, and obtain a remedy! *A. D.*

— I was surprised on reading your remarks of last week, alluding to the Floral Committee of the Royal Horticultural Society, held at South Kensington on March 25, and I beg you will give space to the following, which will certainly afford a true explanation of the proceedings on that day, and I trust undeceive the public, who might infer from your

paragraph that the committee had failed to carry out or erred in their duties as regards the awarding of certificates on the occasion alluded to. The facts are simply these:—In consequence of the inclement weather the committee was very poorly attended, although several were in the conservatory following the King of the Belgians, instead of being in their appointed places; however, when about three parts of our labour was concluded Mr. Elwes rushed to our table, taking from a tin box a single sprig of what at first sight had every appearance of the common wild Hyacinth of the woods, known by children as Bluebells, lauded it to the highest possible pitch as a hardy outdoor flowering bulb recently introduced from some high mountain in Asia, and assured us as having been picked from the open. This was confirmed by another member, who had three or four spikes of it in his coat, and who, although eulogising it, never apparently dreamt of putting it forward for a certificate. The majority of the members, considering the severe weather, doubted its being grown out-of-doors in the state represented, and one member, more bold than the rest, challenged the exhibitor's statement, and who ultimately acknowledged that both specimens were picked from a cold frame. This at once decided the committee to see it again when grown under the conditions first specified. It was also further remarked that the single sprig shown was insufficient to admit of a correct opinion being formed. Nor was the plant entered and submitted in the usual manner; and, further, the exhibitor should have retired both from the discussion and voting, instead of participating. In future, no matter whether councillors or others, when I am present I shall call attention to this fact and request their retirement, which will prevent a repetition of the rebuke called forth in consequence of the murmuring of Mr. Elwes at the decision the majority arrived at. *Henry Cannell, Swanley.*

—In reference to Mr. Elwes' letter and your editorial note, will you allow me to say that I agree in great measure with your views concerning the shortcomings of the Floral Committee, and since my connection with it have endeavoured to combat the predominant trade view. Perhaps an example will make my meaning clearer. The committee refused more than once to certificate *Cinerarias*, *Cyclamens*, &c., because a section alleged they could not be propagated with sufficient rapidity for trade distribution. Now it seems to me the express function of the committee is to adjudicate upon plants actually before them, no matter whether they can be propagated by millions or not at all. If they are beautiful their beauty should be recognised—that a plant is difficult to propagate is no criterion of its merit. For example, I had *Larix Kæmpferi* in my possession, through Mr. Fortune, before any other European, and utterly failed to propagate it for years, though I can do it now; but has any one ever struck a cutting or found a stock to graft it on? Again with *Gentiana Fortunei*: about 1849 or 1850 I grew and exhibited at 21, Regent Street, a plant of this, perhaps the most magnificent of *Gentians*, 3 feet high, 2 feet in diameter, and bearing from 150 to 200 flowers. Dr. Lindley bestowed upon it the highest honours a plant could receive. Now strangely enough I have never been able to grow it since, neither, to the best of my recollection, has any one else—indeed I believe it does not at present exist in Europe; but as a plant it is none the less desirable and meritorious, and it seems to me no valid reason for withholding a recognition of evident beauty from a plant, that it refuses under present knowledge of its nature to submit to cultivation. *Charles Noble, Bagshot.* [We believe no such difficulty exists with the *Chionodoxa*. EDS.]

Fertilising Early Peaches.—Were it necessary to comment upon the interesting and instructive promulgations recently contained in your columns pertaining to the artificial impregnation of early forced Peaches, I would remark that, in my humble opinion, the enunciations and simple practice of such as Mr. R. Westcott and "J. S." alone, and preferably so, embody the *desiderata* for successful results. I am fortified in this affirmation by a similar successful practice of many years' standing, including also that of other practitioners. To escape the charge of bigotry, I may add that I have also indulged in several experiments, such as syringing, brushing over with a bunch of soft feathers, also a fox's "brush"—which latter are but modifications of the Pampas-grass plume mode—all of which are useful agencies, and so is the tedious and time-consuming camel's-hair brush process. The "odoriferous" dung-heap I have not as yet made a trial of, and may say as much of the beehive, considering both unnecessary, as well as cruel and unprofitable as regards the bees. It is a practice which might well render the perpetrators answerable to the benign attention of the Society for the Protection of Animals. Mr. Miller, however, with his facilities, might easily bid defiance to pains and penalties in the power of the Society by successively transferring his "little busy bees" from house to house until the more genial spring weather set in.

In proof of my practice I forward you shoots of Peaches and Nectarines laden with fruit about the size of small Walnuts cut from trees having a uniformly heavy crop all over the house. *Wm. Gardiner, The Gardens, Ettington Park, Stratford-on-Avon.*

Casuarina sumatrana.—*Casuarina sumatrana* is one of the most graceful plants for table decoration possible to behold. In the garden of P. Crowley, Esq., Waddon House, Croydon, is to be seen one of the finest specimens I have ever beheld. It is in the conservatory and is in a 12-inch pot, 10 feet high, 6 feet through, and a perfect gem of grace and beauty. Its *Asparagus*-like foliage is very graceful. This plant has fruited and has been exhibited in that state at the Royal Horticultural Society's meeting. Mr. Strahan, the gardener, propagates it freely, as he finds it most useful as a decorative plant for the dinner-table. *A. O.*

Liriodendron tulipifera.—As an ardent lover of *Liriodendron tulipifera*, I must beg to offer through your journal my best thanks to "J. S." for his excellent letter on that beautiful tree as contained in your issue for March 29. It is my full determination next autumn to plant a few of the trees in a large garden on the Harrow Road, but before doing so I would like to hear from your correspondent what he may consider to be the best aspect for its growth, as also the geological condition of soil. I am told that its roots require a dry bottom. If it will endure the fog and smoky air of this great city, I can conceive no grander tree could possibly be added to London parks and avenues. I think I heard many years ago some remarks made upon this tree before the Royal Horticultural Society, and that a very fine avenue was to be seen at Dresden. I remember seeing this glorious tree flourishing at Longleat in 1875. There used to be a splendid one in a garden to the south of "the home of the Percies, Seymours and Wyndhams," viz., Petworth House, and there was also one in the Horticultural Gardens at Chiswick: I rather think too I saw it at Blenheim a few years ago. I believe it is rather of slow growth, but that is no reason why it should not be more generally cultivated. It is called the "saddle-tree" and the leaves are very like saddles. The gathered flowers will keep fresh for several days in water, I had some from Chiswick which retained their freshness for an entire week even in London air. *John Colebrooke.*

Hardy Flowers.—Notwithstanding the late cold winds these are increasing in beauty daily; Croci and Snowdrops are waning fast, but their places are more than supplied by *Iris reticulata*, blue *Scillas*, and several varieties of Dog's-tooth Violets, varieties of *Erythronium dens canis*, *Hellebores* of the *orientalis* section are now throwing up their pink, rosy-purple and white calyces very abundantly, and Mr. Barr has two or three of the new spotted hybrids now in bloom. These were raised in the Berlin Botanic Garden a few years ago, and are very interesting and ornamental. For general culture, however, perhaps the vigorous free-blooming forms of *H. orientalis* are best adapted, one variety in particular, named *atrorubens*, bearing very bright claret-coloured flowers; and wherever the common single or double *Daffodils* are naturalised in woods or plantations this might with advantage be introduced for contrast, as both flower in sheltered positions at the same time. The most distinct of *Daffodils* now in bloom is that known as the "Tenby" variety, a distinct form of *N. obvallaris*. It is characterised by its short perianth lobes being spread at right angles to the tube and corona, the latter being short, very wide in proportion to its length and spreading at the mouth into a graceful trumpet shape, its margin being distinctly six-lobed and of a rich golden-yellow colour. *Narcissus minor* and the smallest of all *Daffodils*, *N. minimus*, are also now fairly in bloom. One of the loveliest of all the flowers seen during the past week is perhaps *Sisyrinchium grandiflorum*, each of its tufted rush-like stems being tipped by two or three bright claret-purple *Ixia*-like flowers; the white variety is also flowering freely. The large-leaved *Saxifrages* (*Megasea*) are also just now very ornamental, as also are hardy *Cyclamens* in sheltered situations, and the gem of all is the new *Chionodoxa Lucilæ*, which must have a paragraph to itself. *F. W. B.*

Indian Rhododendrons in the Open Air.—I have forwarded you a small box containing three trusses of flowers of *Rhododendron barbatum*, cut from trees growing out-of-doors. We have about twenty very large plants of this variety planted in different parts of the grounds, and when the cold weather set in a week ago they were in quite a blaze of flower, some of the plants carrying as many as seventy trusses of a beautiful waxy-red colour; but the cold cutting wind and frost has wrought sad destruction amongst them, and what I regret more is that we shall have no seed. *R. barbatum* is the earliest *Rhododendron* that we have here, being generally a

fortnight earlier than either variety of *R. Nobleanum*. We have also the following varieties, which will shortly be in flower if the weather permits:—*arboreum*, *eximium*, *Falconeri*, *argenteum*, *Thomsoni*, *longifolium*, *Hodgsoni*, *campanulatum*, three varieties, and several other sorts which have not yet flowered. All these have stood the winter remarkably well without any protection. The following sorts stood the three previous winters to this without protection, and flowered each spring:—*Dalhousiae*, *Edgworthii*, *Countess of Haddington*, *formosum*, *MacNabii*, and *Sesterianum*, but though they all had the protection of a mat this winter I am sorry to say they are badly cut with the frost, with the exception of *formosum*, which had no protection, and stood the winter well; but they are all planted in a very sheltered situation. *Jas. Harris, The Gardens, Singleton, Swansea, March 28.*

The Dieu Apple.—In the issue of the *Gardeners' Chronicle* for March 1, I notice under the head of French Apples that notice is made of the Dieu Donné—and you state that the name is not to be found in leading French or English catalogues. As the variety seems to be of considerable value, I have referred to Mr. Leroy's *Dictionnaire de Pomologie*, and find the Dieu Apple described as a synonym of Gros Api. The description of the latter as therein given agrees with your description of the Dieu Donné. Will some of your readers please inform us through the *Gardeners' Chronicle* if they are not the same? *W. C. Barry, Mount Hope Nurseries, Rochester, N. Y.*

Rogiera cordata.—When visiting Garbrand Hall, Ewell, the seat of Mrs. Torr, I was much struck with the beauty of *Rogiera cordata*, its beautiful trusses of rosy-white flowers are very attractive and useful to the decorator at this season of the year. This plant is really worth growing, and ought to be met with more frequently. Some fine plants of *Dendrobium Wardianum* have made growth over 4 feet long, and will shortly be one mass of flower. *A. O.*

Early Crops.—It would, no doubt, be difficult, as well as presumptuous, to suggest any improvements on the old and oft recommended methods for the production of early crops which have been yearly reproduced in favoured localities with satisfactory results. My remarks are rather intended to direct attention to a novel and most successful method extensively used in Lancashire for the growth of ridge Cucumbers, early Potatoes, &c. My experience was first of all received from a rough-and-ready but successful farmer, who betook himself to Cucumber growing, and to my astonishment, although he altogether ignored either scientific or other published instructions, his attempt was attended with marked success. He first of all procured a common barrel, which was plunged in the farmyard manure-heap. This constituted his propagating pit, and into it was emptied loosely the seed, and there allowed to remain until growth commenced. By this time he had in readiness a systematic hotbed, and on to it he carefully transferred his seedlings. In lieu of a glass frame he procured what is locally known as Cucumber paper, which he painted with boiled linseed oil. When dry this paper resists the inclemency of cold winds and rain, sharp late spring frosts, and also husbands the sun-heat by day. Under this on a hotbed the plants are soon ready for removal to their summer quarters, which is generally in long single rows between staked Peas. Their paper protection is still made use of, arched over them, no air being admitted with the exception of at the ends, whence, on going to examine, you find quite a stove-heat escaping. Here they are grown until all danger of spring frost is past, and, notwithstanding the inferior light, growth is rapid and vigorous, the produce generally being a highly remunerative crop for the farmer. Under this paper early Potatoes generally come into the Wigan market from the cold surrounding districts during the first week in June. For this crop it is lifted off by day and only retained as a covering during night and inclement weather. Kidney Beans, Strawberries, Carrots, Radishes, can be had a fortnight earlier under its protection; it is also an excellent protection for Peach and other wall-fruit blossoms, not forgetting Cauliflower plants during such a severe winter as the past. *Thomas Reid, Chester.*

Specimen Eranthemums.—Your correspondent, Mr. Hinds, will, I am sure, pardon me pointing out the oversight he has committed in his article on *Eranthemums*, in saying that they are not of much service as cut flowers, since, as every one acquainted with E. Andersoni knows it is of great value for the purpose, as it is not only exceedingly beautiful but lasts a considerable time in water, and is altogether one of the most useful and ornamental stove plants I know, and one that may be got into bloom at almost any time of the year, by propagating and growing on a few at different seasons, or resting and cutting back any of the old stock and starting them

in moist heat again. Strong, vigorous plants throw up branching spikes nearly a foot long, the individual blossoms on which are as beautifully marked and delicate-looking as an Orchid, and being of such free and easy culture I can strongly recommend it as quite an acquisition among stove plants. The old *E. pulchellum* is inimitable in its deep shade of blue, which is as rich as the Gentians, but it has the unfortunate habit of only sending out a few flowers at a time, which is very disappointing, especially as they are of a very fleeting nature. *J. S.*

Areca sapida and Pandanus Lennei Fruiting.—When visiting the Crystal Palace recently Mr. Thomson drew my attention to specimens of these two plants, which are at present fruiting in the collection under his charge, and I believe are rarely to be seen in fruit. Conspicuous also among the floral decorations is a fine specimen of the old *Azalea obtusa*; its intense bright scarlet flowers stamp this as a grand companion to *A. amcena*. Why is it not more generally met with? For decorative purpose Mr. Thomson intends working it up in quantities, and using it more extensively. *A. O.*

Primula rosea.—This singularly beautiful gem from Asia Minor is regarded as allied to *Primula Munroii*, and bears its large and pretty flowers in scapes that are partially pendent just as does that variety. The flowers most closely resemble good shaped bright fresh flowers of the rosy-pink *Silene*. To get from it a pleasing effect plants when abundant should be grown in pans, and be neatly surfaced in moss, as at the period of flowering its foliage is in an embryo state. As a pollen parent it should prove most valuable in the hands of the hybridist, and if it can be utilised in the denticulata and amcena species some very charming hybrids might follow. *A. D.*

Effects of the Late Winter on Shrubs.—The dry, biting east winds lately experienced have shown up some weak points in some things usually hardy. The common Bay Laurel has suffered considerably, especially where exposed to the south-east; *Laurustinus* and Sweet Bays look very sickly, and are undoubtedly much injured, as is also *Escallonia macrantha*. Pampas-grass in sheltered and exposed situations is apparently dead; *Quercus Suber* only requires a strong wind to render it leafless. But the object of this paper is to point out the hardness of two plants often cultivated in a greenhouse—I mean *Desfontainea spinosa* and *Pernettya mucronata*. A very interesting correspondence was carried on in the *Gardeners' Chronicle* some time ago regarding these two plants, and I think it was the opinion of several writers that *Desfontainea* is a doubtful subject inland. Here we are 17½ miles from the nearest sea-point—Minehead—altitude, 950 feet. Neither of the above-named plants seem to have been in the least injured by the severity of the late winter. On January 12, at 8.30 P.M., we registered 22° of frost 3 feet from the ground, and on the ground 27°. The matchless beauty of the flowers of *Desfontainea spinosa*, and the purity of the *Pernettya* require no commendation—the flowers of the latter exactly like Lily of the Valley. It is a pity they are not more generally cultivated. They are inexpensive, and, so far as my experience goes, very accommodating. *A. Donaldson, Stoodleigh Court, Tiverton.*

Osborn's Forcing Bean.—I notice that Mr. Miles in last week's *Calendar* strongly recommends Osborn's Forcing Bean, and I have not the least hesitation in saying it is the grandest forcing Bean in cultivation. The system I adopt here is to half-fill the pots with good rich compost, sowing six or eight in a 24-pot, and earthing up in due time. I plunge the pots half-way up to the rim in my Cucumber bed underneath the trellis, the house being span-roofed, and here they remain until the last Beans are gathered. The result is something marvellous. The roots find their way down into the bed, and to this I attribute the cause of their producing such fine produce. I have gathered over 800 Beans from twenty-five pots within the last ten days, of the same quality as the sample which I forward for inspection. I never find the least trace of red-spider, my remedy being abundance of manure-water with atmospheric moisture. *W. Funn, Gr., Canons Park, Edgware, Middlesex.* [We can join with our correspondent in strongly recommending this variety for forcing. The sample received was a very fine one. *EDS.*]

Donn's "Hortus Cantabrigiensis."—Will you permit me to say to your correspondent, "E. P.," that I have a copy of this work, which I am willing to sell or to accept an exchange for. *A. Thomson, 17, Wynne Street, Liverpool.*

Camellias Sporting.—A neighbour of mine here has a *Camellia* growing in his garden, one of the old-fashioned varieties with a confused centre, named *Perzio*, white slightly striped with pink. Some years

ago he inarched on it *rubra plena*, a well-known red variety, and a year or two after found that *Perzio*, in addition to its own flowers, produced some of a bright rose colour. Can it be possible the red variety can have influenced the colour of the other, or is it merely a sport? My friend, who is a lover of hardy shrubs, and has noticed this one for some years past, informs me that until inarched with *rubra plena* no pink or self-coloured blossoms were produced. I may add that *rubra plena* has not varied in colour since its union. Perhaps some of your correspondents will kindly let us know if they have had a like experience, as the influence of the scion and stock is just now a subject of great interest. *E. P.*

High Church at the Horticultural.—On the second page of the wrapper, Part VII., March, 1879, of the *Journal of the Royal Horticultural Society*, amongst the "announcements by the Council," it is stated that there is to be an Auricular Society's show on Tuesday, April 22. If this "show" really takes place, I hope, Mr. Editor, that you will secure some of the "confessions" for your readers. *Schoolgirl.* [Certainly not! *EDS.*]

Bougainvilleas on Single Stems.—Useful as the *Bougainvillea* is as a specimen plant or creeper, it is equally useful when grown of a size to mix with groups of plants for furnishing. The cuttings should be taken when the young growths are somewhat hardened, and slipped off with a "heel." They should then be inserted into small pots, in a mixture of leaf-mould and sharp sand, and plunged in a smart bottom-heat, kept shaded from the sun, and syringed overhead till they have taken root, when they should be lifted by degrees out of the bottom-heat, still kept supplied with water, and syringed till they have fully established themselves. A few might then be shifted into 4-inch and 6-inch pots, giving them a mixture of two-thirds of good fibrous loam and a third of open peat and river sand, ramming the soil firmly round their roots in the pots in order to arrest anything like a soft succulent growth. If the plants are grown on sharply, under something like the conditions that a *Fuchsia* would grow and thrive in, they will form fine shoots of moderate strength, which are better calculated to solidify and ripen than those that are produced in soft spongy soils and loosely potted. A neat stake will be required to each plant as they attain sufficient height, to steady the shoot; or if convenient the pots might be placed in advantageous position from the sun, and the shoots trained up the wires of a house, where they could be gently toned off and afterwards thoroughly ripened under the influence of full exposure to sun and air in time to give them a short rest before they are required to be started for supplying the drooping single heads of purplish-mauve flowers which impart ease and grace to an arrangement that would otherwise look stiff and formal. *W. Hinds.*

Hardiness of Broccoli.—In examining a plot of Broccoli, the other day, containing probably one hundred rows, and at least eight or ten varieties, I was surprised to notice the end plants in every row uninjured, and the two outside rows not much damaged, whilst in the middle of the piece all alike were destroyed to the extent of 70 to 80 per cent.; the rows ran almost exactly north and south. Is the inference to be drawn that Broccoli grown much thinner than usual, or in single rows, would prove hardier than when grown closer together? *Jno. Gould.*

The Protection of Fruit Trees.—The splendid show of blossom-buds now fast expanding on Peaches and Apricots, and the remembrance of the havoc wrought by frost and snow last spring still fresh in our minds, makes most of us doubly anxious to do our best by way of protection to secure a crop. Like Mr. Fish, I am strongly of opinion that the simpler the appliances are and the more natural the shelter we use, the greater are the chances of success. The best results with us last year followed where we stuck in a row of huge branches of Laurel in the front of the trees, with the tops inclining towards the wall, and these formed such a barrier as to bid defiance to the weather and kept all snug and safe beneath them. The energy of radiation during a bright starlight night is great if there is nothing to prevent the escape of the heat from the earth and that absorbed by the bricks, but under a canopy of this kind its flight is intercepted, besides which the frost cannot drop through. Canvas blinds flap about at such a rate that the air is never still, and they are too expensive to be thought of by many, but a few branches are available in most places, and these may be quickly turned to good account. If too small to stand in front they may with great advantage be secured along the top of the wall, to act as a coping, but in no case should they be left longer than is absolutely necessary, for by keeping off some of the sun and light they naturally have a weakening effect. Spruce boughs, being thin, are capital protectors, but

when there is no great risk of severe cold I depend much on fish-nets placed two or three times thick and strained tight, by doing which the meshes cross each other in such a way that neither hail nor rain can get at the blossoms. The best way to put them up is to drive a few short stakes in the border about 2 feet from the foot of the wall, and run a rod along them, made fast with ties or a nail or two, and to these rods the nets can be secured and thus kept from coming in contact with the flowers. A screen of this kind may with safety be left on for a long time without injury, and at this late season may I think be regarded as quite an efficient covering. *J. S.*

Reports of Societies.

Bristol Chrysanthemum and Spring Show Society: March 19 and 20.—This Society held its ninth spring exhibition in the Victoria Rooms, Queen's Road, Clifton, Bristol, on the above days. The show collectively was quite equal in the general excellence of the competing exhibits to any display of a like character we have seen in other parts of the kingdom, and more extensive than any that has come under our notice. The quantity of Hyacinths, Tulips, and Narcissus was enormous; in most of the classes the competition was close, and many groups that would have come off with honours in most places had to be left out here. Messrs. Garaway, of the Durdham Down Nurseries, staged, not for competition, a very fine collection of a hundred varieties of Hyacinths, remarkably even and well flowered, the spikes large, compact, and the foliage stout and short, the latter essential to a well-grown Hyacinth not always sufficiently taken into account by cultivators.

The Treasurer's (Walter Derham, Esq.) special prize (a Silver Cup), offered for twenty-four Hyacinths and twelve pots of Tulips, brought out four groups, and the 1st prize, together with the Royal Horticultural Society's Silver Banksian Medal, for the best twelve Hyacinths in any class, was won by Mr. W. Perry, gr. to H. Cruger Miles, Esq. Amongst the Hyacinths, King of the Blues, l'Innocence, white; Ida, yellow; General Havelock, dark blue; Lothair, pale blue; Linnæus, red; and Charles Dickens, were remarkably good.

Messrs. Garaway's 1st prize for twelve single Hyacinths, blue, white, dark and light red, three of each, went to Mr. Taggett, with an even lot of flowers; and Messrs. Van Waveren's (Holland) 1st prize for twelve pots of Hyacinths, Tulips, and Narcissus was won by Mr. West, with well-grown examples.

The Society's prize for twelve Hyacinths was well won by Mr. Fox, gr. to Mrs. Hurle. Prizes offered by Messrs. Parker & Bush for twelve pots of Tulips: Mr. Fox again took the lead in a close competition, all being remarkably well grown and evenly flowered.

Mixed flowering and fine-leaved plants were well shown. Messrs. Maule & Sons' (Bristol) 1st prize collection, staged on one side of the room, was deservedly admired; the best consisted of Camellias, Azaleas, *Cymbidium eburneum*, *Cypripedium villosum*, the rare *Cattleya amethystoglossa*, *Cœlogyne cristata*, *Dendrobium heterocarpum*, *D. Wardianum*, *D. formosum*, *Anthurium Scherzerianum*, Ferns, and Cyclamens. 2d, Mr. W. Perry, who in a very good lot had *Phalænopsis Schilleriana*, *Vanda cœrulea*, *Odontoglossum crispum*, *O. Roelzii*, *O. cordatum*, *O. Rossii*, *O. Pescatorei*, *O. Hallii*, *Lycaste Skinneri*, *Oncidium Cavendishianum*, *Saccolabium ampullaceum*, Palms, Dracenas, and Ferns.

Best arranged collection of plants in flower.—In these Messrs. Bryant & Hoskins, Bristol, were 1st with an effective group containing Azaleas, Epacris, Deutzias, Hoteias, Ericas, Primulas, and pot-grown Violets. Mr. W. Perry was 2d.

Single stove or greenhouse plants: Mr. W. H. Bannister was deservedly 1st with the rare and seldom seen *Rhododendron Nuttallii*, bearing five of its glorious bunches of immense trumpet-shaped flowers, from four to six in each bunch. It was a much dwarfer example of this plant than we usually see blooming.

Azaleas were not large specimens, but fresh, and bore large flowers: 1st, Mr. W. H. Bannister; 2d, Mr. Taggett.

Amaryllis were forthcoming in very much better condition, with larger heads of bloom, than generally met with. Prizes offered by the Mayor of Bath (Alderman Chaffin), for three pots, any number of bulbs in a pot: The 1st was well won by Mr. O'Brien, gr. to Mrs. R. P. King, who had a grandly flowered three; 2d, Mr. Taggett.

We never saw Primulas better grown or better flowered; the best six were shown by Mr. Knight, gr. to Sir Philip Miles; the plants were full 20 inches across, immensely strong in foliage, and bore heads of flower equally large, alike fine in form and colour. Mr. H. Bannister's 2d prize lot had been little behind the first, but were rather past their best in bloom.

Fine-foliage plants were well shown. For six,

Messrs. Bryant & Hoskins took the lead; Mr. R. Hassell, 2d; four ditto, Mr. Hassell 1st.

Ferns were really well done. For six, Mr. Banister took 1st.

Forced hardy hard-wooded plants were remarkably well-bloomed; amongst these *Azalea mollis*, *A. amena*, and *Deutzia gracilis*, were large and profusely flowered. Few plants are so beautiful as these *mollis* *Azaleas* for using in this way.

Single Orchids.—In this class Mr. W. Perry was 1st with a large and finely-bloomed *Cœlogyne cristata*, 2½ feet across, the leaves all but hidden by the profusion of its lovely spikes of elegant flowers; Messrs. Maule & Sons were 2d, having a smaller but very stout example of the same species.

Cut Roses were both large and in beautiful condition for so early in the season. For twelve Mr. Fisher was 1st; amongst the finest were Madame Falcot, Niphetos, Catherine Mermet, Rubens, and Mrs. Bosanquet.

A quantity of handsome bouquets were staged, the best of which, exhibited by Mr. J. Milford, took the Mayoress' (Mrs. G. W. Edwards) special prize. In another class for bouquets (Orchid flowers not admitted) Mr. Hookings was 1st. There were also a number of centre-pieces, nicely arranged and not too much crowded with flowers. The Society's prize went to Mr. J. Milford. In another class, where the Royal Horticultural Society's Bronze Medal was offered, it was won by Mr. Hookings.

Messrs. Garaway had, not for competition, a large and effective lot of mixed flowering and foliage plants, which much enhanced the beauty of the exhibition. A most interesting collection of cut flowers of outdoor growth were shown by Mr. Vallance, gr. to — Smith, Esq., of the Scilly Isles; their beautiful condition had a startling effect upon our eyes after such a winter as we on the mainland have experienced. They consisted of the following species and varieties, and most of them were as fresh as if they had been cut within a few hours of their being staged:—*Acacia mollissima*, *A. longifolia*, *A. brachyloba*, *A. obtusata*, *A. sp.*, *Corræa virens*, *C. alba*, *Ribes sanguineum*, *Olearia stellulata*, *O. dentata*, *Viburnum sp.*, *V. sp.*, *Myrsine sp.*, *Candollea tetrandra*, *Pittosporum Tobira*, *P. crassifolium*, *Senecio Fosterii*, *S. sp.*, *Escallonia macrantha*, *Fuchsia splendens*, *F. cordifolia*, *Drimys Winteri*, *Leptospermum bullatum*, *Schizostylis coccinea*, *Berberis Darwinii*, *Diosma hirsuta*, *Daphne odorata*, *Sparmannia africana*, *Medicago arborea*, *Banksia sp.*, *Pyrethrum grandiflora*, *Genista*, *Edwardsia grandiflora*, *Polygala dalmaisia*, *Swainsonia sp.*, *Arctotis grandiflora*, *Sedum arboreum*, *Erodium hymenoides*, *Aloe socotrina*, *Teucrium fruticosum*, several *Mesembryanthemums*, *Rhododendrons* and *Camellias*. (From a Correspondent.)

Ealing, Acton, and Hanwell Horticultural: March 28.—It needed some courage as well as enthusiasm to bring out van-loads of plants from their warm domiciles in such unpropitious weather as that which was experienced on the day of this show, and to expose them for twenty-four hours in a cold hall, but the effort was made with the most entire success, and no complaint as to injury in consequence resulted. The great feature of the show was found in the groups arranged for effect around the sides of the hall, and some most charming and indeed surprising results followed. The larger groups brought several able competitors, that arranged by Mr. Maulden, gr. to J. S. Budgett, Esq., of Ealing Park, being placed 1st. Its features were a good admixture of colour and relief, with a graceful and elegant arrangement. Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, was a near competitor with a beautiful group, richer in colour perhaps but lacking the particular feature of elegance. Mr. Hart, gr. to Mr. Thomas Nye, Ealing, also staged a very handsome group, showing a considerable advance in style and quality over his exhibit of the previous year. In the minor groups the 1st prize was deservedly awarded to Mr. J. S. Holden, gr. to G. Jenkins, Esq., in whose group a fine and richly coloured plant of *Croton Disraeli* formed an effective centre. The only special competition for specimen plants was that for six ornamental foliage plants, in which class only Messrs. Maulden and Hudson competed, bringing their finest specimens, and making a tough fight for pre-eminence. Mr. Maulden was, however, placed 1st, his plants displaying greater size and freshness. An *Alocasia metallica*, some 6 feet through and grandly furnished with huge leaves, was a notable feature. Mr. Hudson had a fine *Gleichenia dichotoma*, showing this handsome Fern in fine form. The classes devoted to *Azaleas*, *Hyacinths*, *Cinerarias*, *Hotellas*, *Primulas*, *Dielytras*, &c., were well filled, enabling the smaller gardeners to come to the front with varying success. The *Hyacinths* were of an excellent quality, those staged in the two classes for six and four kinds by R. Baker Hays, Esq., being up to the London standard. Tulips were excellent, and created some fine groups of colour. Boxes of cut flowers were well done, the collection of twelve kinds

sent by Mr. Maulden being so good that it might have taken a 1st place in any show in the kingdom. He had several bunches of Orchids, *Eucharis*, *Anthuriums*, *Souvenir d'un Ami Rose*, scarlet *Epacris*, &c., all of first-rate quality. At either end of the central table were groups of specialties, that at the entrance end being staged by Mr. R. Dean, and consisted of Himalayan *Primulas*, coloured *Primroses*, *Scilla sibirica*, and other pretty hardy plants. At the opposite end Mr. H. B. Smith, of Ealing Dean, arranged a charming group of his beautiful *Cyclamens* that were greatly admired. Fronting the orchestra was a row of boxes containing examples of all the best golden, silver, and bronze variegated *Pelargoniums*, marvellously coloured, sent by Mr. Pestridge, of Boston Road Nursery, Brentford, these being backed up by a fine group of plants, including several high-coloured forced *Rhododendrons* from Gunnersbury Park, sent by Mr. Roberts; also one of handsome foliage plants from Mr. Hudson, and last, not least, a grand white-flowered *Azalea*, its huge head smothered in bloom. Mrs. Hudson presented a taste of her elegant style in table decoration, and received the 1st award in the miscellaneous class.

Royal Caledonian Horticultural Society: April 2 and 3.—Ever since the Royal Caledonian has moved its exhibitions to the great area known as the Market Gallery, they have been attended with uniform success. The building itself measuring about 300 feet long, by 90 feet wide, is so capacious as to hold quite as much stuff in the shape of plants of all kinds as the Modern Athens can command, and give more than ample space for promenading and seeing what is to be seen with great ease and comfort—in fact there is no similar permanent building of the kind available for horticultural shows in Great Britain. The space was occupied by tables placed four abreast lengthways, with sufficient distances between for promenaders to inspect the various articles, and the cross tables at the end with the improvised decorations at the sides gave quite a beautiful character to the whole. The principal tables were 50 feet by 12 feet, and five of these occupied the central prominent position. Beginning at the end, Ireland & Thomson filled one table with a miscellaneous collection of stove and greenhouse plants which comprised some of the newer and rarer plants offered in commerce, with Palms, tall *Dracænas*, effective coloured *Crotons*, the best of which for colour and habit was the fiery coloured *Etna*; several charming little pans full of the higher-coloured *Coleus* interspersed with nicely flowered *Azaleas*, not the least effective of which was the fine nankeen-coloured *mollis* in many varieties, some little bits of Orchids, choice Ferns, and such-like, making a most effective whole. Next in order were Dickson & Co., who had also a miscellaneous assortment interspersed with some effective *Rhododendrons*, among which was a new hybrid, named *Duchess of Connaught*, of Edgworthi fragrance and type, but less crimped, and having a nice pale lemon dash at the base of the segments. These, fronted with alpenes and spring flowering bulbs, made up their contribution. Next in order came a very magnificently filled table, in respect of bulk and quality, from Downie & Laird, among which were the twelve *Rhododendrons* that took 1st position, and they would be difficult to rival anywhere. The Countess of Haddington is the largest plant in the country, and flowered at every point. The R. Falconer, although like a bare-legged highlander, was bristling with flower trusses—pity these Sikkim fellows should be so leggy. Brilliant is also noteworthy from its peculiar colour, and it seems a founding that nobody knows anything about; Lady Clark is a beautiful soft lilac; Broughtoni still keeps to the front among old sorts, as also does the charming *Jasminiflora*, which is so Jasmine-like in its flowers and so deliciously fragrant. In this lot was an *Imantophyllum miniatum* var., so good that it obtained a Certificate. Messrs. Thomas Methven & Sons had none of the hybrid sorts in their collection, which was made up of *Rhododendrons* in the height of inflorescence—a gorgeous display. Then followed Messrs. Downie & Laird, with great plants of *Queen Victoria*, *Bylesianum*, *The Grand Arab*, *fruticosum plenum*, *John Waterer*, &c., and filled the space completely with *Rhododendrons* in variety. This firm took 1st position for the prize offered for plants in 8-inch pots with *Camille de Rohan*, *Mirabile*, *Sir Isaac Newton*, *Sherwoodianum*, *Sir John Moore*, and many others, new and old. This firm occupied yet another table with a miscellaneous group, in which there were several excellent flowered *Pelargoniums*—one named *Countess of Rosebery*, a seedling from Annie and Bridal Bouquet, which has floriferousness and chasteness to recommend it. Todd & Co. had several pinnate-leaved Palms, and good examples of table decorations and bouquets. Mr. Robertson Munro had a nice assortment of alpenes, his large collection of *Primulas* was much admired; one, *Primula denticulata alba*, received a First-class Certificate, and it is a gem among its fellows for purity. Drummond Bros. had a nice assortment of decorative table plants, interspersed with some good bits of Orchids, several good *Camellias*, and such-

like. Mr. Anderson, Meadow Bank, had a very effective group of *Amaryllis*, clean and well shown, three of which, Isaac Anderson-Henry, A. B. Stewart, and Angus McLeod, received First-class Certificates from the Scottish Horticultural Association. *Hyacinths* have not been so well shown in Edinburgh for years; the spikes were grand as a whole, and beautifully finished. Messrs. Downie & Laird had their own way in the nurserymen's classes with these bulbs. Roses are looking up. Mr. James Symes' lot was very creditable, and so were those from Lady Dundas, Beechwood. The cut Roses, especially *Maréchal Niel*, from Major Wauchope's garden, were particularly fine, and so were those from Mr. James Hope, of Belmont. Orchids generally were an indifferent exhibition, if we keep out the very notable exception of a plant of *Phalenopsis Schilleriana* from Mr. Miln, Arbroath—the very plant, by the way, that received the Lindley Medal some years ago, at that time with 212 flowers, now it had nearly 400 on four panicles, one panicle alone having 142 flowers—no doubt by far the finest plant of this species in this (or shall we say any?) country. Mr. Buchanan had the best-flowered plant of *Cœlogyne nitida* we ever saw grown in a large Teak basket, and the flower-spikes drooping over the edges in quite charming fashion. Mr. Miln had a stand of *Lycaste Skinneri*, prominent among which was the best flower of alba probably ever exhibited, the stand being arched over by a fine raceme of the very interesting and rather telling *Cymbidium Lowianum*. Palms came in good style from Mr. M'Vicar and from Millbank; the best six flowering plants were contributed as usual by Mr. Paterson, from the Millbank collection, and were exceedingly creditable. By far the best *Azaleas* came from Mr. Paul, his white *Magnificent* and purple *Charmer* were in quite the style we like to see them. The best group in the limited-pot classes came from Mr. Bald and Mr. Paterson. The flowers were much finer developed than most of the larger plants, and the varieties were finer in quality. Foliage plants formed quite a feature in the show, Mr. M'Clure and Mr. George Gordon taking best places. The Fern groups were large, and helped to tone down the brilliancy of *Rhododendrons*, *Azaleas*, and fiery-coloured flowering bulbs. Mr. M'Donald and Mr. Paul had the best groups, chief among them being *Gleichenia dicarpa*, grand plants of *Adiantum gracilimum*, *Davallia bullata*, and many species of the handsome growing *Maidenhair* (*Adiantum*). Alpenes were in force, and at this season commanded much attention—Mr. James Hope and Mr. Laidlaw, North Berwick, dividing honours.

The best table of plants came from Mr. James Spence, gr. to James Buchanan, Esq. This was most effective, because of the not over-large plants which filled it. Every one was fresh, and either good as a flowering or foliage plant; it was composed of Heaths, *Epacris*, bulbs, and table plants in variety. Mr. Knight, Floors, had a hamper surfaced with grand trusses of a variety of *Rhododendron arboreum*, much larger and brighter than the original species, which seems to have been passed over.

Fruit was very good although limited in quantity. Best white Grapes came from Mr. Anderson, Oxenford Castle—the sort being *Trebbiano*. Mr. Greig, Cragend, also showed good examples. Mr. John Borthwick, Stobo Castle, and Mr. David Kemp, Galashiels, had good Lady Downe's, the latter being particularly fine. Mr. McIntyre had well-coloured Strawberries. The best thing in Strawberries came from Mr. Chisholm, gr. to Peter Rintoul, Esq., Bothwell Bank—a seedling, named *Bothwell Bank Prolific*, of conical shape, shown in a pot and evidently large in size and pretty free-bearing, with what the committee (who awarded it a First-class Certificate) called "excellent flavour."

Obituary.

WE regret to have to announce the death on the 17th ult. of the venerable Professor REICHENBACH, of Dresden, in his eighty-seventh year. Professor REICHENBACH was the father of our distinguished correspondent, the eminent Orchidologist. The elder REICHENBACH is best known in this country for his numerous illustrated publications on the Flora of Central Europe, in the elaboration of which he was much aided by his son.

—We have to record the death, on Sunday last, of Mr. JAMES STEVENSON, Gardener to Charles Coombe, Esq., at Cobham Hall, Surrey. Mr. Stevenson, who died in his 60th year, entered the service of the late proprietor of Cobham Hall about thirty years ago, his duties commencing with the formation of an entirely new garden, which he has had charge of ever since.

—The Right Hon. THOMAS FRANCIS KENNEDY,

of Dalquharra and Dunne, Ayrshire, whose death at the age of ninety was announced a day or two since in addition to other political offices was appointed in 1850 one of the Commissioners of Woods, Forests, and Land Revenues, an office which he held for some few years in a manner which may be gleaned from the dedication of Dr. Lindley's *Theory of Horticulture*, which runs as follows:—"To the Right Honourable Thomas Francis Kennedy, lately one of Her Majesty's Commissioners of Woods, Forests, and Land Revenues, who endeavoured to reform a public department in which unskilful management has been most disastrous, this edition of a work on the principles of cultivation is inscribed as a mark of respect for high official character and ill-requited public services by his faithful servant, The Author." Dr. Lindley's animadversions were well merited, as readers of the *Gardeners' Chronicle* for those years will admit. Mr. Kennedy was an occasional correspondent of this journal, and even within the last few weeks we had a communication from his pen on the subject of the old Vine at Hampton Court.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, April 2, 1879.

| MONTH AND DAY | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th EDITION. | | WIND. | RAINFALL. |
|---------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|------------|-------|-------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | | |
| Mar. 27 | In. 29.40 | -0.37 | 40.0 | 30.4 | 9.6 | 35.1 | -7.6 | 32.3 | 83 | E. N.E. 0.00 |
| 28 | 29.51 | -0.22 | 45.1 | 29.9 | 15.2 | 36.4 | -6.6 | 31.7 | 84 | N.E. 0.00 |
| 29 | 29.51 | -0.22 | 59.5 | 36.0 | 23.5 | 43.3 | +3.0 | 43.6 | 91 | N.W. 0.02 |
| 30 | 29.55 | -0.21 | 55.1 | 38.5 | 16.6 | 44.9 | +1.2 | 42.6 | 92 | S.W. 0.05 |
| 31 | 29.47 | -0.29 | 58.7 | 40.3 | 18.4 | 47.2 | +3.2 | 41.5 | 81 | S.W. 0.06 |
| April 1 | 29.49 | -0.26 | 53.1 | 40.8 | 12.3 | 45.3 | +1.1 | 40.4 | 83 | S.W. 0.00 |
| 2 | 29.63 | -0.31 | 56.6 | 34.0 | 22.6 | 42.6 | -1.8 | 38.2 | 85 | N.W. 0.00 |
| Mean | 29.51 | -0.27 | 52.6 | 35.7 | 16.9 | 42.5 | -1.2 | 38.6 | 86 | variable sum 0.13 |

March 27.—Fine till 10 A.M., overcast afterwards. Cold. Partially clear at 11 P.M.
— 28.—Fine but cloudy till evening, then overcast. Cold.
— 29.—A fine bright warm day. A little rain fell in early morning. Slight shower of hail at 3 P.M. Lightning seen at 8 P.M.
— 30.—Generally fine, though frequently dull and cloudy. Dashing showers between 1 and 3 P.M. Windy.
— 31.—Fine, bright, partially cloudy. Mild. Rain fell in early morning, and there was a slight shower at 1 P.M.
April 1.—Fine and bright till noon; overcast afterwards. Occasional drops of rain after 5 P.M.
— 2.—Generally fine and bright till afternoon, then cloudy and dull. Cool.

LONDON: *Barometer*.—During the week ending Saturday, March 29, in the vicinity of London the readings of the barometer at the level of the sea increased from 29.81 inches at the beginning of the week to 29.89 inches by the evening of the 23d, remained at this reading till the afternoon of the 24th, then decreased to 29.57 inches by the afternoon of the 27th, increased to 29.78 inches by the evening of the 28th, decreased to 29.67 inches by the morning of the 29th, and increased to 29.79 inches by the end of the week. The mean reading for the week at sea level was 29.75 inches, being 0.09 inch below that of the preceding week, and 0.21 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 59½° on the 29th to 33° on the 24th; on the 23d, 25th, 26th, and 27th the highest readings were between 34° and 40°; the mean value for the week was 40½°. The lowest temperatures of the air observed by night varied from 26½° on the 25th, and 28° on the 24th, to 36° on the 29th; the mean value for the week was 30½°. The mean daily range of temperature in the week was 10°, the greatest range in the day being 23½°, on the 29th, and the least, 3°, on the 23d.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—

23d, 3°.8, —8°.2; 24th, 29°.6, —2°.5; 25th, 29°.6, —12°.7; 26th, 32°.2, —10°.3; 27th, 35°.1, —7°.6; 28th, 36°.4, —6°.6; 29th, 46°.3, +3°. The mean temperature of the air for the week was 34°.7, being 7°.8 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 121½° on the 29th, and 87° on the 28th; on other days the highest readings were between 37° and 47°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 25° on the 25th, 26° on the 24th, and 27° on the 27th and 28th; the mean of the seven lowest readings was 28°.

Wind.—The direction of the wind was E.N.E., and its strength strong.

The weather during the week (with the exception of Saturday, which was fine and warm) was dull and raw-cold.

Snow fell on the 23d, 24th, 25th, and 26th. Lightning was seen at 8 p.m. on the 29th.

Rain.—The amount of rain and melted snow measured during the week was 0.17 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, March 29, the highest temperatures of the air observed by day were 62° at Sunderland, 59½° at Blackheath, 58½° at Leicester, and 57½° at Cambridge; the highest temperature of the air at Bradford was 44½°, and at Leeds was 45°; the mean value from all stations was 53½°. The lowest temperatures of the air observed by night were 26½° at Wolverhampton, 26½° at Blackheath, 28° at Hull, and 28½° at Bradford; the lowest temperature of the air at Truro was 31°, and at Plymouth, Leeds, and Sunderland was 31°; the mean from all places was 29°. The extreme range of temperature in the week was the greatest at Blackheath, 32½°, and Sunderland, 32°, and the least at Leeds, 15°, and Bradford, 16½°; the mean range of temperature in the week from all stations was 24½°.

The mean of the seven high day temperatures was the highest at Truro, 45°, Plymouth 42½°, and Bristol 42°; and the lowest at Bradford and Leeds, both 37°, and Nottingham 37½°; the mean value from all places was 40°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 29½°, Sheffield and Bradford, both 30½°, Blackheath 30½°, and Nottingham 30½°; and the highest at Truro, 35°, and Plymouth 33½°; the general mean from all stations was 31½°. The mean daily range of temperature in the week was the least at Leeds, 5½°, and the greatest at Cambridge, 10½°; the mean daily range from all places was 8½°.

The mean temperature of the air for the week from all stations was 34½°, being 1° lower than the value for the corresponding week in 1878. The highest was 38½° at Truro, and 37° at Plymouth; and the lowest 32½° at Bradford, 32½° at Wolverhampton, and 33° at both Nottingham and Leeds.

Rain and Snow.—The amounts of rain and melted snow measured during the week varied from 0.69 inch at Truro, and 0.45 inch at Bradford, to 0.05 inch at Wolverhampton and 0.12 inch at Liverpool; the average amount over the country was 0.26 inch.

The weather during the week (with the exception of Saturday, the 29th) was dull and bitterly cold, with frequent snow.

Lightning was seen at Sunderland on the 26th, and a slight thunderstorm occurred at Cambridge on the 28th.

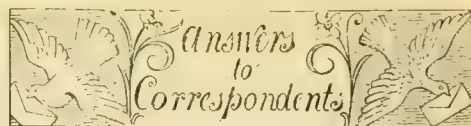
SCOTLAND: *Temperature*.—During the week ending Saturday, March 29, the highest temperatures of the air varied from 58° at Paisley and 53½° at Edinburgh to 39° at Perth and 43° at Greenock; the mean from all places was 49½°. The lowest temperatures of the air varied from 24° at Edinburgh, 26° at Perth, and 26½° at Greenock, to 30° at Aberdeen; the mean from all stations was 27½°. The mean range of temperature in the week from all places was 22½°.

The mean temperature of the air for the week from all stations was 34½°, being ½° lower than the value for the corresponding week in 1878. The highest were 36° at Paisley and 35½° at Glasgow, Dundee, and Aberdeen; and the lowest were 33° at Perth and 33½° at both Edinburgh and Greenock.

Rain and Snow.—The amounts of rain and melted snow measured during the week were the heaviest at Dundee, 0.55 inch; Perth, 0.46 inch; and Aberdeen, 0.34 inch; and the least at Glasgow, 0.10 inch; and Paisley, 0.20 inch. The average amount over the country was 0.31 inch.

DUBLIN.—The highest temperature of the air was 53½°, the lowest was 30°, the extreme range was therefore 23½°, the mean was 36½°, and the amount of rain and melted snow measured was 0.47 inch.

JAMES GLAISHER, F.R.S.



FRANCISCA AND TABERNAMONTANA: A. G. Such plants as these are so much influenced in the time of flowering by the particular treatment they receive as to cutting back, the time they make their growth, and the temperature kept up, that it is impossible to give definite instructions without knowing exactly how the plants have been treated and seeing the condition they are in; but knowing these matters yourself, we should advise that the Tabernamontana be induced to make later growth in the autumn, and to give it as cool treatment as it will bear later, through the winter, than what you have found, to bring it into flower thus early; it is not, however, a good plant for conservatory work. The Francisca has no regular time of flowering in cultivation, as when it has made a little growth it sets and goes on blooming if warm enough. If your plant were managed another year so as to bring it into flower a month earlier than this, and then kept in brisk heat afterwards, it would bloom again by the time you require. T. B.

FRENCH BEAN: F. P. If you mean a dwarf variety, we should think the Dwarf Negro would prove the best.

HEATHS: Subscriber. In propagating Heaths, cuttings must be made from the points of the young shoots, when the wood is in that particular state best described as neither too soft nor too hard, or about half matured, stripping off the lower leaves, and inserting in pots of silver-sand, closely covered with bell-glasses, shaded and kept in a medium temperature. Success a good deal depends upon the shoots being in right condition as to maturity, which it is not possible in writing to fully convey. T. B.

INSECTS: W. Rose. The insect which is completely demolishing your Vine-leaves, devouring them wholesale in a single night, is the well-known grooved weevil (*Otiorynchus sulcatus*), which shams death when disturbed, and is easily captured by spreading a sheet under the Vines and shaking the weevils into it. When captured, you will know what to do with them.

MASDEVALLIA: H. E. C. Without being told how hot, cold, damp, or dry you keep the house in which this is growing, we cannot possibly tell if either condition is in excess. As a guess, we should be inclined to think the atmosphere is too dry, and possibly too hot, and that the roots may be kept too dry also.

NAMES OF PLANTS: S. M. & Co. Sparmannia africana.—H. A. The New Zealand Parrot's-bill (*Clinanthus puniceus*).—Vitis. 1, *Dracæna reginae*; 2, *Adamia versicolor*; 3, *Croton undulatum*; 4, *Pteris hastata*; 5, *Centrostemma multiflorum*, alias *Cyrtoceras reflexum*; 6, one of the inferior *Crotons*.—R. Norris. *Adiantum pedatum*.

SPATHIOLOTTIS LOBBII: An Old Subscriber. You may congratulate yourself on obtaining *Spathioglottis Lobbii*, for as it becomes better known it will undoubtedly fetch high prices. Grow it in a well-drained shallow pan, using peat, sphagnum, and silver-sand for it to root in. Keep the bulbs above the compost, as the breaks spring from their under-centre. Place it in a light position in the East Indian-house, and give it plenty of water all the year round.

VINES: F. B. Baldwin. We cannot tell the cause of the mischief; but it seems quite possible the dressing used may be in fault. What were the materials employed?

WOODLICE: C. E. L. The best and least troublesome method of destroying these pests is to pour boiling water in their runs; but it must be applied again and again, until you have got them under. Where the hot-water cannot be safely applied, fill a few flower-pots with dry moss or horse-droppings, and dip them into scalding water every other morning. Persevere, and you will soon be free.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED:—Messrs. James Backhouse & Son (York), Catalogue of Alpine Plants and Hardy Perennials.—Thomas Studd (52, Cross Street, Manchester), Catalogue of Roses and Easily Grown Plants.—Messrs. James Cocker & Sons (Aberdeen), General Spring Catalogue of Bedding and other Soft-wooded Plants.—Messrs. Rawlings Brothers (Old Church, Romford), Descriptive Catalogue of Dahlias.

COMMUNICATIONS RECEIVED:—F. W. B.—C. W.—J. S. (many thanks).—J. H.—C. Y. M.—J. P.—R. D.—F. C. H.—G. B.—R. T. S.—A. S. Subscriber.—Max Leichter.—Sir A. J.—The Chairman of the Floral Committee.—J. A.—A. W.—D. R. B.—C. W. S.—H. C.

Markets.

COVENT GARDEN, April 3.

Trade quiet, and prices generally not maintained. James Webber, Wholesale Apple Market.

FRUIT.

| | s. d. | s. d. | | s. d. | s. d. |
|------------------------|-------|-------|-----------------------|-------|-------|
| Apples, ½-basket | 1 | 6 | Oranges, per 100 | 4 | 0 |
| Cobs and Filberts, lb. | 0 | 9 | Pears, per doz. | 4 | 0 |
| Grapes, per lb. | 3 | 0 | Pine-apples, per lb. | 2 | 0 |
| Lemons, per 100 | 3 | 0 | Strawberries, per oz. | 0 | 6 |

VEGETABLES.

| s. d. s. d. | s. d. s. d. |
|--------------------------------|--------------------------------|
| Artichokes, English | Herbs, per bunch .. 0 2-0 4 |
| Globe, doz. .. 2 0-4 0 | Horse Radish, p. bun. 4 0-.. |
| Jerusalem, bush. 6 0-.. | Lettuces, Cabbage, |
| Asparagus, Fr. sprue, | per doz. .. 1 6-.. |
| per bundle .. 1 6-.. | Mint, green, bunch.. 1 6-.. |
| Eng., per 100 .. 10-15 0 | Onions, per bushel.. 6 0-7 0 |
| Fr. giant, p. bun. 30 0-.. | — young, per bun. 0 4-0 6 |
| Toulouse, bun.. 5 0-7 0 | Parsley, per lb. .. 2 0-3 0 |
| Beans, French, p. 100 3 0-4 0 | Peas, per quart .. 5 0-.. |
| Beet, per doz. .. 1 0-2 0 | Potatoes, new, basket 1 0-.. |
| Brus. sprouts, bush. 10 0-.. | Radishes, Fr., bunch 0 6-.. |
| Cabbages, per doz. .. 1 0-2 0 | — New Jersey, doz. 2 0-.. |
| Carrots, per bunch .. 0 4-0 6 | Rhubarb, doz. .. 6 0-8 0 |
| Cauliflowers, per doz. 2 0-5 0 | Shallots, per lb. .. 0 6-.. |
| Celery, per bundle .. 1 6-2 0 | Seakale, per punnet 2 6-.. |
| Chilis, per 100 .. 2 0-.. | Spinach, per bushel 5 0-10 0 |
| Cucumbers, each .. 0 9-1 6 | Sweet Potatoes, per lb. 0 6-.. |
| Endive, Batav. dozen 1 6-.. | Tomatoes, per dozen 2 6-3 0 |
| Garlic, per lb. .. 0 6-.. | Turnips, p. 12 bunch. 3 0-6 0 |

Potatoes: — Regents, 100s. to 130s.; Champions, 80s. to 95s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

PLANTS IN POTS.

| s. d. s. d. | s. d. s. d. |
|----------------------------------|---------------------------------|
| Arum Lily, or Rich- | Ficus elastica, each 2 6-15 0 |
| ardia aethiop., doz. 9 0-18 0 | Foliage Plants, vari- |
| Azaleas, per dozen .. 18 0-60 0 | ous, each .. 2 0-10 6 |
| Begonias, per doz. .. 9 0-18 0 | Fuchsias, per dozen 9 0-18 0 |
| Bouvardias, per doz. 18 0-24 0 | Genistas, per dozen .. 9 0-24 0 |
| Camellias, per dozen 18 0-60 0 | Hyacinths, per doz. 6 0-18 0 |
| Cinerarias, per doz. 6 0-18 0 | Mignonette, per doz. 6 0-9 0 |
| Cyclamens, per doz. 9 0-30 0 | Myrtles, per doz. .. 6 0-12 0 |
| Cyperus, per dozen 6 0-12 0 | Palms in variety, |
| Dielytra, per dozen 9 0-18 0 | each .. 2 6-21 0 |
| Dracæna terminalis 30 0-60 0 | Pelargoniums, scar- |
| — viridis, per doz. 18 0-24 0 | lets, zonal, doz. .. 6 0-12 0 |
| Erica hymenalis, doz. 9 0-30 0 | Primulas, per dozen 4 0-12 0 |
| Euonymus, var., doz. 6 0-18 0 | Spiræa, per dozen .. 6 0-24 0 |
| Ferns, in var., p. doz. 4 0-18 0 | Tulips, per dozen .. 8 0-12 0 |

CUT FLOWERS.

| s. d. s. d. | s. d. s. d. |
|---------------------------------|--------------------------------|
| Abutilon, 12 blooms 0 6-1 0 | Mignonette, 12 bun. 6 0-12 0 |
| Arum Lilies, 12 blms. 4 0-12 0 | Narcissus, paper- |
| Azaleas, 12 sprays .. 0 6-1 6 | white, 12 sprays .. 1 0-2 0 |
| Bouvardias, per bun. 1 0-4 0 | Pelargoniums, 12 spr. 1 0-2 0 |
| Camellias, per dozen 1 0-6 0 | — zonal, 12 sprays 0 6-1 6 |
| Carnations, per dozen 1 6-4 0 | Primroses, single yel- |
| Cineraria, 12 bunches 9 0-18 0 | low, 12 bunches .. 1 0-3 0 |
| Cyclamen, 12 blooms 0 3-1 0 | — double white, 12 |
| Daffodil, 12 bunches 3 0-9 0 | bunches .. 2 0-4 0 |
| Deutzia, 12 bunches 6 0-12 0 | Primula, double, per |
| Epiphyllum, 12 blms. 1 0-3 0 | bunch .. 0 9-1 6 |
| Eucharis, per doz. .. 6 0-18 0 | — single, 12 bunch. 6 0-12 0 |
| Euphorbia, 12 sprays 3 0-6 0 | Roses (indoor), doz. 1 6-9 0 |
| Gardenias, 12 blms. 4 0-12 0 | Stephanotis, 12 sprs. 9 0-18 0 |
| Heliotropes, 12 sp. .. 0 6-1 0 | Tropeolum, 12 bun. 2 0-6 0 |
| Hyacinths, 12 spks. 4 0-12 0 | Tuberose, per dozen 3 0-6 0 |
| — Roman, 12 spks. 0 6-2 0 | Tulips, 12 bunches .. 1 0-2 0 |
| Lily of Val., 12 sprays 1 0-3 0 | Violets, 12 bunches 0 6-2 0 |

* * These prices are not to be depended on during Easter, on account of decorations.

SEEDS.

LONDON: April 2.—The return of winter a fortnight ago, having for a time brought field work somewhat to a standstill, there is for the moment rather less demand for farm seeds: however, values all round keep exceedingly steady, and the stocks of all kinds are by no means superabundant. The present will, without doubt, be a very late season, agricultural operations, especially in the North, being still greatly in arrear. The supply of English Clover seed, as previously mentioned, has of late much fallen off: there is but little American on the spot: some handsome parcels of Canadian seed, just arrived here, meet with attention. In Alsike, white Clover, and Trefoil seeds, there is a fair trade doing at full prices. Grass seeds move off on former terms. Good black Rape seed is inquired for; for Mustard there is scarcely any sale. Blue Peas are steady alike in value and demand. As regards Canary and Hemp seed the tendency of currencies is adverse to the buyer. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

HAY.

The Whitechapel market report for Tuesday states that there was a moderate supply of hay and straw on sale. Trade was very dull, and prices were as follows: —Prime Clover, 95s. to 106s.; inferior 80s. to 90s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 35s. per load.—Cumberland Market quotations:—Superior meadow hay, 84s. to 92s.; inferior, 65s. to 74s.; superior Clover, 105s. to 114s.; inferior, 70s. to 92s.; and straw, 36s. to 40s. per load.

POTATOS.

From the Borough and Spitalfields markets reports we learn that sound Potatoes went off steadily, but there was not much demand for inferior kinds. The supplies were moderate. Regents, 95s. to 120s.; rocks, 65s. to 70s.; Champions, 70s. to 95s.; Victorias and flukes, 110s. to 135s. per ton.—During last week 25,848 bags were received at London from Hamburg, 3965 Ghent, 3379 Antwerp, 1010 Bremen, 933 bags 305 barrels Malta, 223 bags Dunkirk, 122 tons Louvain, and 85 bags Boulogne.

COALS.

There was a quiet demand for house coals on Monday at previous prices; quietness also characterised the business done at market on Wednesday. Quotations:—Walls End—Hetton, 17s. 6d.; Hetton Lyons, 14s. 9d.; Lambton, 17s.; Tunstall, 14s. 9d.; Salvin's Hutton, 15s. 3d.; Radford Navigation, 15s. 9d.

Government Stock—On Monday Consols for delivery and account were 97 to 97½; Tuesday, 97½ to 97¾ for delivery, and 97½ to 97¾ for account; Wednesday, 97½ to 97¾, and Thursday, 97½ to 97¾, for delivery and account.

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The young pair are represented in full length; the expression on the suitor's handsome countenance, as he bends over the form of the woman of his choice, is replete with manly tenderness and devotion as he gazes upon the face of the maiden, whose eyes are modestly bent downwards, while upon her truly beautiful countenance can be plainly read such a perfect volume of love, so purely and beautifully radiant and happy is her expression, at the same time that she evidently makes no attempt to withdraw her hand from the tender imprisonment in which it is held, that no room is left for doubt that the verdict so anxiously awaited will be a favourable one. The details of surrounding scenery, dress, &c., are simply exquisite.

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Paris Exhibition, 1878.

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TWELVE ACRES OF ROSES.—Standard, Dwarf, and Climbing, all the popular sorts; also 80,000 choice Tea Scented and Noisette Roses in pots; extra strong Roses in pots for immediate forcing. See Descriptive Price List for a penny stamp.

GRAPE VINES and ORCHARD HOUSE TREES in POTS.—Grape Vines, extra strong, and warranted free from phylloxera, oidium, and all disease; Planting Canes, 3s. 6d. to 5s. each; extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. each. Orchard-house Trees, fruiting in pots, consisting of Peaches, Nectarines, Apricots, Plums, Cherries, Pears, Apples, and Figs. Descriptive Price List for a penny stamp.

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FUCHSIAS, choicest named, 1s. 6d. per dozen.
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BEECH, 4 to 5 feet, strong, 8s. per 100; 5 to 6 feet, strong, 10s. per 100; 6 to 8 feet, strong, 25s. per 100; 8 to 10 feet, strong, 50s. per 100.
CHESTNUTS, Horse, 6 to 8 feet, strong, 16s. per 100; 8 to 10 feet, strong, 60s. per 100.
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Evergreen Shrubs.
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YEW, English, 9 to 12 inches, 8s. per 100; 1¼ to 1½ foot, 10s. 6d. per 100; 1 to 2 feet, 12s. per 100; 2 to 3 feet, 20s. per 100; 3 to 4 feet, 40s. per 100; 3 to 4 feet, 6s. per dozen.
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 Roller Machines, and will cut Borders.
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 The best Machines for Large Lawns, Cricket Grounds, &c.
 Made in six sizes, for Pony and Horse Power—26 to 48 in.
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AMERICAN EARLY ROSE.
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MARIGOLD, superb Gold-striped French, saved from perfectly double, beautifully striped flowers, ex. ex.; per packet, 6d. and 1s.

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Rollison's True Selected Stock.
To the Trade, 5s. per 100 Seeds.

TURNER'S BLUE GOWN,

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And at per ounce on application.

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THE NEW PLANT and BULB COMPANY

Begin respectfully to inform their Friends that their SPECIAL LIST, No. 43, is now published, contents as follows:—Colombian, Mexican, Japanese and East Indian Orchids; and the finest representatives from each country, embracing Odontoglossums, Cattleyas, Oncidium, Aerides, Dendrobies, Vandas, Cologynas, Cypripediums, Pleioneas, Saccolabiums, Lælias, Maxillarias, &c. This List contains both the Prices for Established and Imported Plants, and the Prices range from 2s. 6d. upwards.

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(ESTABLISHED 1855)
Manufacture the highest quality of
ARTIFICIAL MANURES
For Root, Corn, and Grass Crops.
36, Mark Lane, London.

COCOA-NUT FIBRE REFUSE, as supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

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Reduced Price.—In 4 bushel bags, bags included, at 1s., or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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As supplied by E. Bentote to Messrs. Veitch & Sons, Carter & Sons, Wills, Bull, Daniels, Ewing, &c., and hundreds of Nurserymen and Gardeners, 3d. per bushel, 100 for 20s., truck (loose, about 3 tons) 30s., free to rail. PEAT, LOAM, SAND, MANURES, &c. Write for free Price List.

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5 sacks, 25s.; 12 for 45s., or 36s. per ton.

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BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. BLACK, good quality for American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s. per ton, or 6-ton truck for £4 10s. Delivered on rail at Blackwater, S.E.R., or Camberley, S.W.R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

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PEAT, good Fibrous, for Sale.—Apply to G. SMITH, Brasted Chart, near Sevenoaks, Kent.

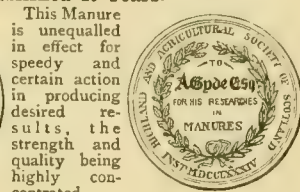
CLAY'S FERTILISER,
Or PLANT FOOD,

Is now respectfully offered to the Public, after having been thoroughly tested and approved, during the last three years, by the principal Market Growers and Gardeners. It is a powerful and lasting Manure, quick in action, and clean and safe to use. See correspondence in *Gardeners' Chronicle*, Oct. 5, 12, 19, and 26. To be had of Seedsmen, Nurserymen, and Florists, in packets, 1s.; and in bags, ¼ cwt., 7s. 6d.; ½ cwt., 12s. 6d.; 1 cwt., 20s.; or by letter addressed to 174, High Street, Homerton, London, E. References can be given to over 200 of the principal Nurserymen and Florists.

For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER.

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This Manure is unequalled in effect for speedy and certain action in producing desired results, the strength and quality being highly concentrated.

(Should be used by every one.)

For the convenience of consumers our Manure is packed in bags containing:—
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And may be obtained of all principal Nurserymen, Florists, and Seedsmen; or direct from the Works, by application to W. TRINDER, Chemical Manure Works, Stroud, Gloucestershire; or, T. HARDY, 27, Crosby Hall Chambers, Bishopsgate, London, E.C. Agents wanted.

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By Permission of the Hon. Board of Customs,
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A NEW AND UNRIVALLED INSECTICIDE
FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing properties, with perfect safety to foliage. No known blight can resist it, and it is the cheapest in the market.

Price, in jars, containing 8 oz., 1s. 6d., and 20 oz., 3s.; drums, 28 lb., 25s.; and 2 oz. samples jars, 6d. each. Two ounces sufficient for one gallon of water for ordinary use.

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TOBACCO PAPER, CLOTH, and CORD.

Wholesale from the Manufacturers,

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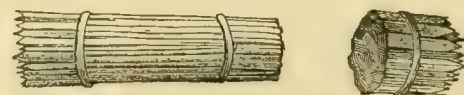
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STRATFORD LABELS.



The above Labels are made of a White Metal, with RAISED BLACK-PAID LETTERS.

The *Gardeners' Magazine* says:—"We must give the palm before all other plant labels, as the very first in merit." Samples and Price Lists free.

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Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post-free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

Wholesale Russia Mat Merchants.
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For COVERING, TYING, and PACKING, are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. SACKS and BAGS of every description. TARPULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

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All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description, RAFFIA FIBRE, NETTING and TIFFANY, TARPULINS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

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NEW SYSTEM of AIR and WATER-TIGHT IMPERISHABLE GLAZING. All Woodwork is covered, and no outside Painting is required. Old Roofs Reglazed. Any one can repair or take in pieces.

"It is suitable for Railway Stations, Mills, Weaving Sheds, &c., and is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."—*The Builder*.

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THE ABOVE and many other PATTERNS

are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense,

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Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

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ORNAMENTAL PAVING TILES,

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WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety. Slates, Cement, &c.

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fine or coarse grain as desired. Price by Post per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

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KENT PEATS or LOAM supplied at lowest rates in any quantities.

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MERCHANTS, 64, City Road, E.C., have always on the PREMISES, a large Stock of all kinds of Horticultural Glass at lowest market rates.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

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B. & Son have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., 16-oz. & 21-oz.

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Manufacturers of

IMPERISHABLE GARDEN EDGING,

Of various patterns, in

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VASES, PEDESTALS, PENDANTS, &c.,

In Terra Cotta and Doulton Ware.

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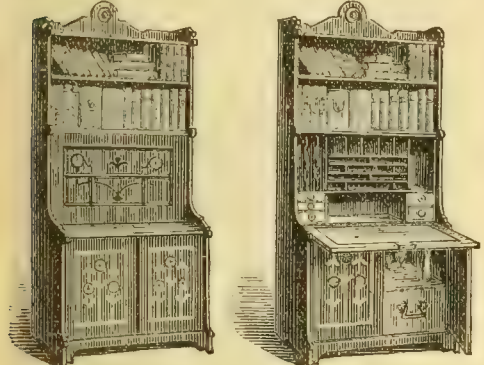
Depots: Wood Street, Birmingham; 100, Soho Street, Liverpool; and Hope Street, Salford.

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A large variety of sizes, 15-oz., 12s. 6d.; 21-oz., 16s. 6d., per 100 feet. Large sizes, in Cases, for Cutting up—15-oz. 4ths, 30s.; 3ds, 40s. per 100 feet.—21-oz. 4ths, 30s.; 3ds., 40s. per 200 feet.—ALFRED SYER, Glass, Lead, Zinc, Oil and Colour Merchant, 8, Pentonville Road, London, N.

THE

**Salisbury Combination Secretaires.
FOLEY'S PATENT.**

No. 2 D. 6 ft. 9 in. by 3 ft. 3 in.

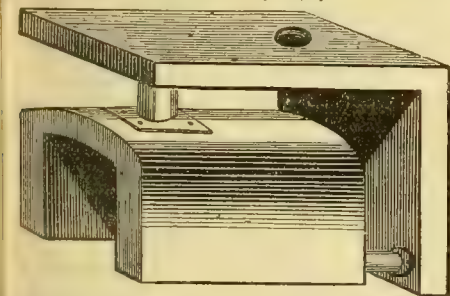
THE SALISBURY COMBINATION SECRETAIRES are adapted to all purposes and classes of society.

Combine the uses of Bookcases, Bureaus, China Cabinets, Cellaret, Sideboards, Escriitoires, Secretaires, &c.

Every part is utilised, the floor space is the same, whether open or closed.

These Secretaires are elegant and original in design and construction, and destined to become the Cabinet of the age.

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SADDLE BOILER.**

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

| Sizes. | | | To heat of 4-in. Pipe. | Price. |
|--------|--------|--------|---------------------------|---------|
| High. | Wide. | Long. | Feet. | £ s. d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 0 0 |
| 20 " | 18 " | 24 " | 400 | 8 0 0 |
| 20 " | 18 " | 30 " | 500 | 9 0 0 |
| 24 " | 24 " | 24 " | 700 | 12 0 0 |
| 24 " | 24 " | 30 " | 850 | 14 0 0 |
| 24 " | 24 " | 36 " | 1000 | 16 0 0 |
| 24 " | 24 " | 48 " | 1400 | 20 0 0 |
| 28 " | 28 " | 60 " | 1800 | 25 0 0 |

Larger sizes if required.

From Mr. CHARLES YOUNG, Nurseries, Balham Hill, S.W., May 29, 1879.

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When ordering Boilers please refer to the above advertisement.

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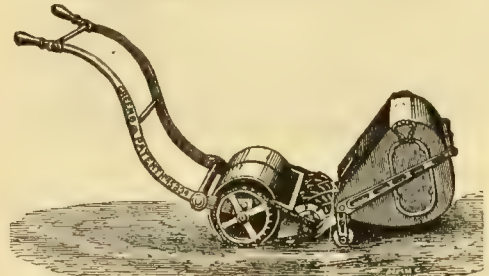
THE GREAT SUPERIORITY OF

**GREEN'S
PATENT LAWN MOWERS**

Over those of all other Makers is universally acknowledged.

They will Cut either Short or Long Grass, Bents, &c., Wet or Dry.

These advantages no other Lawn Mowers possess.



They are the simplest in construction, the easiest to work, the least liable to get out of order, make little noise when in use, and are the most durable Lawn Mowers extant.

The above machines have proved to be the best, and have carried off every prize in all cases of competition.

Every Lawn Mower is guaranteed to give entire satisfaction, otherwise it may be returned at once, free of cost to the purchaser.

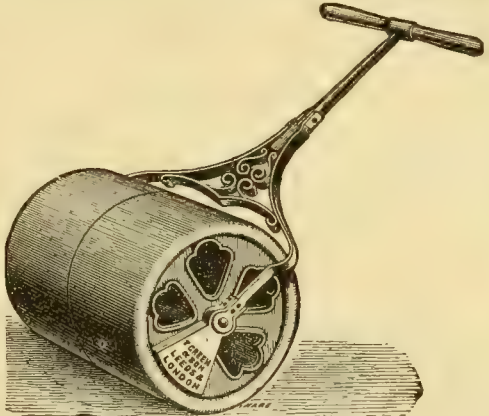
The largest stock of Mowers kept in London, and including all sizes from 6 to 48 inches, is to be seen at our London establishment, 54 and 55, Blackfriars Road, where purchasers can select out of several hundred machines, and have their orders executed the same day they are received.

N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London establishment, where they will have prompt attention, as an efficient staff of workmen is kept at both places.

GREEN'S PATENT ROLLERSFor Lawns, Drives, Bowling Greens, Cricket
Fields and Gravel Paths.

SUITABLE FOR HAND OR HORSE POWER;

And STEAM ROAD ROLLERS for ROAD MAKING,



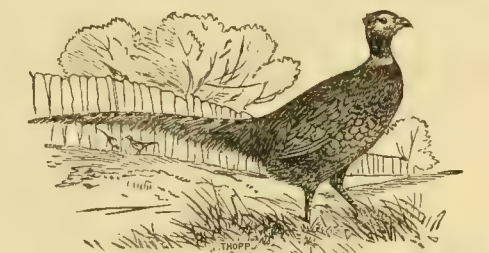
They can be had of all respectable Ironmongers and Seedsmen in the United Kingdom, or from the Manufacturers,

THOMAS GREEN & SON,
SMITHFIELD IRONWORKS, LEEDS;

And at 54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

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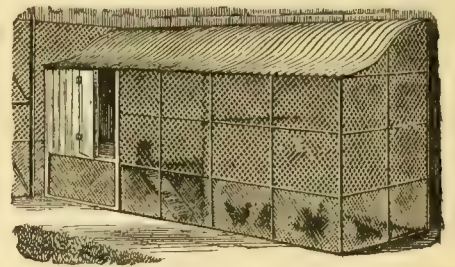
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"The Pheasantry," Beaufort Street, Chelsea,
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NEW PORTABLE LEAN-TO POULTRY HOUSE.



The Night House is made of wood, painted green outside and lime-whited inside, with run underneath for shade and shelter; new O.G.-shaped galvanised roof, which is very ornamental, and affords good ventilation; fitted with shifting perches, sliding window, large door and lock for attendant, small door for fowls, and hen ladder, no nest boxes. Strong galvanised Wire Run, with corrugated iron roof, door, and lock, and all necessary bolts and nuts complete.

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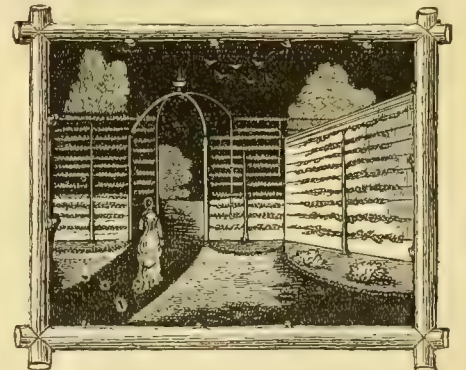
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| 1st size, No 7, with run complete, 12 feet long, 4 feet wide | £7 5 0 |
| 2d size, No. 8, with run complete, 12 feet long, 5 feet wide | 8 10 0 |
| 3d size, No. 9, with run complete, 16 feet long, 6 feet wide | 12 0 0 |

From EDWARD CHARLES WALTON, Esq., Newnham Farm, Ryde.

"Dear Sirs,—I am glad to have the opportunity of saying how thoroughly well satisfied I have been with the Poultry House, No. 7, I purchased from you. It is most commodious, well made, and highly suited for the successful rearing of poultry."

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BRIERLEY HILL IRON WORKS,
STAFFORDSHIRE;**118, QUEEN VICTORIA STREET, LONDON, E.C.;
and 180, BUCHANAN STREET, GLASGOW.**GALVANISED FITTINGS****Wiring Garden Walls & Training Fruit Trees.**

Admitted by every practical gardener to be an immense improvement upon the old system of nails and shreds, no damage being done to the wall, and the tying being effected in a much better manner and in a quarter of the time; all the fittings are galvanised, thus making them imperishable.

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| GALVANISED EYES for Guiding the Wires upon the Walls | 0 4 per dozen. |
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| GALVANISED RAIDSSEURS, for Straining the Wires | 3 0 " |
| WINDING KEY for same | 0 4 each. |
| EYE BOLTS, to use instead of Raidsseurs | 3 0 per dozen. |
| Best No. 14 GALVANISED WIRE | 2 0 per 100 yards. |

Carriage paid upon all Orders of 40s. and upwards.

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CONTINUOUS BAR FENCING,

Iron Hurdles, Strained Wire Fencing,

Field and Entrance Gates, Tree Guards, &c.,

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GOLD MEDAL

TO
J. J. THOMAS & CO.

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For Wire applied to Horticultural Purposes.

PEA AND SEED GUARDS.

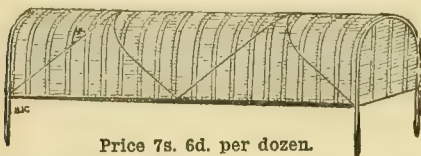
GREAT SUCCESS.

REDUCED PRICES. SEASON 1879.

Superior Quality. Galvanised after made.

NEW PATTERN WITH DIAGONAL STAYS.

No. 76. 3 feet long, 6 inches wide, 6 inches high.



Price 7s. 6d. per dozen.

The above are strongly recommended, being much smaller in the mesh than the ordinary diamond pattern, and proof against the smallest birds. Orders executed on receipt.

Illustrated and Priced Catalogues of Horticultural Wirework and Fittings for Wiring Walls on application.

Ten per Cent. discount allowed for cash with order.

Special quotations for large quantities.

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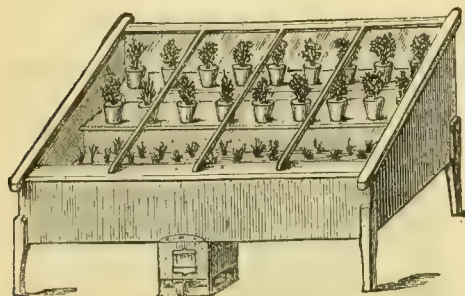
Paddington Iron and Wireworks,

285 and 362, EDGWARE ROAD, LONDON, W.

P.O. Orders to be made payable at 310, Edgware Road.

RIPPINGILLE'S PROPAGATING PLANT FRAME, HEATED BY PATENT STOVE.

The simplest and best ever introduced for Raising Seeds, Striking Cuttings, &c.



The Gardeners' Magazine says:—"A most valuable invention." (Copy of Testimonial.)

"Yardley, near Birmingham, May 23, 1878.

"DEAR SIR,—I am much pleased with the new Propagating Plant Frame which you supplied two or three months ago, heated by Ripplingille's Patent Stove. The frame does its work in the most perfect manner, and at a very trifling cost for oil. I have used it with great advantage in raising plants from seeds, and in propagating trees from cuttings, and I think the apparatus just the thing for amateur gardeners who do not happen to possess luxurious and costly forcing houses.

"Yours obediently,

"GEORGE LINDSEY."

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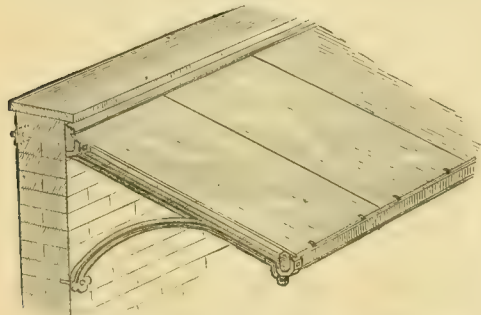
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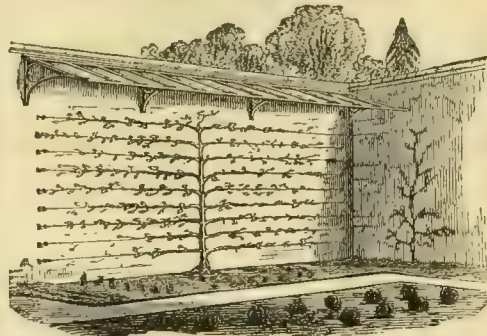
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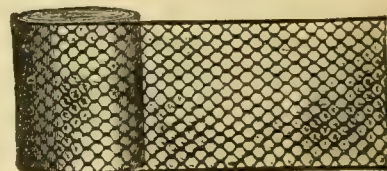
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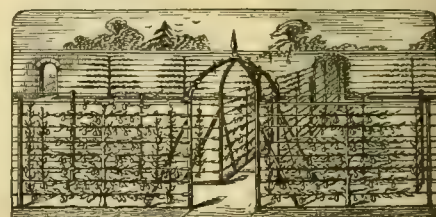
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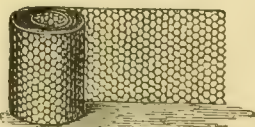
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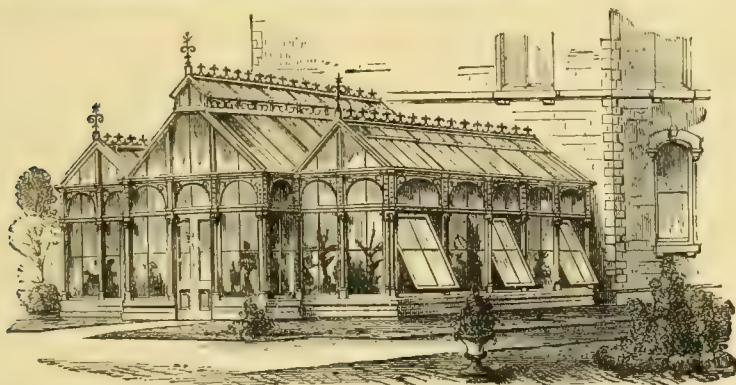
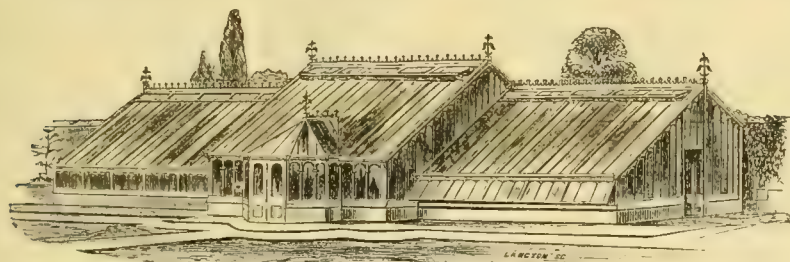
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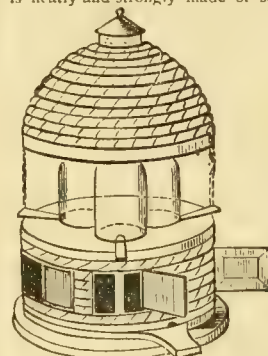
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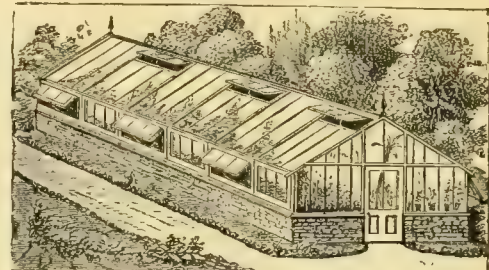
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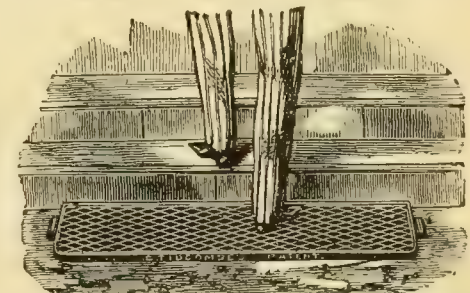
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 With the *Gardeners' Chronicle* for April 26 will be published a Coloured Plate of "NEW CINERARIAS."

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VIRGO, Womersley Nurseries, can still supply RED PICKLING PLANTS at 7s. 6d. per 1000 for cash, all good strong healthy plants.

CABBAGE and LETTUCE PLANTS.
Autumn-sown, strong, and healthy.
ABBAGE, Red Dutch, 7s. 6d. per 1000.
LETTUCE, Siberian, Champion, and Brown Cos, 5s. 6d. per 1000.
Carriage and package free to London.
H. J. HARDY, Stour Valley Seed Grounds, Bures, Suffolk.

Five Gold Medals, Paris, 1878.
CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Illustrated Catalogues gratis and post-free. Awarded Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.
CARTERS, The Queen's Seedsmen, High Holborn, London, W.C.

Garden Seeds.
CHARLES TURNER'S Descriptive CATALOGUE of the above is now ready, containing several interesting and valuable novelties.
The Royal Nurseries, Slough.

Hollyhocks.
HOLLYHOCKS.—Lists of Varieties and price on application.
L. WOODTHORPE, Glazenwood Nursery, Baintree.

Now Ready.
EWING and COMPANY'S LIST of New Roses for 1879 is a most select one of the best New English and French varieties. Gratis and post-free to applicants.
EWING and CO., Eaton, near Norwich.

To the Trade.
ROSES, fine Standard, leading varieties. Special prices on application to
JAMES DICKSON and SONS, Newton Nurseries, Chester.

The Duchess of Connaught.
A NEW ROSE.
Notwithstanding Shakespeare's dictum, "A Rose by any other name would smell as sweet," no Rose of recent introduction does smell as sweet as my new Rose, Duchess of Connaught.
CHARLES NOBLE, Bagshot.

Pelargoniums.
PELARGONIUS.—Strong healthy plants, in single pots, fit for immediate shifting, consisting of Show, French, and Fancy varieties, 35s. per 100, packing included. Cash with order.
HOLDER and SON, Crown Nurseries, Reading.

To the Trade.
CLIANTHUS DAMPIERI.
HURST and SON have received a Consignment of New Seed of the above, and will forward special offer on application.
6, Leadenhall Street, London, E.C.

FRUITING PLANTS of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale.
THOMAS RIVERS and SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps.
CATALOGUES of ROSES and ORCHARD-HOUSE TREES post-free on application.
THOMAS RIVERS and SON, Sawbridgeworth, Herts.

APPLE TREES with MISTLETOE growing on them. Price from 7s. 6d. to 21s. each.
RICHARD SMITH and CO., Nurserymen, Worcester.

Vines—Vines—Vines.
J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

Vines—Vines—Vines.
W. M. CUTBUSH and SON have a fine lot of Planting Canes yet to offer, of all varieties; also strong Fruiting Canes of Buckland's Sweetwater and Muscat of Alexandria.
Highgate, London, N.; and Barnet, Herts.

WANTED, GERANIUM VESUVIUS.
Good plants. State price to
E. COOLING, Mile Ash Nurseries, Derby.

WANTED, Irish and Variegated IVIES, 3 to 4 feet, established in pots: Mrs. Pollock, or other good Golden Tricolor, Flower of Spring or other good Silver Variegated GERANIUMS for Bedding.
R. H. VERTEGANS, Chad Valley Nurseries, Edgbaston, Birmingham.

WANTED to PURCHASE, ARAUCARIA IMBRICATA, 2 feet; CRYPTOMERIA ELEGANS, 2 feet; ARBOR-VITÆ CHINENSIS and OCCIDENTALIS, 2 feet; JUNIPERIS CHINENSIS, Gold and Silver Queen HOLLIES, 2 feet. Must all be well rooted and symmetrical.—Lowest cash price and samples to be sent to R. CRUST and SON, Nurserymen, Spalding.

WANTED, a few hundreds of AUSTRIAN PINE, 2½ to 3 feet, or 3 to 4 feet, well-grown, handsome, and recently transplanted. To lift well, with good balls. Give prices and all particulars to
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

WANTED, forced STRAWBERRY PLANTS, that the owner does not require. Must be cheap. Shaken out of pots. State kinds and price per 100 or 1000 to
M., 54, Dean Path, Edinburgh.

NEW CAMELLIAS.
The following new American kinds can be recommended:—
C. H. HOVEY, velvety crimson, new colour.
C. M. HOVEY, dark scarlet.
Mrs. A. M. HOVEY, pink and white.
Price ros. 6d. each.

The above splendid new Camellias were raised by Messrs. Hovey & Co., of Boston, Mass., and can now be obtained at Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.
ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

BEGONIAS (Gold Medal Collection), Seedlings, flowering tubers, 6s. and 9s. per dozen, post-free. Descriptive Priced LIST of our unrivalled Collection free on application.
JOHN LAING and CO., Forest Hill, S.E.

JULES DE COCK, NURSERYMAN, Ghent, Belgium, offers AZALEA INDICA of all sizes, AZALEA MOLLIIS, and A. PONTICA; CAMELLIAS, DEUTZIA GRACILIS, DIELYTIRA SPECTABILIS, SPIRÆA JAPONICA, PALMS for Table use, DRACÆNAS, FERNS, and YUCCA VARIEGATA.
CATALOGUES free on application.

FOREST TREES, Seedling and Trans-planted.—The very extensive stock of the above is this season in splendid condition.
CATALOGUES on application.
The Lawson Seed and Nursery Company (Limited) Edinburgh.

To Florists and the Trade.
LILY OF THE VALLEY, SPIRÆA JAPONICA, ROSES, White AZALEA, Scarlet GERANIUM, MAIDENHAIR FERN, &c. Prices on application.
C. WILSON, The Nurseries, Summerhow, Kendal.

Manetti Stocks.
MESSRS. THOS. CRIPPS and SON have still a few thousands of the above to offer, at 25s. per 1000.
Tunbridge Wells Nurseries, Kent.

NEW CATALOGUE.—For everything that is new, beautiful and rare, in the tree and shrub way, and for all those things that cannot be procured elsewhere, see above. Free on application.
RODGER McCLELLAND and CO., 64, Hill Street, Newry.

Now Ready.
CRANSTON and CO.'S TRADE LIST of NEW ROSES for 1879.
King's Acre Nurseries, near Hereford.

A. VAN GEERT, the Continental Nurseries, Ghent, Belgium. PLANT and SEED CATALOGUES free on application. All orders have careful and prompt attention.
London Agents: Messrs. R. SILBERRAD and SON, 5, Harp Lane, Great Tower Street, E.C.

CATALOGUES.—His Excellency Pierre Wolkenstein will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to
S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

NEW CATALOGUE for 1879.—The most comprehensive Catalogue issued of reasonably-priced Plants and Seeds of the best quality, and suitable for all who love a Garden or Greenhouse. See last week's large advertisement, and write for a Catalogue.
WM. CLIBBARD and SON, The Oldfield Nurseries, Altrincham, Cheshire.

FOR SALE, a number of Specimen STOVE and GREENHOUSE PLANTS, suitable for exhibition, comprising large Ferns, Lycopods, Caladiums, Orchids, and Foliage Plants; also large Palms and Tree Ferns. For price and particulars apply to
Mr. R. B. FULLER, Fitzroy Park, Highgate, N.

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer 100 beautiful large Sweet BAYS, Pyramids and Standards.

PANSIES, PHLOXES, and PENTSTEMONS.—Selections from my well-known and superb collection of Show and Fancy, 25s. per 100, my selection. Hundreds of varieties to select from.
CATALOGUE on application.
JOHN FORBES, The Nurseries, Hawick, N.B.

HEPATICA.—The beautiful coloured plate of a splendid group of my most important collection may be had free, on receipt of six postage stamps.
N.B.—J. V. D. S.'s rich collection has been awarded the First Prize by the Royal International Exhibition at Ghent, 1878. They are just now in full bloom, and Hepatica lovers are respectfully invited to an inspection.
J. VAN DER SWAELMEN, Lily Nursery, Ghent, Belgium

Gentlemen's Gardeners, Amateurs, and Others REQUIRING
GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

SALES BY AUCTION.

Established and Imported Orchids.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY**, April 16, at half-past 12 o'clock precisely, an importation of ORCHIDS from Assam, consisting of *Cyclopogon barbata*, *Pleione maculata*, *P. Wallichiana*, splendid masses of *Dendrobium nobile*, *D. densiflorum*, *D. Cambridgeanum*, *D. Devonianum*, *D. sulcatum*, *D. clavatum*, &c. A quantity of *Odontoglossum Alexandræ*; also a collection of **ESTABLISHED ORCHIDS**, including many rare and valuable sorts, and a quantity of Plants of **GRAMMATOPHYLLUM** and **OUVIRANDRA FENESTRALIS**, just received direct from France.

On view morning of Sale, and Catalogues had.

Mr. Hovey's new Seedling Camellias, just arrived FROM AMERICA.

MR. J. C. STEVENS has received instructions from Messrs. Hovey & Co., of Boston, America, to **SELL** by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, April 17, at half-past 12 o'clock precisely, 700 Plants of three splendid Seedling **CAMELLIAS**, Mrs. Anne Marie Hovey, C. M. Hovey, and C. H. Hovey, which were exhibited at the last meeting of the Royal Horticultural Society, and awarded First-class Certificates. The plants have just arrived, and are in the finest condition. Three plants in flower will be exhibited on the day of Sale. Also 300 **AMPELOPSIS VEITCHII**, the beautiful Japan Creeper, grown in pots; 200 **Bon Silene ROSES**, the famous New York and Boston Rose for bouquets.

On view morning of Sale, and Catalogues had.

Specimen Camellias.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **SATURDAY**, April 19, the well-known **CAMELLIA PLANTS** grown in the conservatories of Major Walter in Cheshire, who is removing. This collection of the most approved varieties comprises about one hundred specimen plants in perfect health, many covered with hundreds of blooms.

On view morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS has received instructions from Mr. R. Bullen of Lewisham, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY**, April 21, at half-past 12 o'clock precisely, a fine lot of Imported ORCHIDS, just arrived, *ex R.M.S. "Elbe," from Brazil*, all in the best possible condition, consisting of fine plants of *Cattleya Leopoldi*, *Lælia purpurata*, fine masses of *Oncidium Marshallianum* (true), *Cattleya marginata*, *Ionopsis paniculata*, *Burlingtonia* species, *B. fragrans*, *Oncidium curtum* (true), *Lælia Dayana* (true), *Lælia elegans*, *Oncidium* species, also established plants of *Cattleya Schilleriana*, *Oncidium crispum*, and some nice plants of *Cocos Weddelliana*.

On view morning of Sale, and Catalogues had.

Collection of Bird-Skins from New Guinea, and OTHER NATURAL HISTORY SPECIMENS.

MR. J. C. STEVENS has received instructions from Mr. B. S. Williams, of Victoria and Paradise Nurseries, Upper Holloway, London, N., to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **FRIDAY**, April 25, at half-past 12 o'clock precisely, a collection of **BIRD-SKINS** from New Guinea, containing splendid specimens of the new and beautiful *Paradisia Raggiana*, several examples of the new *Goura D'Albertaini*, also good specimens of *Dacelo intermedium*, *Clitopus nigrigans*, *Cyclopsitta suavisima*, *Spicotheres Salvadorii*, and two specimens of a new undescribed *Ptilopus*, and many other rare and beautiful species, collected by Mr. B. S. Williams' Collector when in search for plants.

On view morning of Sale, and Catalogues had.

16, Wickham Road, Lewisham.

MR. J. C. STEVENS has received instructions from the executors of the late — Silverlock, Esq., to **SELL** by AUCTION, on the Premises as above, on **SATURDAY**, April 26, at half-past 12 o'clock precisely, a splendid assortment of **CAMELLIAS**, in bud and bloom, comprising some of the finest sorts in cultivation; **ORANGE TREES** and Miscellaneous **GREENHOUSE PLANTS**.

May be viewed the day before and morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Auction Rooms and Office, 38, King Street, Covent Garden, W.C.

First portion of the Magnificent Collection of Orchids AT EDGWARE.

MR. J. C. STEVENS has received instructions from the Rev. J. B. Norman to offer for **SALE** by AUCTION, without the least reserve, on **TUESDAY**, **WEDNESDAY**, and **THURSDAY**, April 29, 30, and May 1, at half-past 12 o'clock precisely each day, the first portion of this celebrated Collection. Amongst other things will be found some of the finest **CATTLEYAS** in cultivation.

As from ill-health Mr. Norman is entirely giving up collecting, every Plant will be absolutely sold to the highest bidder.

On view mornings of Sale, and Catalogues had, Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Preliminary Notice of an Important Sale of Plants.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for **SALE** by AUCTION, **EARLY IN JUNE**, the magnificent **COLLECTION OF PLANTS** at Dangstein, and which for many years has been one of the most extensive and interesting in the country. Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Sale of Established and Imported Orchids.

MESSRS. ARTINGSTALL AND HIND have received instructions from James Backhouse & Son, York, to **SELL** by AUCTION, at their Rooms, 45, Princess Street, Manchester, on **APRIL 18**, commencing at 11 o'clock, a Collection of upwards of 300 ORCHIDS, of which many are in bloom. Amongst them will be found specimens of the new *Odontoglossum Londesboroughianum*, the rare "*Batemania Burtii*," *Bollea celestis*, *Pescatorea Roelzii*, magnificent masses of *Lælia anceps*, charming specimens of *Odontoglossum membranaceum*, vigorous blooming plants of the grand *O. vexillarium*, together with *Oncidium zebrinum*, *Odontoglossum Phalaenopsis*, *Angraecum eburneum*, *Masdevallia bella*, the grand *Cypripedium Irapeanum*, and many other rarities. A few specimens of **FERNS** (*Gleichenias*), and North American **PITCHER PLANTS** (*Sarracenia Drummondii*).

May be viewed on the afternoon prior and morning of Sale, and Catalogues then obtained, or earlier, together with further particulars by post, or on application to the Auctioneers, Manchester.

MESSRS. CAPES, DUNN AND PILCHER, of Manchester, have the honour to announce that in pursuance of instructions from T. M. Shuttleworth, Esq., they will **SELL** by AUCTION, at Howick House, Preston, on **TUESDAY** and **WEDNESDAY**, April 15 and 16, without the slightest reserve, punctually at 12 o'clock each day, the unique and valuable **COLLECTION OF STOVE and GREENHOUSE SPECIMEN EXHIBITION PLANTS**, comprising fine-leafed plants, Azaleas, *Gleichenias*, Tree and other Ferns (British and Exotic), Orchids, Ericas, Crotons, Palms, and Cycads, embracing many noble and matchless specimens. Also three Exhibition Vases, in perfect condition.

Catalogues may be now had from the Auctioneers. The Plants will be on view on Wednesday and Thursday, April 9 and 10, between the hours of 10 A.M. and 6 P.M., by card only, obtainable from the Auctioneers or from Mr. Shuttleworth. Refreshment tent on the ground each day. Stable accommodation at the "Fleece" Inn, within five minutes' walk of Howick House. Omnibuses each morning and evening to and from the Sale, starting from W. Harding & Co.'s Yard, Fishergate, Preston, facing the Railway Station.

The Public will be admitted to the Grounds and Gardens on the days of Sale at 9 A.M. by the Farm entrance, beyond the Lodge Gate.

Mr. Shuttleworth will be happy to recommend H. THORNBURGH, his HEAD GARDENER, to any Gentleman requiring a first-class Stove and Greenhouse Plantsman.

Shipston-on-Stour, Worcestershire.

Seven miles from Moreton Station, on the West Midland section Great Western Railway.

VALUABLE FREEHOLD NURSERY GARDEN, MESSAGE, and GREENHOUSES.

To Horticulturists, Nurserymen, Seedsmen, Market Gardeners, and Investors.

MESSRS. BULL AND SON will **SELL** by AUCTION, at the "White Horse" Hotel, in Shipston-on-Stour, on **TUESDAY**, April 22, at 4 for 5 o'clock in the afternoon precisely, subject to Conditions of Sale, to be then and there produced, all that very valuable old-established **NURSERY GARDEN**, comprising Message or Dwelling-house, several Greenhouses, Greenhouses, Forcing-pits, and other convenient Sheds, and 3 a. 2 r. 10 p. of highly productive Nursery Land, widely known as the Furze Hill Nurseries, at Shipston-on-Stour, and for many years held by the late Mr. John Jennings, deceased, who carried on an extensive business.

The Nursery is beautifully situated, well supplied with water, admirably set out, is in full bearing, and close to the town of Shipston-on-Stour. There is ample room for adding the business of Market Gardener, for which there is a good opening.

Possession may be had at Michaelmas next, when the Stock will be sold off, or the property may be entered upon immediately if the purchaser wishes, and will take to the stock-in-trade at a fair valuation. Part of the money may remain on mortgage if desired.

For further particulars apply to Messrs. KILBY and MACE, Solicitors, Chipping Norton and Banbury; E. V. NICOLL, Esq., Solicitor, Shipston-on-Stour; or the Auctioneers, Shipston-on-Stour and Great Wolford.

S.W. District (4554).

In a main thoroughfare, within 4 miles of the City.

FOR DISPOSAL, a NURSERY (owing to confirmed ill health), with nearly an Acre of Ground, Twenty-six Greenhouses, Pits, and Outbuildings. Returns £1700 per annum.

Terms for Interest in Lease, Glass Erections, Goodwill, Stock, Two Horses, Van, &c., and orders to view may be had gratis of Messrs. PROTHEROE and MORRIS, 98, Gracechurch Street, E.C.

To Market Gardeners and Others.

TO LET, the WARE SEWAGE FARM, 17 miles from London, adjoining Great Eastern Railway at Rye House, containing 114 Acres, in excellent state of cultivation, and well supplied with Sewage.

Particulars of Messrs. BENNINGFIELD, Auctioneers, Ware, Herts.

SEED, FLORIST, and NURSERY BUSINESS in the High Street of a Market Town. Close to a Railway Station. Established 20 years. Full particulars obtained, applying by letter only, to

J. C. C., Waite, Burnell, Huggins & Co., Seed Merchants, Southwark Street, London, S.E.

BATH and WEST of ENGLAND SOCIETY (Established 1777) and SOUTHERN COUNTIES ASSOCIATION.



EXETER MEETING, JUNE 2, 4, 5 and 6.

ENTRIES OF LIVE STOCK, IMPLEMENTS, &c., CLOSE APRIL 16, after which date no Fees or Entries can be received.

POULTRY ENTRIES CLOSE MAY 1.

Forms and all information supplied on application to

JOSIAH GOODWIN, Sec.

4, Terrace Walk, Bath.

Borough of Wolverhampton.

TO LANDSCAPE GARDENERS.

THE PARK and BATHS COMMITTEE of the Corporation of Wolverhampton invite **DESIGNS** for Laying-out the Interior of a proposed **PUBLIC PARK**, about 47 acres in extent, at an expenditure not exceeding £5000.

A Lithograph Plan and printed General Instructions and Conditions may be obtained from Mr. G. Eastlake Thoms, C.E., the Borough Engineer, at his Offices, Town Hall, on and after the 20th inst., on payment of One Guinea, which will be returned on receipt of *bona fide* Design.

The Committee offer Premiums of £50 and £25 for the best and second best Designs respectively. No premiums will be paid unless the works can be carried out for the sum named—£5000. If the competitor obtaining such first-named premium is employed to carry out the work the premium shall merge in his commission, the rate of such commission to be hereafter agreed upon by the Committee.

Designs, accompanied in each case by Specification and detailed Estimate, under Motto, must be left at the said Offices not later than 12 noon, on **SATURDAY**, May 3, next, addressed to "The Chairman of the Park and Baths Committee."

H. UNDERHILL, Town Clerk, Town Hall, Wolverhampton, March 12.

EVERGREEN PRIVET, Strong, 2 to 2½ feet, 21s. per 1000.
WILLIAM BRYANT, Rugby Nurseries, Rugby.

PETUNIAS.—Choice Show, named, Double, 2s. per dozen; Cuttings, 1s. per dozen. Cash with order.
HENRY SURMAN, Florist, Witney, Oxon.

SEEDLING SPANISH CHESTNUTS.—A large quantity at 5s. per 1000. Address
G. CHORLEY, Coster's Nursery, Midhurst, Sussex.

J. VAN DER SWAELMEN can still supply, in good stuff, and at very liberal prices, all the leading **ORNAMENTAL and FLOWERING PLANTS** for Market and for all purposes.
The Lily Nursery, Ghent, Belgium.

CHOICE SEED POTATOS offered at reduced rates, viz., Snowflake, 5s. 6d. per cwt.; Myatt's, 5s. per cwt.; Rivers' Royal, 6s. per cwt.; Improved Flouball, 4s. per cwt.; Paterson's Victoria, 6s. per cwt.; Early Rose, 6s. per cwt. Cash with order. New 4-bushel bags 1s. 7d. each.
R. CRUST and SON, Nurserymen, &c., Spalding.

FOR SALE, IMMEDIATELY, about 2000 **GERANIUMS**, all leading sorts, and other **BEDDING PLANTS**; also three dozen choice **AZALEAS**, six dozen cool **ORCHIDS**, and a few **STOVE and GREENHOUSE PLANTS**. Apply to
THE GARDENER, Shugborough Hall, Stafford.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE have still in stock most of the best varieties of **SEED POTATOS**, and are prepared to take reduced prices to clear out. Special offers on application.

Seed Growing Establishment, Wisbech.

Primula rosea.

THOMAS S. WARE has much pleasure in offering this charming new Plant, which was awarded a First-class Certificate at South Kensington on the 25th ult. It is unquestionably one of the most beautiful and distinct of this family, and is exceedingly free flowering, producing flowers in the greatest profusion.

Plants in flower, 2s. 6d. and 3s. 6d. each, 24s. and 36s. per dozen.

Hale Farm Nurseries, Tottenham, London.

Roses, Roses, Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100. Price to the Trade on application.

RASPBERRIES.—50,000 Fastolfs for Sale; also several tons of **CHAMPION SEED POTATOS**. This Potato is the best disease-resisting and heaviest cropping variety in cultivation. Price on application to
JOSIAH H. BATH, Manor Farm, North Cray, Kent.

EXTENSIVE STOCK of young **PALMS**, in the best condition possible, and at really moderate prices. *Areca monostachya*, 16s. per 100; 150s. per 1000; *Corypha australis*, 14s. per 100; 130s. per 1000; *Scaevola elegans*, 12s. per 100; 100s. per 1000; *Lantana borbonica*, *Chamerops Fortunei* and *humilis*, 10s. per 100; 80s. per 1000; *Phoenix reclinata* and *tenuis*, 12s. per 100; 100s. per 1000; *Dracaena indivisa* and *Veitchii*, 6s. per 100; 50s. per 1000.

See also Special List for Spring, 1879, free on application. **J. VAN DER SWAELMEN**, Lily Nursery, Ghent, Belgium.

Aucuba japonica.

W. FROMOW and SONS beg to announce that they have taken Mr. Riddy's well-stocked Nursery, Hanworth Road, Hounslow, and can therefore offer perhaps the finest stock of **AUCUBAS** in the trade, good bushy stuff and beautifully rooted, at low prices for cash, delivered free within 6 miles of Sutton Court Nursery.

Turnham Green, London, W.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c. THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.

CATALOGUES on application.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.

H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown **MANGEL WURZEL**, and **SWEDS** and other **TURNIP SEEDS** of 1878 growth, and raised from transplanted Bulbs.

Seed Growing Establishment, Wisbech.

MILES' NEW HYBRID SPIRAL MIGNONETTE.—This being the best time to sow I beg to offer from the original stock, at 1s. per packet, or 10s. per dozen. The usual allowance to the trade.
WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's **SEED LIST** for 1879.

Extra Strong **SEAKALE**, 2s. per dozen.

RICHARD SMITH, Nurseryman, Worcester.

NEW DOUBLE GERANIUMS, all best named varieties, 12 for 6s., the set of 24 for 10s. **ZONALS**, White Vesuvius, 6s. to 8s. per dozen; twelve choicest named, including the above, for 3s. 6d. For names, &c., see **LISTS**, to be had on application.
LOBELIAS.—See last week's Advertisement.
AGERATUM, Lady Jane, Countess of Stair.
FUCHSIAS, choicest named, 1s. 6d. per dozen.
Small parcels safe by post. Cash with order to
GEO. GUMMOW, 114, Loughborough Road, Brixton, S.W.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of VINES is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see B. S. W.'s BULB CATALOGUE for this year.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.

SANDER AND CO., Seed Growers, St. Albans.

Special Cheap Offer.

To SEEDSMEN, MARKET GARDENERS, and OTHERS **PEA, Jeyes' or Payne's Conqueror.** About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to **W. BALL AND CO.,** Bedford Road Nursery, Northampton.

ALTERNANTHERAS of Sorts, from Stores, 8s. per 100, or 70s. per 1000. Orders now booked and executed in rotation.

LIST of Carpet and other Bedding Plants free on application. Terms cash.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

Mangel Seed.

JOHN SHARPE is now prepared to make special low offers to the Trade of highly selected Stocks, 1878 growth, from exhibition Bulbs.

Bardney Manor, Lincoln.

Verbenas in Single Pots.

WILLIAM BADMAN offers clean, healthy, Purple King, Crimson King, and Le Grand Boule de Neige (finest white), in single pots, 12s. per 100. Twelve choice Show kinds, in pots, 10s. per 100. Packing included. Terms cash.

Cemetery Nursery, Gravesend.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.

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WILLIAM BADMAN offers Mrs. Pollock, 15s. per 100; Vesuvius, 7s. per 100, 60s. per 1000; Master Christine and Madame Vaucher, 10s. per 100; Silver variegated May Queen and Crystal Palace Gem, 10s. per 100. Packing included. Terms cash.

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CORSICAN PINE.—Now is the best time to remove them. For prices of this valuable Pine, which is seldom eaten by rabbits—never if they can get any other food—apply to **JAMES SMITH,** Darley Dale Nurseries, near Matlock.

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EMPEREUR DU BRÉSIL (J. V.)—Large double flowers, pure rose, finely and broadly edged with a pure white band.

Extra fine plants, with buds, 12s.; strong plants, 12 inches in diameter, 21s.

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5000 LAURELS, Portugal, 3 to 4 feet.

5000 VIEWS, English, 3, 4, 5, and 6 feet.

5000 FIRS, Spruce, 3, 4, 5, and 6 feet.

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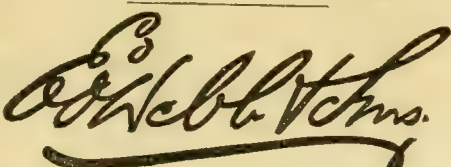
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| 40 tons AMERICAN EARLY ROSE | Per ton, £6 10 0 |
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Has Beaten all other Competitors,

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ONLY GOLD MEDAL,
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Ordinary Lawn Grass, per bushel, 20s.; per lb., 1s.

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Price, in Sealed Boxes, 1s., 1s. 6d., and 2s. 6d.
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The beautiful Lawns on the Trocadero so much admired by Visitors, and to which the only Gold Medal was awarded, were sown with Carter's Lawn Grass Seeds on April 8, and were cut on April 29, and presented a perfect lawn on May 1 (being the only Lawns in perfection).—*Vide Press.*

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Plant in April.
HOLLIES, Specimen, 3, 4, 5, 6, to 15 feet.
LAURELS, bushy Portugal, 2, 3, 4, and 5 feet.
AUCUBAS, perfect globes, 2, 3, and 4 feet.
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Also other Evergreens, extra bushy and good.
Many thousands of splendid plants, hardy, thoroughly transplanted, therefore well-rooted and lifting with balls.

Special prices and samples sent on application.
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Cheap Plants by 100 or 1000.

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Plants at very low prices for cash. The present is a
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VERBENAS, purple, white, scarlet, rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 1s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.

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" Gold-leaf, Crystal Palace Gem, 10s. per 100; Happy Thought, 15s. per 100.

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HELIOTROPIMUM, light and dark, 6s. per 100, 50s. per 1000.

DAHLIAS, all the best sorts, 15s. per 100.

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Note: 25 of any sort can be had at 100 rate.

Packing included. Terms cash.

Cemetery Nursery, Gravesend.

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MAN, Ghent, Belgium, offers the following

NEW CARPET-BEDDING PLANT: ALTERNAN-

THERA PURPUREA.

It is of a dense, compact habit, rapidly forming a close and bushy carpet, or a uniform and regular border.

In its peculiar shade of colour it differs completely from that of other Alternantheras, which are all so well adapted to Carpet-bedding. Alternanthera purpurea is of a deep purple shade, with a grey metallic reflection in the sun. We can affirm that it is also perfectly distinct in tint from Iresine Verschaffeltii and Wallisi, from Coleus Nero, and other plants of deep foliage.

The new Alternanthera is very vigorous and comparatively hardy, and can be easily kept over the winter in a cool greenhouse. It is offered at the following prices:—

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| Single Plants | .. 4 0 | 25 Plants | .. 1 12 0 |
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young plants of the following first-class new Japanese

Chrysanthemums now ready:—

M. Crousse, the only variety that received a First-class Certificate last year: M. Ardenne, and M. Lemoine, 2s. 6d. each.

Bouquet fait, Cœur fidèle, Fleur parfait, Gloire de St. Martin, Hiver fleuri, La Frisure, l'Amie du Cœur, Madame Bortier Rendatler, Mdle. Moulise, M. Barat, M. Morlet, M. Delaux, Miel d'Automne, Orphée, Père Delaux, Reine des Beautés, Tendresse, 1s. 6d. each.

The 20 varieties for 25s.

Also a large stock of all the leading older varieties.

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B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

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| " Lobbiai .. 15 0 | majus (imported), from 2 6 |
| " Fieldingii .. 15 0 | Limatodes rosea .. 3 6 |
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| ported) .. 10 6 | Masdevallia Lindenii .. 15 0 |
| " Aclandiae .. 10 6 | " polysticta .. 5 0 |
| " citrina .. 3 6 | " Harryana .. 7 6 |
| " Trianae .. 10 6 | " ignea .. 7 6 |
| " Warscewiczii deli- | Odontoglossum Inseleyi |
| cata .. 15 0 | leopardinum .. 5 0 |
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| " lobata .. 10 6 | " hystrix .. 10 6 |
| " crispa .. 5 0 | " curhosum .. 3 6 |
| Calanthe Veitchii .. 7 6 | " pulchellum majus 3 6 |
| " vestita luteo oc- | " Phalaenopsis (im- |
| culata .. 2 6 | ported) .. 7 6 |
| " rubro oculata 2 6 | " Rossii majus (im- |
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| superbum .. 3 6 | " incurvum .. 7 6 |
| " insigne .. 2 6 | " verrucosum .. 5 0 |
| " spectabile .. 3 6 | " concolor .. 10 6 |
| " Boxalii .. 5 0 | " flexuosum .. 3 6 |
| " Pearcei .. 3 6 | " Papilio .. 7 6 |
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| " niveum .. 5 0 | " Pleione lagenaria .. 3 6 |
| Dendrobium formosum | " Wallichiana .. 3 6 |
| giganteum .. 5 0 | Saccolabium ampul- |
| " chrysotus .. 10 6 | laceum .. 5 0 |
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| " Pierardii .. 3 6 | " curvifolium .. 7 6 |
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| reum .. 3 6 | " tricolor .. 10 6 |
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Rollisson's True Selected Stock.

To the Trade, 5s. per 100 Seeds.

TURNER'S BLUE GOWN,

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Ard at per ounce on application.

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Seed and Plant Merchants,

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ONE GUINEA COLLECTION

of VEGETABLE SEEDS, containing 6 quarts excellent Peas for succession, and 50 packets of other lead sorts of SEEDS, all of best quality. Carriage Free to a Railway Station in England.

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FRUIT and FOREST TREES

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TREES and SHRUBS,

ROSES, RHODODENDRONS,

Conifers and Hardy Climbers.

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(Choice Varieties with Names.)

FREE AND SAFE BY POST. FREE AND SAFE BY POST.

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| CHRYSANTHEMUMS, large-flowered, new and choice sorts | per 100, 10s. 6d. |
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| " Pompon, a first-class selection | per 100, 10s. 6d. |
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| " choice sorts, fine exhibition varieties | per 100, 10s. 6d. |
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| " choice sorts, twelve new varieties of 1878, including Cannell's New Life, White Vesuvius, Salmon Vesuvius, &c. | per 100, 10s. 6d. |
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| VERBENAS, in choice variety | per 100, 10s. 6d. |
| VERBENA, lemon-scented | each, 4d. |

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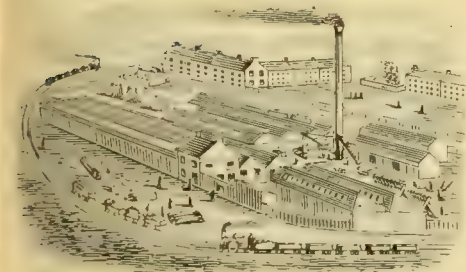
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From H. MANGOOD, Esq., Coombe House, June 8, 1878.

"Will you send me a packet of your superb strain of Calceolaria? I have a splendid collection of flowers from the packet I had last year, none equal to them in the neighbourhood."

CINERARIA, Weatherill's extra choice strain, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.

From E. CROKER, Esq., The Grange, March 9, 1879.

"Please send me seeds named on the other side. My Cinerarias from your seed this year are very fine."

BEGONIA, New Bedding, finest mixed, tuberous rooted, 2s. 6d. per packet.

From Mr. R. CAMPBELL, Utica, N.Y., January 16, 1879.

"Please send the enclosed seed order as soon as possible. The Begonias I have raised from the seed purchased from you surpass anything I have ever seen or dreamt of."

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SATURDAY, APRIL 12, 1879.

CAMELLIAS AND CAMELLIA CULTURE.

THE BOTANY OF THE CAMELLIA.—The Camellia derives its name from George Joseph Kamel, or Camellus, a Moravian Jesuit. In the *Vegetable Kingdom*, by Dr. Lindley, the plant is placed in the Natural Order Ternstro-miaceæ (Theads), between the genera Pyrenaria, Blume, and Thea, Linn. It is there remarked: "The different species and varieties of Camellia japonica are the glory of gardeners." In the Linnaean system it belongs to the class and order Monadelphia Polyandria. The genus is thus described in Don's *General System of Gardening and Botany*:—"Calyx imbricate, surrounded by accessory bracteas or sepals. Stamens monadelphous. Anthers elliptical, two-celled, bursting lengthwise. Capsule furrowed, with a dessepiment in the middle of each valve, separating from the free triquetrous axis when ripe; cells 1—2 seeded. Elegant evergreen trees and shrubs, with coriaceous dark green shining leaves, and large flowers resembling the Rose, of various hues." In this work, published in 1831, the number of species given is eight; of varieties introduced from China, twenty-six; and of seedling varieties raised in the gardens of Britain, fourteen.

In Paxton's *Botanical Dictionary* (edition 1849) seven species only are enumerated and thus described:—

1. *C. corymbosa*.—A greenhouse evergreen shrub, native of China, producing white flowers in May. Introduced in 1824.

2. *C. hybridæ*.—A greenhouse evergreen shrub, from Liège.

3. *C. japonica*.—A greenhouse evergreen shrub, native of China, producing red flowers in May. Introduced in 1739.

4. *C. Kissi*.—A greenhouse evergreen shrub, native of China, producing white flowers in May. Introduced in 1823.

5. *C. oleifera*.—A greenhouse evergreen shrub, native of China, producing white flowers in May. Introduced in 1819.

6. *C. reticulata*.—A greenhouse evergreen shrub, native of China, producing red flowers in April. Introduced in 1824.

7. *C. Sasanqua*.—A greenhouse evergreen shrub, native of China, producing white flowers in February. Introduced in 1811.

There are also enumerated in the same work 200 varieties of *C. japonica*, three varieties of *C. Sasanqua*—the plena alba (white), the plena rubra (red), and the semi-plena (red).

The species of most interest from the decorative point of view, *C. japonica*, is thus described:—"Leaves ovate, acuminate, acutely serrated; flowers axillary, sessile, usually solitary; ovary smooth. Native of Japan and China."

The *C. Sasanqua*, although not introduced till 1811, is figured in *An Historical Account of the Embassy to China*, by Sir George Staunton, Bart., published in 1797. The writer says of it:—"The petals of this plant, called by the Chinese *cha-whaw*, or flower of tea, from their resemblance to each other, and likewise the flowers of the Arabian Jessamine, are sometimes mixed among the teas in order to increase their flavour. The Camellia Sasanqua, which grows upon the tops and sides of mountains, is assiduously cultivated. It bears a nut from which is expressed an edible oil equal to the best imported from Florence."

This species and its varieties, however interesting from a botanical point of view, is now but little cultivated, the varieties of *C. japonica* being more highly prized by English amateurs and gardeners.

THE HISTORY OF THE CAMELLIA.

The *Camellia japonica* or Japan Rose, the species from which nearly all of our more valued garden varieties are descended, is, as we have already seen, said to have been introduced in 1739; but it is not mentioned in the 6th edition of Miller's *Gardeners' Dictionary*, published in 1771. Notwithstanding this I find it thus described in *A History of Plants*, by John Hill, M.D., published in 1751:—"Camellia.—The calyx is imbricated, and composed of several leaves, the interior of which are the larger. It is an oriental, described by Kämpfer in his *Japan*, 85o."

In the *Garden Vade Mecum*, by John Abercrombie, published in 1789, "*Camellia japonica*, or Japan Rose," is included in his list of both greenhouse and hothouse plants. In the *Practical Gardener*, published in 1817, and in the 21st edition of *Every Man his Own Gardener*, by the same author (1818), one species (*C. japonica*) and seven varieties only are enumerated. Loudon in the *Encyclopædia of Gardening* (1822) enumerates twenty-five varieties. In the *Greenhouse Companion* (1824) are coloured plates of two varieties, Waratah and Lady Hume's Blush, the former of which is now superseded, but the latter is still much sought after. It is there remarked, "New varieties are continually originating by the nurserymen and other growers from seeds. A number of hybrids are in an advanced state but have not yet flowered."

The *Camellia* is frequently adverted to and figured in the botanical and horticultural publications of this time, and in the *Transactions of the Horticultural Society*, in a paper read before the meeting December 5, 1809 (vol. i., p. 175), we find the following:—"In October, 1795, a *Camellia japonica* was planted here (the South Hams of Devonshire) among other shrubs in the open ground; it has stood every winter since, without the smallest shelter, thrives well, and has never had a branch or leaf injured by the weather. It is now about 4 feet high, the size of a Gooseberry bush, but has not flowered." Similar experiments, which have been repeated frequently and in various soils and situations, seem to prove that the plant is nearly hardy in the climate of England, and may be safely planted out-of-doors among other evergreens in warm sheltered situations. But in thus treating it one loses the beauty of the flowers, as, owing to their being produced in March and April, they are nearly always spoiled by the spring frosts. We remember planting out two varieties, against a west wall in 1836, and these passed through the winter of 1837-8 uninjured although there were 30° of frost, and the Bays, Arbutus, and Laurels standing in the open quarters only a few yards distant were killed to the ground. Mr. Joseph Harrison (*Trans. Hort. Soc.*, vol. vii., p. 168) found the double white, the double red, and the double striped grow satisfactorily out-of-doors at Wortley Hall, Yorkshire, "planted in a brown loam on a rocky substratum." He covered the soil to the extent of 3 feet from the stem of each plant with 10 inches of decayed leaves on the approach of winter, removing the leaves in spring. In 1829 a paper on the *Camellia*, by William Beattie Booth, was printed in the *Transactions of the Horticultural Society* (vol. vii., p. 519). In this paper six species and twenty-three varieties are described, four of the latter being figured, and it is there stated: "Of these very ornamental plants the Society has formed an extensive collection, such as I may safely say is not surpassed at the present time by any other in the kingdom." It appears that the

double white and double striped were introduced in 1792, Lady Hume's Blush in 1806, fimbriata in 1816, imbricata and several other varieties in 1824.

Many of the varieties originally introduced are now but little cultivated. Hardy plants of them may be met with occasionally in the gardens of the nobility and old English families, but some of the modern varieties raised from them are more beautiful, and consequently more generally cultivated within the last forty years. Many fine varieties have been raised in England, especially by Mr. Chandler, of Vauxhall; Mr. Press, of Hornsey; and Mr. Fielder, of Enfield; and France, Belgium, Italy, and latterly America, have contributed largely to the improvement of the flowers by selecting and preserving variations by sports and by seed. In Loudon's *Encyclopædia of Plants* (1829) eighteen garden varieties are enumerated, and in Paxton's *Botanical Dictionary* (edition 1849), as we have already mentioned, no fewer than 200 varieties are given. At this date there were at least three establishments near London where the *Camellia* was extensively cultivated, namely, those of Mr. John Smith, Dalston; Messrs. Chandler, Vauxhall; and Messrs. Loddiges, of Hackney. It was one of our greatest treats of that day to see the *Camellias* at Hackney when in flower in the early spring. They were planted out in a large house, and many of the plants were 30 feet high, in splendid health and laden with blossoms. It was a perfect forest of *Camellias*, tenanted with blackbirds, thrushes, and other birds, which built their nests in the trees, passing in and out at pleasure through the open doors and windows. Probably there was never any floral display equal to this in England before, and it may be many years before we see the like again. Many of Messrs. Loddiges' large plants were, we believe, sold to the Crystal Palace Company and removed to their palace at Sydenham.

The *Camellias* of Messrs. Lucombe Pince & Co., of Exeter, have obtained a world-wide celebrity, and are worth going many miles to see. In nearly all the principal gardens and nurseries few or many may be met with, but we believe that as far as regards quantity and variety our collection stands unrivalled at the present time. *William Paul, F.L.S., F.R.H.S., Paul's Nurseries, Waltham Cross.*

(To be continued.)

New Garden Plants.

ODONTOGLOSSUM HEBRAICUM, n. hybr.*

This is in the way of *Odontoglossum odoratum*, and something like *O. Schillerianum* or even *cristatum*—a curious thing, bearing the stamp of a mule on its front, one of those very rare instances imported amidst myriads of its congeners which lurked so long in a happy ignorance of mankind in their natal places. It has a flower twice the size of those in *O. odoratum*, pale yellow with brown spots and stripes, reminding one of Hebrew characters. The lip is darker yellow at its base, and has a cordiform central maroon-brown blotch and some stripes and small spots of the same colour. The callus is two-shanked with an erect apiculus in the sinus, with four teeth on each side. This is quite new, and gives it the claim to be distinguished. The column is pallid, yellowish-white, with narrow bidentate elsewhere nearly abortive wings, one tooth standing on the top, one on the base. I have to thank for it Mr. W. Bull. *H. G. Rehb. f.*

ODONTOGLOSSUM ELEGANS, n. hybr. ? n. sp. ? †

Amidst the numerous specimens of *Odontoglossum cirrosum* grown at the Royal Exotic Nursery at Chelsea there has appeared this very curious plant. It has a broad panicle of flowers very much like those of the

Odontoglossum hebraicum, n. hybr.—Affine *Odontoglossum odoratum*, Lindl. Sepalis ligulatis acutis; tepalis paulo latioribus subtilissime undulatis; labelli a basi unguiculata hastato triangulo; callo in basi bicurvi utrinque quadridentato cum apiculis erectis in sinu; columna alis basi et apice undentatis, ceterum prope abortivis; flor flavus maculis castaneis. Labelli macula magna una castanea subcordiformis striolis punctulisque quibusdam castaneis. —C. cl. Bull. *H. G. Rehb. f.*

† *Odontoglossum elegans*, n. sp. ? n. hybr. ? Habitu paniculæque *Odontoglossi cirrosi*; sepalis lanceis acuminatis, tepalis paulo latioribus caudatis; labello ab ungue hastato triangulo

last named, now finally so well known plant. The sepals and petals (which are narrower than those of *O. cirrosum*) are of a certain white, with a very faint yellowish hue, and are covered with narrow brown blotches. The lip has nearly the shape of that of *Odontoglossum cirrosum*; it is yellowish, with a white apical part. Calli totally distinct, there being two long serrate ones instead of those club-shaped organs, and on each side two small acuminate, extrorse, adventitious ones. There are reddish stripes or spots on this organ. The column has no velvet at its base. According to my taste it is a very lovely thing, and it may be regarded as one of those quasi-meteoric rarities, since a single plant is only known up to the present time. It is a mule between *Odontoglossum cristatum* and *cirrosum*. *H. G. Rehb. f.*

STOVE PLANTS.

AMATEUR cultivators and others who have not had much experience with stove plants are often greatly perplexed at this season as to their treatment, the chief difficulty arising through a want of knowledge of the requirements of the different species, and more particularly as regards the amount of solar light or otherwise to which they should be subjected. In a single house arranged indiscriminately it is next to impossible that the majority of flowering subjects can be grown successfully with such as need a good deal of shade, but by separating them and devoting a portion of the space to each, both kinds may be fairly accommodated. In order to assist in distinguishing between the two, I purpose touching on a few of the principal that are benefited by exposure to the sun, confining my remarks in the first place to creepers. The one of the most importance among these, if viewed for its general usefulness and the immense quantity of cut bloom it affords, is the *Bougainvillea speciosa*: that will bear its fierce rays the whole of the day and is only seen at its best after having undergone such a roasting. It is therefore a capital plant to train thinly in a roof to afford a modicum of shade for such as require it beneath, but being a rampant grower unless restricted, it is necessary to have its roots well under control. This may be done either by having it in a fair-sized pot or box or by bricking off a nook in one corner, and giving free drainage, for although it likes plenty of water when carrying its rich-coloured bracts and making its young wood, the drier it can be kept during the autumn and winter the better, as then it becomes thoroughly ripened, and sheds the greater part of its foliage. The inflorescence makes its appearance very soon after this defoliation, and lasts in perfection for at least two months, and when faded the shoots that have borne it should be spurred in so as to make room for others to follow.

Those of medium size always bloom best, and therefore in thinning and regulating the growth during the summer these only should be retained, and if exposed to the sun's influence as indicated above will form perfect wreaths, clothed from end to end with those lovely tinted leaf-bracts for which this plant is so highly prized. The *Stephanotis*, too, will stand almost any amount of solar light, and answers admirably as a roof climber to break the force of the sun, and thus save the use of blinds, as under a natural shade of this kind many plants do far better than when the light is more broken up, as it is under canvas or other similar appliance. One great advantage in growing the *Stephanotis* for such a purpose is, that it may easily be kept to certain limits, as by straining a few wires the twining shoots can be guided along and turned in any direction required. The only difficulty with it is, that it is very subject to mealy-bug, but as its leaves are of such a thick leathery texture these may be destroyed if attacked at the right time, and the plant kept syringed frequently by driving the water on with full force. To make sure of having it clean, it is a good plan, once or twice during the autumn and winter, to give it a shower-bath with paraffin and water, in the proportion of a wineglass of the former to four gallons or so of the latter, which mixture is very potent against these troublesome insects, as it penetrates their oily coating better than any other known remedy, and appears to dissolve them.

Allamandas are likewise capital plants to grow and

cordate; carinis serratis geminis in disco; apiculis adventitiis geminis superpositis, extrorsis utrinque. Columna clavata calva alis triangulo setaceis ascendentibus. Sepala et tepala lacteo-ochroleuca maculis punctisque castaneis. Labellum flavum apice album; striis maculisque brunneis. Columna alba maculis sub fovea quibusdam parvis brunneis.—Ecuador. Ex. coll. cl. Veitch. *H. G. Rehb. f.*

train in the roofs of the stoves, and being deciduous they do not obstruct the light to any appreciable extent during the winter. The best way to manage them is to run them up under the rafters, similar to Vines, where, with the shoots so near the glass, and exposed to the sun, they come stout and short-jointed and flower profusely. Another valuable plant to grow in this way is the *Euphorbia jacquiniæflora*, which, turned out so that it can have a moderate root run, affords an immense number of sprays for cutting, at a time of year when flowers are scarce. The treatment requisite for these two latter is to spur them in annually, just before they start in the spring, and when growth commences to leave a certain number of shoots according to the light and room at disposal.

have their several wants better attended to. This relieves the houses and allows more breathing space for those that remain, as well as affords an opportunity of bringing the more ornamental kinds together, so that the beauties of each may be seen and enjoyed. A great many of those enumerated above may be propagated now and nursed on for a time till the weather becomes warm enough to remove them to any light deep pit, and if there plunged in some non-conducting material, such as half-rotten leaves, syringed, and closed early, their progress will be most rapid. This is how we always treat the bulk of ours, and towards autumn, as the nights grow cold, they are transferred to any vacant places in the houses where they can get a little artificial heat. J. S.

EDUCATION OF GARDENERS.*

EDUCATION is very well described by Wright in his general exposition of the English language, as the formation of manners—that series of instruction and discipline which is intended to enlighten the understanding, correct the temper, and form the manners and habits of youth, and fit them for usefulness in their future stations. The education of gardeners at the outset—I mean before they are actually apprenticed—does not differ essentially from the education of a member of any other craft; the foundation up to a certain age is the same, and is likely to be in all time coming. But when the parent can ascertain with anything like certainty what the



FIG. 62.—A PROLIFEROUS HYACINTH.

PROLIFEROUS HYACINTH.

THE accompanying illustration (fig. 62) represents a specimen which was kindly forwarded to us from Haarlem, by Mr. E. H. Krelage.

The bulb in question produced several small spikes, and, in addition, a scape some 4 inches in height, which bore at its top a tuft of narrow leaves, from the axils of five of which sprang as many miniature flower-spikes.

The scales of an ordinary bulb are well known to be merely modified leaves; so that, in this instance, we have a formation in some degree analogous to that of the Potato-Onion; but while in that plant true bulbs are formed at the top of the flower-stem, here the bulb scales are replaced by perfect leaves with flowers in their axil.

youth's qualifications are—whether he be of a mechanical or literary turn of mind—then it becomes a duty to direct the rudiments of his education accordingly. It would, for instance, be a waste of time and misdirection of talent to keep a youth of a purely mechanical turn of mind labouring away at the dead languages—I mean Latin and Greek—when he ought to be studying such branches of mathematics as geometry, algebra, trigonometry, and conic sections; and so it would be, *vice versa*, with one who might distinguish himself in the classics, but who might be quite a dunce at everything in practical mechanics. Of course the gardening profession does not hold out any such inducements in a remunerative way to justify a parent, if he had the means, of giving his child the advantage of an academy or univer-

* Paper read before the Scottish Horticultural Association by Mr. James Anderson, Meadowbank.

The three foregoing and *Clerodendron Balfourianum* are the best and most serviceable of stove climbers that may be grown in a limited space, and if kept thin and regulated, all the followings plants may be cultivated successfully under them without any further shade than their foliage affords:—*Caladiums*, *Dra-cænas*, *Gardenias*, *Palms*, *Crotons*, *Eucharis*, *Bilbergias*, *Pandanus*, and such-like; but the softer-wooded flowering subjects, like *Vincas*, *Sericographis*, *Poinsettias*, *Thyrsacanthus*, *Eranthemums*, *Scutellarias*, *Plumbagos*, *Aphelandras*, *Rivinas*, *Begonias*, *Epiphyllums*, *Cyrtantheras*, and others of that class, should have nothing growing above them, but what shade they require afforded by artificial means.

A good way of managing where the greater part of the stove roof is devoted to climbers, is to have most of those last named in pits or frames during the summer, as there they can be kept under control and

sity education; but the principle I am endeavouring to inculcate is the same, namely, that the boy's education should be directed towards the bent of his future inclinations; that, in fact, his school time should not be frittered away with a kind of teaching unsuitable for his future station. This, if true at any time in our history, is more and more pressing upon our notice in these times, when the great question of division of labour is so prominent, not only in our workshops, where there are mechanics for each particular branch of machinery, not only among professional gentlemen of the higher grade, be it law or physics, but even in our nurseries and gardens, where we find men better qualified for one department than another, and so the work is better, more satisfactorily, and more speedily carried through. We live in fast times, when competition is so keen that capacity first, application second, and honesty and straightforwardness are things absolutely needful; and although we are told the race is not always to the swift, nor the battle to the strong, we may rest well assured that unless we are both swift and strong we shall ebb away in the receding tide of life among the ruck that despair of eking out an existence.

Education, then, so far as gardeners are concerned, may for convenience sake be divided into three heads—first, school education; second, garden education; and, third, both education. First, the education which the boy gets at school is the foundation upon which the superstructure of his after life and work mainly depend. If he be a studious scholar and his various lessons in a measure supervised at home, he is likely to make good use of his time, and fit himself in some measure for dealing intelligently with any duties he may be called upon to carry through in the garden. I am speaking on the presumption that he has attended school the full term demanded by our School Boards, that is, from the age of five to the age of thirteen. Doubtless many apprentices have turned out clever fellows who have not had half these years of teaching, but that has been due to their own ambition, to self-teaching partly, and partly to those useful institutions that were plentiful a quarter of a century ago—night schools. In those times boys were often taken from school at even ten years of age—I mean country boys—to do duty about a farm during spring and harvest, or such other work as offered itself, when the parents were not able to keep large families in meat and clothes, and when every sixpence earned extraneously was a sort of godsend to them. Parents who were so situated were in a measure compelled to limit the education of their children, and in days gone by gardening was considered a sort of respectable profession, and parents so circumstanced considered themselves fortunate to get their sons apprenticed in a good garden. Fortunately for Scotland the parochial system of education was a capital one for an aspiring youth, and if he were fortunate enough to catch the master's eye, his chance of promotion in his classes were so much the more certain. The Education Code now is quite different both in its tendencies and its effects. The schoolmaster has not the same interest in accelerating the education of a clever youth, for like the principle of Trades Unionism the Code compels the ruck, whatever may be their capacity or cleverness, to be taught and treated on a uniform basis. Doubtless the class of rudimentary education which the State has deemed necessary to enforce upon the ratepayer is quite sufficient for all simple trades; there is no excuse now for a boy or girl not being able to make a presentable appearance before his or her fellow creature, but there is no doubt a considerable gap left between what we call School Board teaching and an academical or university career. In time past many parochial schools fitted certain of their scholars for stepping at once into the general curriculum, and certain of the class who joined the gardening ranks profited by the spirited teaching of the parochial schoolmaster. He was enabled to get the rudiments of Latin and Greek if he so desired, which was of immense importance to the gardening profession. It was not necessary of course that he should master Virgil and Homer, but the simple rudiments of Latin gave him a powerful stimulus to master botanical nomenclature. In fact if it were for nothing else than some sort of respectable style of pronunciation of botanical names, it was a gain which nobody can better appreciate than those who profited by it. Every young gardener should if possible study the rudiments of Latin, and, what is becoming of more and more importance every day, the rudiments of French as well. With the acquirement of the rudiments of these two languages, a young fellow can strut about with a little more confidence, for if occasion requires it he is equal to it, and will profit accordingly. *James Anderson.*

To be continued.

THE SHELTON (GLENDOWER'S) OAK.

ABOUT 2 miles from Shrewsbury on the road to Holyhead, at the township of Shelton, stands by far the most interesting old tree of which the county of Salop can boast, known as Glendower's Oak. As this tree presents indications of decay which threaten a not very remote termination of its existence, a brief account of it may not be unacceptable to your readers. The tradition connecting with it the name of the "irregular and wild Glendower" is to this effect. In 1403, on the occasion of the memorable battle of Shrewsbury, Henry IV. marched North from London with a force of about 25,000 men to crush the rebellious army raised by the Duke of Northumberland and his son Harry Percy, known as Hotspur, on its way southward. Glendower with a large force of Welshmen had engaged to join the rebels at Shrewsbury, and had arrived from Oswestry with a view of doing so, in the neighbourhood of the Oak, just in time to find that he and his ally had been out-marched by the king, who had already taken possession of Shrewsbury. Finding himself cut off from the northern army by the swollen waters of the Severn, and learning that an immediate engagement was inevitable, Glendower determined to await the result of the battle and shape his course accordingly. This tree being situated on high ground on the right bank of the river its branches offering a good point of observation towards Shrewsbury and over the country likely to be the scene of conflict, he is said to have availed himself of it for that purpose. The brilliant victory achieved by the royal arms, though at an enormous cost of blood, decided the course of the Welsh commander; he immediately marched back into the strongholds of his native Cambria, leaving his friends to shift for themselves, for which course his countrymen strongly reprehended him.

Whether Glendower ever came so near the scene of conflict as where this fine old tree stands—which, unfortunately for the tradition, some historians strenuously deny; whether, if he did come, the river was really so formidable an obstacle as to prevent a determined commander from crossing it; and lastly, whether he ever ascended the tree at all for the purpose indicated by the tradition, are questions we must leave to historians for settlement; but it is in the highest degree certain that this tree was at the date of the battle a large and conspicuous object in the landscape, as we shall presently show by documentary evidence. It is no less certain that Glendower could have seen from its branches, nay, even from its base, the royal standard floating in the breeze on the Norman tower of Shrewsbury Castle, as well as the road by which, beyond doubt, Hotspur's forces marched to Berwick after they had reached the northern gate of the town to find their enemy in possession of it. The actual scene of the fiercest part of the conflict, known to this day as Battlefield, on which Henry afterwards built a church dedicated to Mary Magdalene to commemorate the event, is too far away to admit of its having been seen, besides which, high ground intercepts the view. There is nothing, therefore, on the whole inconsistent in the tradition as far as the position affording a good point of observation and the age of the Oak are concerned.

Apart from this tradition, there is no want of interest in this venerable old tree. It is impossible to look upon its large lichen-clothed trunk and widespread leafless branches without feeling that it possesses a quiet grandeur and dignity peculiarly impressive. That it may have witnessed all the phases of English history from the Roman invasion in the first century down to the present day would require no great stretch of credulity, while that it was a remarkable tree at the time of the battle of Shrewsbury, 476 years ago, is proved by a document which was found amongst the title-deeds of a Shropshire family named Waring, formerly in the possession of the late John Mytton (of sporting celebrity), entitled *How the Grette Oake at Shelton Standith on my Ground*, and signed "per me, Adam Waring," the date of which is 1543, only 140 years after the battle.* The author of this document says how Thomas Davies, his tenant at Shelton, told him "that he hath hard his fad' and other auntyent men dwellyng in Shelton long ago saye that in tyme paste long agoe the highe wayne way fro my house in Shelton," took a certain direc-

tion with regard to "the grounde wherby the said gret Oak standith." And so it proceeds at considerable length to explain the position of hedgeways, &c., constantly mentioning the "gret Oak." Now if Thomas Davies was in middle life, and his information was received from "his fad' and other auntyent men" who spoke of what existed "long agoe," so much of the 140 years would be covered that no time would be allowed for the growth of a "gret Oak."

It will be remarked that no allusion whatever is made by the author of this document, Adam Waring, to the tradition connecting Glendower's name with this tree, which fact suggests a later origin of the tradition, for it can hardly be believed that such a circumstantial account would leave unmentioned so interesting an association with it as that of the name of "the great magician, . . . Glendower."*

The measurements given of this tree by our local historians appear all to be borrowed from those given by the late Mr. Parkes in the *Gentleman's Magazine* for October, 1810, p. 305, which are as follows:—Girth at bottom close to the ground, 44 feet 3 inches; do., 5 feet above the ground, 25 feet 1 inch; do., 8 feet above the ground, 27 feet 4 inches; height to top of main trunk, 41 feet 6 inches.

My own measurements made recently differ from the above, the girth near the ground being 42 feet, and 5 feet above the ground, 29 feet. It is hollow within, and paved with small pebbles, entered by an opening 4 feet 4 inches high. It has been affirmed that a dozen people can stand erect in it, and half-a-dozen may dine in it. The internal measurement, which has not hitherto been given, is at 3 feet from the ground, following the undulations of the surface, 31 feet. A former tenant of the house in the private grounds of which it stands, some thirty years ago, kept a large bear chained to the trunk, which made its den within the ample space of the interior. A large fracture has occurred in the fork between the two main branches, threatening the severance of the lower part of the trunk, but the present occupier of the premises has shown the good taste to prop up the limb in danger of falling, and has placed a strong iron band round the trunk to prevent further mischief (see fig. 63, p. 465). That its vitality is low is evinced by the comparatively small amount of foliage annually produced, which is only just enough to prove "there is life in the old dog yet." *William Phillips.*

WIRE WALLS.

WE have a 5-feet wall for growing China Roses and Chrysanthemums. With the stupidity one is occasionally afflicted with, we turned out three Clematis Jackmanni at the foot of this wall. They were little plants, in little pots. Of course the very first season they were a trouble; by the second a perfect nuisance—they must be torn up; but the growth and colour were exactly what was wanted as a background to the mixed herbaceous border in front of the wall, every plant being set with a reason, and all would be spoilt if these splendid blue-purple flowers were wanting to bring out the graceful little trees of *Acer Negundo variegatum*, double scarlet *Lychnis*, *Lilies* of sorts, *Tritomas*, yellow and orange single *Dahlias*; every colour, save that in the Clematis, was in the border. Was it to be?—give up the smothered Roses and the whole wall to the Clematises, or pull them out?

It is sometimes well to be set betwixt two distasteful alternatives: obstinacy strikes out a way of escape, and in this case the idea took hold of me that we could nearly double the height of the wall with one of wire. The Clematis should have their free will, and we would carry out our plan. Many were the objections. The full force of the north-west and south-west winds would blow wire and plants to tatters, nay, bring down the brick wall on which it was reared. Wire-netting was, of course, no protection—just a riddle for the wind to tear through, and certainly a more exposed situation for an experiment could hardly have been selected: but the village blacksmith knew what wind is on this coast, and a strong frame, and supports, and holdfasts, were made, and the result has been for three years a complete success. We simply arranged the first shoots in the fashion we wished, so as to have the whole space covered, and the plants did all the rest, and were no trouble, but much interest in observing how any

* Owen and Blakeway's *History of Shrewsbury*, vol. i., p. 199.

* Shakespeare, *Henry IV.*, act 1, sc. i.

weak branch merely gave another turn or two to its leaves, and all was tight and safe. No squall or storm had the least effect. The framework, the notion of which I did not fancy, but which the smith insisted on being necessary, was entirely concealed, and we were continually asked, How does that Clematis grow up in the air?

If the effect is to be light and airy there must be much concealed strength, and no slip-slop work. I would employ a blacksmith, and not a wire-worker, and once for all lay one's account to having a good equinoctial every month. Here zephyrs are only poetical trifles, our west winds being more damaging than the east.

climbers employ to attach themselves and strengthen or loosen their hold according to weather and circumstances. We learnt many things from the Clematis wire, and also from one we have for Bryony. Do not we all know after a gale the destruction of creepers that are secured to stone walls, and poles, even branched poles, and sticks, by artificial tyings—



FIG. 63.—GLENOWER'S OAK AT SHELTON, NEAR SHREWSBURY. (SEE P. 464.)

Now it seems to me we might have very great additional enjoyment and instruction from our gardens by the adoption of what I would simply call a wire wall—not an ornamental trellis, but one with strong supports, fitted to stone, deep in the ground, and a broad coping, as it were, along the top and down the ends, to which the netting might be very securely attached.

I can imagine such a wire wall as a centre line in a bed of sufficient breadth, or in a border lying in the right direction, so that on either side of the centre line there would be a good breadth of ground sufficient for three or four rows of plants sloping down in regular or irregular heights, and a very delightful effect would be the result. Then we should be able at our leisure to study the varied modes the different

how Bryony and Tamus slip down the pole in a heap, never again to look well, but bruised and smashed? Never do we see such damage in hedges, or where climbers can run over trees, fixing and securing themselves, and as we cannot have a growing wall, *i.e.*, a hedge, in our borders and beds, I believe a wire one would answer well. So much at present for the gardener's and plant grower's point of view, but there is

something to be said on the scientific side of the question.

Mr. Buchan, Secretary of the Scottish Meteorological Society, in his notes read before the Botanical Society on January 8, 1874, gives many interesting facts to prove that there is much resistance to the wind in an "ordinary fishing net" or "a light wire screen," that "the flimsiest protection to windward, such as a few bare twigs, presented an obstruction to the wind so effectual as to produce a calm, or all but a calm, on the lee side." That there is "a peculiarity of the wind which, not being generally recognised, may be here further illustrated. A fence made of slabs of wood 3 inches in width and 3 inches apart from each other is a protection even during high winds to objects on the lee side of it. In this case the fence does not admit of a free passage to the wind through interstices so wide." And in another paper, read April 12, 1877, Mr. Buchan says, that "A tree or bush raised the temperature all round, or, to speak more correctly, arrested to a great extent the fall of the temperature."

I gather, therefore, that the wire walls I suggest (planted with twining and leaf-climbing plants) would both raise the temperature of the soil on either side of the centre line, and form at the same time an efficient resistance to, or possibly I should rather say, moderate admission for the passage of the wind, thus giving two distinct forms of protection to the plants in the bed or border.

For those who have the means and the will it would be instructive to try various sizes of mesh in different positions, so as to prove what size gives most protection, and at what angle the prevailing wind of the district is safest turned aside.

As soon as the weather turns spring-like there is certain to be a most rapid rush in growth of vegetation; if, therefore, wiring is to be employed for Clematises, no time should be lost in getting it ready. To heighten a wall where climbers are planted, with wire-netting, is certainly much cheaper than brick or stone. *F. J. Hope, Wandie Lodge, April.*

Notices of Books.

The Pleasures and Profits of our Little Poultry Farm. London: Chapman & Hall, 193, Piccadilly. 1879.

This little book is far more meritorious than if it had been longer. The first remark on the subject of poultry occurs half-way through the volume. The name of the writer is not vouchsafed. He says of himself in the opening sentence that he and another person—niece, wife, or daughter—whom he names Corisande, were seized with a desire to break through the trammels of conventionality. Surrounded as they were with every accessory of enjoyment they desired to forego the amenities of what is called polite society, and to seek for happiness in the country. So they advertised for a freehold cottage and a few acres of land, and found the objects of their search at last in the north of Hampshire. To this retreat the author—we will call him Lothair—conducts his Corisande. The place had been knocked down to them for the moderate sum of 200 guineas! The fee-simple was actually theirs! They could say with the Prince Consort when Osborne House was purchased, "It is so nice to have a place of our own which we can do as we like with."

When they enter on possession you are still thirty pages from the commencement of the poultry keeping. There is a great deal to describe in the cottage and its *enourage*, and Lothair, the "big-wig" in disguise, lays aside his dignity in the most obliging manner, and tells you all about the little dwelling, beginning with the pump. He catalogues the Roses, too, and introduces Eglantine, Ivy, the twining Honeysuckle, and the Vine, into his description. He then paints in the past, and speaks of Jeremy Bentham, Canon Kingsley, Richardson the novelist, Miss Mitford, Hunt the artist, Dr. Johnson, Chaucer, and the Lord Chief Justice Blackstone, who, with several others, are introduced upon the scene as having been connected with the neighbourhood. Lothair is not quite at home in his cottage just at first. He admires Corisande very much, and describes that young lady as being "enflamed with ardour by the success of our Ferns and flowers," but he always seems to be looking on at her and her garden, and never helps her, as a young fellow would have done. He has doubts

whether the novelty of the thing won't wear off. Corisande reassures him. "We must like it! we are not going to give it up!" she exclaims, and Lothair, appeared if not enflamed, begins to talk in a rural strain about the two-acre meadow flecked in early spring with—But we must give the poor gentleman's own pathetic words. "Very early in the spring," he says, "it was thickly flecked with wavy Snowdrops, then came Daisies and Daffodils, while round about the banks peeped Primroses and Oxlips." The erudite Lothair adds that a little later in the year there sprang up Cowslips, Sweet Violets, rare Orchis, of many kinds; Ladies' Tresses, Tway-blades, Adder's-tongue Fern; and in the hedges Foxgloves, Canterbury Bells, Blue Periwinkle, and grand Mullein. In the adjoining woods grew Lilies of the Valley, and the Royal Osmunda, with nearly a score of other kinds of Ferns. "So," says Lothair, "we were in a perfect Eden of flowers and verdure." Delightful to be sure! Still Lothair is far from being perfectly at ease, and accordingly he tells us that when his young gardener—he says, "we made Strawberry beds," but we don't believe he rendered much assistance—when she set the plants too close he was forcibly reminded of "Goethe's Lothario, who when Teresa showed him her garden could not help privately opining that the things in it were set a world too close." Poor old gentleman! he is thinking of the play! The poultry have not arrived yet, the only living thing for him to set his eyes on is Corisande, and he is getting bored to death—not with her, but with the early Broccoli and Broccolis generally. Some neighbours call, very much to his delight. It is all very well to fancy you have done with the world, but terrible to discover that the world has done with you.

On the thirty-ninth page, the poultry being not far distant, they keep bees, and sit beneath a blooming Hawthorn tree in May—

"If Heaven a draught of heav'nly pleasure spare,
One cordial in this melancholy vale,
'Tis when a youthful, loving, modest pair,
In other's arms breathe out the tender tale,
Beneath the milk-white Thorn that scents the
ev'ning gale."

"Presently," as Lothair informs us, "a thrill of joyousness is sent into our heart by the exclamation, 'They are swarming!'" If we understand the text, it was Corisande who shouted out. We imagine her at this stage of the story an exceedingly robust young person, tall, brown, loud, and stout. She runs, shouting, after the bees, and hives them herself. "Gauntleted, kerchiefed, and masked with a thick veil over her gipsy hat, she gently sweeps the pendulous phalanx of bees into the hive which is held under to receive them." Bravo! Corisande—*encore!* for a "hive of bees in May is worth a load of hay." Lothair is delighted. "It was in the poultry-yard I began to reign!" said Madame de Maintenon, and in the Hampshire cottage Corisande is queen. How Lothair admires her! "In the morning, before the hour of luncheon," says his lordship, whose habits do not appear to be particularly active, "to see our Corisande coming in from collecting her produce from the poultry-house, with her charming Sir Thomas Lawrence-shaped basket, something like a small thrush-cage, nearly filled with new-laid eggs, which look so temptingly through the bars—I find it hard to say whether she is, in a pictorial point of view, or the contents of her basket are, in a substantial sense, the more delightful to the eye."

Bravo! Lothair. A very gallant speech, especially as you employ the present tense, and it is now twenty years, you say, since you and your Corisande retired to the Hampshire cottage.

In the middle part of this little book the romantic epoch closes, and the poultry period commences. At this stage exeunt Corisande and her Roses, and enter the Brahmapotras and the barley-meal. We are not sure that the little book before us is improved by the long romantic introduction. The moiety which relates to poultry is the best, and we should advise his lordship to "throw away the worse part" of his volume in a new edition, and to elaborate his excellent account of this "poultry farm." His fifty pages on keeping poultry are excellent, but they are all too short. They are excellent because they are a recital of his own experience. His opinion of the various breeds, his statements as to corn consumed and eggs produced; and his Dr. and Cr. accounts, and several balance-sheets, are all good for the same reason. There is no padding

in this part of his volume, nothing pedantic, mouldy, nor constrained. He writes not as one of the *dilettanti* of the Athenæum, or as a Sybarite from the Garrick, but rather as an observant and experienced poultry-keeper of several years' standing. That part of his volume is very good. Perhaps his notes or recollections will enable him to enlarge it.

Kitchen Gardening Made Easy. By George M. F. Glenny. Crosby Lockwood & Co.

After a few preliminaries relating to the aspect of the garden, its soil, its walls, its supply of water, and so forth, the author gives some general directions as to the cultivation and management of the ground, followed by special directions for the principal vegetables arranged in alphabetical sequence. A monthly calendar of operations is given, and directions for forcing, fumigating and labelling. The heading a "novel suggestion" attracted our attention, as we had been on the lookout for some novelty after reading the rather self-sufficient preface, and this it is—that "Fern cases (when not occupied with Ferns) may be turned to profitable account for growing small salads, Watercresses, and other subjects, interesting in a double sense—being nice to look at and eatable at the same time." The rat-tailed Radish, *Rafanus (sic) caudatus*, is recommended to be grown in the same way. It is not necessary to say more as to this little book. For beginners it may be useful.

PRIMROSES.

SWEET Primroses! I hold you dear,
That heedless are of me;
Ye have no ears my words to hear,
No eyes my gaze to see.
You love the rain that swells each bud,
The sun that bids you blow—
The breeze that calms your gentle blood,
And sways you to and fro.
But I am least of all to you;
For what have I to give?
What can I add of pleasure new
To your own joy—to live?
And yet the sunshine finds no bliss,
To smile, and win your smiles;
The breeze is careless of the kiss
It takes or gives by whiles.
While I, who love, must yearn in vain,
For all I take of you,
To give to you such joy again
As gives one drop of dew.
And you, fair flowers of joy and light,
Blessed above all remain,
To give such delicate delight
And take no gift again!
F. W. B., in the "Spectator."

Garden Operations.

KITCHEN GARDEN.

By practical observation and experience combined we in general become well acquainted with the standard dates, which are definitely fixed for making sowings of certain kinds of vegetable seeds which are absolutely indispensable for yielding the staple or main crops which are necessary for the year's supply. There are, however, in addition to these other crops of an intermediate nature which are equally essential for the purpose of meeting the many and varied demands which occur amongst the requirements of an ordinary private establishment, and as fully important as those referred to above. These comprise some of our choicest kinds of edibles, as Peas, Beans, Cauliflower, summer Cabbage, Turnips, and Spinach; also Lettuce, Endive, Radishes, &c., all of which require to be young and tender to be in the highest state of excellence. These considerations induce us to draw attention to the necessity of giving unremitting attention to the sowing of these subjects at proper intervals throughout the summer season, as by so doing both scanty or over-abundant supplies will to a great extent be avoided, and an uninterrupted succession of crops in the best condition possible be secured. Ordinary operations to be attended to now will comprise planting out the main crop of Potatos, which should be done with due regard to the condition of the soil; the distances apart between the rows and the sets should be regulated accordingly. In well enriched ground, and particularly in such as is to be found in gardens which have been well cultivated for a series of years: the rows may with advantage be placed from 2 to 3 feet apart and the sets at about

a foot asunder. To enumerate now all the best sorts which are necessary for cultivation, for showing and other purposes would occupy too much space; but for table use, as early kinds of kidneys, either of the following sorts can be depended on—Veitch's, Rivers', or Myatt's; and in round sorts Climax, Coldstream, and Union—the latter being specially adapted for small borders like those at the base of walls. The most forward plantations of these out-of-doors will speedily be visible, and for the protection of the tops from injury by frost we advise the flats or borders to be covered over thinly with long stable litter; this will be found to be a better method than the old plan of drawing a superabundance of soil over the top for the same object. Peas will also want considerable attention in the way of thinning, sticking, and mulching; we have invariably seen that those rows where the plants have been thinned out to about 2 or 3 inches apart produce the best pods and continue longest in bearing. In the process of sticking, let these be kept perfectly erect so as to afford the vines an opportunity of keeping within the rows of sticks and preventing them from being injured by every blast of wind or rain which may come, and as mulching apply good dressings of half-decomposed manure 2 or 3 inches thick. This practice is to be strongly recommended, because it saves labour in watering, and further conduces much towards obtaining satisfactory results. The Cauliflower, Cabbage, and Lettuce plants which were pricked-out in sheltered places last autumn should be transferred to their appointed places without further delay. In the treatment applied to the succeeding crop which was sown early this season, and is now pricked-out in frames or elsewhere, it is necessary to be cautious, or the plants will become drawn and tender, to prevent which careful ventilation should be secured every day. In avoiding a repetition of the full particulars of the plan which we adopt to obtain our annual supply of that much required root, Horse-radish, we remind those who pursue the same course as ourselves to bring this matter to a close at once, and so also should any planting which still remains undone of Seakale, Globe Artichoke, Rhubarb, &c. As soon as the lines of early sown subjects, as Onions, Carrots, Parsnips, &c., are visible let the surface-soil between them be stirred over lightly to encourage growth and also to eradicate weeds.

FORCING DEPARTMENT.—Ordinary attention to ventilation and watering will be the chief points in the management here. As the plants of Tomatos, Vegetable Marrow, ridge Cucumber, and similar plants become fit for potting, let it be done before they become lanky and drawn, and when such plants as these are required for out-of-door places they should not be reared too tenderly, but as soon as they are established in the soil they should be kept in moderately cool houses until they are wanted for planting outside. *Geo. Thos. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD-HOUSE.—The trees in the early house should now be going through the stoning period, and that is a time when they require as much or more attention than they do at other seasons. It is very undesirable to push the trees on with much heat, and as much air as possible should be admitted without reducing the temperature below about 65° by day and 60° at night, for a period of nearly six weeks. During this time the fruit does not seem to increase much in size, and amateurs, who carefully watch its development, become anxious, thinking there is something wrong; but it is not so, the fruit is still growing, only it is inside. When the stones are quite hard and the kernel developed, the fruit takes what is called its second swelling, and develops at a very rapid rate. If it has not been thinned out sufficiently before stoning, this ought to be done long before that process is completed, as the formation of the stones is very exhausting to the trees. See to the stopping of the growing shoots as they require it. If the trees have grown as large as they are required the shoots may be stopped at every second leaf as they are formed, thinning them out when they are too thickly placed. The shoots of young trees that have not yet grown to their full development should be stopped at the fourth or fifth leaves, and this should be done as soon as the point can be pinched out with the finger and thumb. It has already been pointed out that the small slender growths may not require stopping, and that all the vigorous shoots must be stopped, beginning at the top of the trees, where they are probably strongest. The trees in the late house are now in full flower, and the blossoms, all of different shades of colour, are very interesting. What a contrast, for instance, between the large showy blossoms of Princess of Wales Peach, and the comparatively insignificant appearance of those of Walburton Admirable; yet when the fruit is ripe it can scarcely be distinguished in its appearance, albeit the Princess of Wales sets its fruit very freely, while the other does not. The weather is altogether favourable to the free setting of the fruit, but it may be as well to remind cultivators that it sets better if the trees are shaken

gently about 10 A.M., and again about 2 P.M., and that Barrington, Exquisite, Walburton Admirable, and others, known to be shy setters, will do better if the pollen from the free sorts is dusted upon the stigmas of their blossoms. I must also urge again the importance of free ventilation. Let the side and top-lights be open from an early hour in the morning. What if the wind is high! let it blow freely through amongst the blossoms; if it is dry and not very cold, that is just what the blossoms want. Also see to the soil in the pots being kept in a healthy moist state; over-dryness is fatal to the fruit setting, and somehow a check always brings a horde of insect pests. *J. Douglas.*

ORANGE-HOUSE.—It is very easy to have a succession of these when the trees are, as they ought to be, grown in pots. The latest ought now to be in blossom, and if they are in a healthy state as regards root-action a good set is certain. The temperature may be 60° or 65° at night, but in this respect Orange trees will accommodate themselves to any temperature between 55° and 70° as a minimum. The trees are much benefited by surface-dressings. We have had the leaves assume quite a sickly cast from lack of food, and in a few weeks they have become of a rich glossy green from a dressing of loam, pounded charcoal and bone-dust in equal portions. The trees dislike a mixture such as has been previously recommended for Peach trees, Vines, &c. It is the thorough command one has over the trees that makes the culture of the whole so interesting, but only those who are intensely interested are likely to command success. *J. Douglas, Loxford Hall, Ilford, E.*

THE CHERRY-HOUSE.—We still adhere to the temperature which was indicated for this place in a former Calendar. Growth in the trees and fruit is now rapidly advancing, and the shoots have already attained a sufficient length to require stopping; this should be done as soon as they are fit at about the fourth or fifth joint, in every case when it is not a leading growth, or one so placed as to be required for furnishing a new branch for the tree. Be very vigilant in regard to the presence of fly, and exterminate it forthwith by the usual means of fumigation or otherwise by syringing the trees, &c., with quassia water. Persist in the order of syringing the trees morning and afternoon when the leaves become quite dry; this operation must moreover be discontinued instantly over those parts where the fruit indicate signs of the colouring process commencing. Incessant watchfulness should also be given towards the detection of grubs, which with us are not nearly so numerous this year as they have been in many former ones. Trees which are confined to pots should be seen to regularly, and after the fruit is set these should be stimulated with weak doses of manure or guano-water once or twice a week. Keep newly-planted trees shaded at mid-day when sunshine is powerful, or its effect after such a dull period will be liable to injure the foliage. *Geo. T. Miles, Wycombe Abbey.*

STRAWBERRIES IN POTS.—The season for fine Strawberries has now arrived, and the labour entailed in producing them is increasing daily. What with dry east winds, sometimes piercingly cold, and alternate blinks of sun, of however short duration, the Strawberry grower who expects to have first-rate fruit will have to be on the alert almost every hour of the day. Those who are delegated to the charge of watering Strawberries often regard the operation as being the simple application of clear or manure water once or twice a day; no doubt a single application would be quite sufficient in dull weather, but where the changes are so frequent it is of the first importance that prompt steps should be taken in time to see that no single plant suffers from drought to an extent that will endanger or predispose it to the attacks of red-spider, which spreads so rapidly, not only over the leaves of the Strawberry plants, but also extends its ravages to Vines or Peach trees, or whatever else comes in its way in the same house. Where it is practicable, it is a good plan at this season to let the shelving fall a notch or two, to allow a free circulation of air between the leaves of the plants and the glass, so that the tender organs of the flowers may not be exposed to violent atmospheric changes on the admission of air after a period of dull weather. In selecting plants for exhibition, only those showing the largest flowers should be taken, indeed the flowers may be thinned to about a dozen or so before they expand. Work them forward in a gentle heat in the first stages of swelling, giving an abundance of atmospheric moisture as long as the fruit remains green; when the colour changes to whitish-green the temperature may be increased gradually to a maximum of 90° by day and 70° at night, and if the fruits can be kept in the same house, and the temperature gradually lowered to a mean of 60°, they will increase considerably in size, even after they appear to be ripe and full-grown. Where high flavour is aimed at, a lively warm atmosphere should be kept up, and watering at the root dispensed with as much as possible for forty-eight hours before the fruit is gathered. *W. Hinds.*

PLANT HOUSES.

ORCHIDS.—To the grower there are three main divisions of Orchids—cool, intermediate, and hot. Branching from these three are many subdivisions, consisting of plants which require a somewhat different treatment to the other occupants of the house in which they may be placed. It may be a question of heat, of moisture, of air, or of light; for instance, a certain class of plants may like the heat, moisture, and ventilation of the East Indian-house, but not the light; a grower finding this out selects for them a position in the house where, by a little scheming, he can satisfy their only want without interfering with the well-doing of other plants. Working on this principle it is possible with only one Orchid-house to grow successfully many plants coming from many different localities. One very important subdivision is formed by Bolleas, Batemannias, Warscewiczellas, Huntleyas, and Pescatoreas—a noble class of Orchids that previous to 1874 was but poorly represented in this country. Since that date, thanks to the energy of M. E. Klaboch, great numbers have been imported alive, and are now growing in many Orchid-houses. It is truly a lamentable fact that this young fellow has passed over to the great majority without ever seeing his discoveries at their best under cultivation, and accordingly never receiving the congratulations and thanks of Orchidists. It was from him (through Mr. Sanders) I got the key to the successful cultivation of these plants. My information was this:—The plants in question grow in very shady woods, in a country where rain falls more or less every day in the year, save five or six. It is easy to understand what difficult plants these are to get home alive; it is, indeed, rare in buying a bundle of imported ones to get anything more than a few live rhizomes. Fortunately this is enough. These rhizomes should be immediately potted in crocks, placed in the East Indian-house, and watered all over every day. Soon or never breaks will show. If they do show still continue the watering, and when roots appear give them a little peat and sphagnum to run in. So soon as it is possible to recognise the dead from the living turn the plant and pot it in a suitable sized pot, which must be half-full of drainage, using peat and sphagnum with a small quantity of half-decayed leaves for compost. This mixture should be used at all future pottings or top-dressings. Established plants should now be placed in the intermediate-house; give them a position where they will be protected from even weak sunshine. Last year, in addition to the ordinary shading, we painted the roof-glass immediately over their heads with the green "Summer Cloud," under which they grew luxuriantly. All through the summer water copiously overhead every morning and evening; once a week give a good soaking direct to the roots. Towards the end of the year, when the intermediate-house night temperature is allowed to fall below 60°, move the plants into the East Indian-house; water overhead once a-day, and at the root often enough to prevent dryness. That these Orchids are worthy of all this attention is guaranteed by the fact that their greatest admirers are those gentlemen who, having been many years closely connected with Orchids, are justly looked up to as the best judges of what an amateur's Orchid should be.

Alongside of this wet-loving section place the following Cœlogynes—corymbosa, corrugata, conferta, glandulosa, ocellata, odoratissima, and barbata. Grow them in well-drained pots or pans, with sphagnum and peat to root in. During the summer water them copiously overhead every morning, and sprinkle them in the evening after very hot days. The water will neither injure young breaks nor flowers, but will be the means of the plant making strong and clean growth. These lovely Cœlogynes have been imported many times, but have always fallen victims to heat, drought, and thrips. *C. barbata* refuses to grow, much more to flower, if it is not kept wet at all times. This plant, on the strength of Dr. Lindley's description, has always fetched high prices. Great things are expected of it, and let us hope not in vain. The tips of the young breaks of *C. conferta* are apt to get covered over with a gummy exudation, which, if not washed off, prevents the young leaves expanding. The following plants will now be in flower or pushing up their spikes:—*Oncidium sarcodes*, *O. fuscum*, *O. Weltoni*, *Odontoglossum hastilabium*, *Vanda cœrulescens*, *Camarotis purpurea*, *Dendrobium chrysotoxum*, and *D. suavisimum*. Give all of these plants plenty of water, or in some cases the bulbs will shrivel so much as to endanger the future extension of the plants, while in others the spikes will not expand their full complement of flowers. The *Camarotis* should be syringed twice a-day even when it is in flower. Imported plants of *Aerides*, *Vandas*, and *Saccolabiums* should be hung head downwards in a shady part of the East Indian-house. In this position syringe them lightly two or three times a-day. When roots push pot or basket them in crocks, and water at the root only once a-day. In a week or two they may be top-dressed with sphagnum moss and watered as established plants. *J. C. Spyers, Burford Lodge, Dorking.*

THE

Gardeners' Chronicle.

SATURDAY, APRIL 12, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| TUESDAY, April 15 | { Sale of Mr. T. M. Shuttleworth's Specimen Plants, at Howick House, Preston, by Caps, Dunn & Pickett |
| WEDNESDAY, April 16 | { Sale of Orchids, at Stevens' Rooms |
| THURSDAY, April 17 | { Royal Horticultural Society of Ireland: Spring Show |
| | { Linnean Society's Meeting, at 8 P.M. |
| | { Sale of American Camellias, at Stevens' Rooms |
| FRIDAY, April 19 | { Sale of Camellias and Hardy Plants, at Stevens' Rooms |

A VERY heated discussion took place on Tuesday last at the Floral Committee of the Royal Horticultural Society, with with reference to some remarks which were made in this Journal, by Mr. ELWES, at p. 398, and also with relation to some editorial comments on the subject of "Botanical Certificates," p. 404, and at p. 439. So far as Mr. ELWES is concerned in the matter, we must leave to him the responsibility of his statements, merely pointing out that he simply confined himself (p. 398) to a bare statement of facts.

As for ourselves we must express our regret that any one should have felt himself personally aggrieved by anything that we may have said. The matter is so important in the interests of horticulture at large, and of the Society in particular, that it is amply worth discussing broadly on its merits, and so, at the risk of repetition, we may be permitted to allude to it again, the more so as we are requested to do so in the following communication from the Chairman of the Floral Committee:—

"Your reports have shown that on the occasion of the presentation to this committee of *Chionodoxa Lucilæ*, the decision of the committee on its merits was withheld owing to an insufficiency of the plant submitted for inspection. You will no doubt now report that the committee has had the plant obligingly submitted to them under conditions that admitted of its forming an opinion of its merits and hardness, and has consequently awarded it a First-class Certificate.

"In all this the committee has followed the rules provided for its guidance, and has in respect to its procedure acted according to its independent judgment, and with the aid of such information as it could obtain upon the subject.

"In a leading article which appeared in the *Gardeners' Chronicle*, March 29, you suggested the need of a reform in the manner of granting certificates, as also in the constitution of the committee, 'some members of which,' you say, 'do not understand their duties.'

"As chairman of that committee, I now ask you, as a matter of politeness, to explain the nature of the reform you desire to see effected, and also to justify or withdraw the ungenerous and, as I think, improper accusation against 'some members,' of incompetency.

"Time does not admit of my noticing other matters alluded to in your article, or I could show that its entire tenor is calculated to mislead those to whom the facts are unknown. *John Denny, Stoke Newington, April 8.*"

In reference to the points raised in the Chairman's letter we must request him and others interested in the matter to be so good as to refer to the article, and judge it as a whole, and not to pick out from the context an isolated expression for animadversion. If that be done it will be seen that, so far from imputing blame to the committee for acting up to its rules, we stated, and we repeat, that "when a plant is exhibited out of condition, or in an imperfect state, the committee is quite justified in withholding its award" (p. 404).

The nature of the reform we desire to see effected has already been stated by us on previous occasions, and it was hinted at in the article complained of, where we expressed the opinion that "such plants should be referred to a competent sub-committee, or to the Scientific Committee"—a procedure which was not followed in the case of the *Chionodoxa*.

As to the "ungenerous and improper accusation against some members of incompetency,"

we suppose that is a reference to our statement "that the Society has a character to maintain, and it should not be exposed to the risk of being laughed at because some members of its committees do not understand their duties." We are sorry if any member feels himself personally aggrieved at this statement, but the fact remains that, out of so large a body, few if any are competent at all points—some are selected for their knowledge of one thing, some of another, and therefore it follows, as a matter of course, that some—a large proportion in this particular case—were not in a position to judge of the plant in dispute. But though this was so, the whole body—the whole Society, was exposed to the risk of being laughed at for faults of omission, as well as for faults of commission, on the part of the committee.

In the case of the *Chionodoxa* the fault of omission has of course been repaired, as every one who knew the plant knew it must be, and, that being so, we need not refer to it further than to express our satisfaction that a whole season has not elapsed—as might well have been the case—before substantial justice has been done. But the proceedings of last Tuesday's committee afford another illustration of precisely the same fault of omission. A new and very remarkable *Pancratioid* plant was shown before the committee by Mr. WOODBRIDGE, under the name of *Hymenocallis macrostephana*—in fact, the plant described in our columns the week previously by Mr. BAKER, p. 430. That plant—the whole plant this time, not a cut flower only—was shown before the committee, but not in first-class style as a decorative plant, and it was in consequence passed over. Nothing was said about its novelty, or interest, or usefulness, no questions were asked about it, the exhibitor was not requested to give information concerning it, it was not referred to the Scientific Committee or to a sub-committee for investigation and report, decision was not withheld till the plant could be seen again, but it was simply passed over. After the meeting, one of the members of the committee ascertained the history of the plant, obtained a written statement that had previously been drawn up by the exhibitor, and read it before the Scientific Committee. The whole history of the plant was cleared up, and at once it received a Botanical Certificate. But for the mere accident of meeting with the exhibitor, and so learning the history of the plant, it too would have been entirely passed over—a circumstance which, when the facts of the case become known, will, we venture to think, not redound to the credit of the Floral Committee. This plant, like the *Chionodoxa*, will, we have little doubt, when seen in better condition, receive its due award at the hands of the Floral Committee—at present that body could not, consistently with its rules, recognise it, but to our thinking they should have referred it to a competent sub-committee for inquiry or report. This case will illustrate in part the nature of the reforms we wish to see carried out. That some such reform is needed, is, we think, indisputable, because, under existing circumstances, a certain class of plants, perhaps of minor decorative value, but withal of great interest, or useful in other ways, is apt to be ignored—perhaps even ridiculed. Again, the present system works unjustly to a class of exhibitors who have no pecuniary or personal interests to serve—to amateurs and plant-lovers of the type of Sir GEORGE MACLEAY, of Mr. MAW, of Mr. WILSON SAUNDERS, of Mr. GEORGE WILSON, and many others. To our thinking, it is a matter of the greatest importance that this class of exhibitors should be encouraged to send or bring their interesting plants, which otherwise would not be seen outside their own gardens; and to this class of exhibitors and the kind of plants they exhibit the rigid rules of the Floral

Committee do a substantial injustice. While deprecating the personalities which have been imported into this matter, we shall not regret the occurrence, if it serve to bring about a reform which we feel to be a very necessary one.

— CHIONODOXA (fig. 64)—THE GLORY OF THE SNOW!—It is evident that we have not completed our knowledge of this lovely bulbous plant yet. The plant improves so much under cultivation, that it is a question whether *C. Lucilæ* and *C. Forbesii* are not merely forms of one and the same species grown in different countries, and at different elevations. The described species (BAKER, *Journ. Linn. Soc.* xi., 436, 1870) are four:—1. *C. nana*, Crete, now in flower at Kew; 2. *C. cretica*, from Crete; 3. *C. Lucilæ*; and 4. *C. Forbesii*. The first is the *Puschkinia scilloides* of some gardens, while the specific distinctions once relied on to separate the others by Mr. BAKER are, we understand, found to be unstable, so that it is possible that we may have to deal with one species breaking up into several varieties, according to locality, altitude, &c. We may refer to the letters of Mr. MAW and Mr. MAX LEICHTLIN, which appear in another column, and we must caution gardeners as to the necessity of getting the best variety, for some are evidently much inferior to others. The hardness of the plants is beyond question, in their native country they grow at the lower limits of the snow—*ad nives deliquescentes*—and the Greek name is significant of this fact.

— THE ROYAL HORTICULTURAL SOCIETY.—It is understood, says the *Builder*, that the "1851 Commissioners" have determined to take possession of the gardens at South Kensington; in fact, that they have formally demanded it and have been refused. The law courts will probably be appealed to to settle the precise legal position of the two bodies. The future appropriation of the land is unsettled.

— TURNIP BREAD. Here is a recipe for making Turnip bread, extracted from the *Philosophical Transactions*, 1693, p. 970:—Take peeled Turnips and boil them in water until they are soft or tender; then strongly pressing out the juice, mix them, being pounded fine and small, with their weight of Wheatmeal. Then adding salt and yeast, of each *q. s.*, and warm water, knead it up as other dough or paste; and having suffered it to lie a little while to ferment, let it be baked as common bread.

— THE ISLEWORTH CINERARIAS.—When any strain of florists' flowers that are annually reproduced from seed, such as is the *Cineraria*, attains to a high standard of perfection, it requires something more discerning than an unprofessional glance to ascertain wherein lie the points of improvement realised by the raiser from year to year. This is just the position to which Mr. JAMES' famous strain of *Cinerarias* has now attained—the plants this year are in all points so good, the habit so robust, the heads so large and even, the individual flowers so big as to measure all over the collection of hundreds of plants from 1½ inch to 2 inches in diameter, and yet so perfect in form as to appear almost incapable of improvement in that direction. Mr. JAMES has so often taken certificates for seedling *Cinerarias* that the reputation of his strain is well assured. Some persons object to the granting of these certificates, on the ground that the plants do not come into the market; but that is an absurd objection. The award is made in favour of a few individual plants like the strain which is freely dispensed to the public in the shape of seed; and the great excellence of any good strain in these days has rendered the propagation of the *Cineraria* by means of division or offsets a valueless expenditure of labour. Looking over the Isleworth seedlings a few days since, when at the very best, we noticed the extraordinary variety of shades of colour in the self-flowers of which the strain is peculiarly rich, whilst bicolor flowers are also abundant. In this latter class Master Harold, a flower of special excellence, is a good example of ringed blooms. Amongst the selfs particularly noticeable are deep plum-purple, violet-maroon, cerise and rosy-cerise, bluish-violet, rich crimson, rosy-crimson, rosy-violet, shaded maroon, purple shaded with violet, and many other hues and combinations of colours, some of which are exceedingly

difficult to describe. It is an excellent recommendation that all the plants are of medium height, neither dumpy nor lanky. The seedling herbaceous Calceolarias are marvellously robust and healthy, and will make a grand display of bloom about a month hence.

— PEAT FLOOD IN THE FALKLANDS.—Under this heading Mr. W. T. THISELTON DYER communicated to the last meeting of the Linnean Society a

for the activity of the inhabitants of Stanley in the construction of a trench, and working for several successive days amidst rain and cold, doubtless very considerable injury and destruction would have ensued. Fortunately, no lives were lost.

— CAMELLIA CERES.—Mr. E. J. LOWE sends us two blooms of a very lovely Camellia which he had from Japan. The blooms are semi-double, pure white, with very bright yellow stamens of large size,

panded blooms on the comparatively small plant. They are quite of the character of those figured.

— PREVALENCE OF THE MAY-BUG IN FRANCE.—The grub of the May-bug is perhaps, with the exception of the Phylloxera, the most destructive insect pest the French husbandman has to contend against. At a sitting of the Central Horticultural Society of Paris, it was stated by the head gardener at Chantilly that they were destroying his Roses. One hundred



FIG. 64.—CHIONODOXA FORBESII (?) FLOWERS AZURE-BLUE, CENTRE WHITE. (SEE P. 468.)

remarkable account of what lately occurred at the Falkland Islands as coming under the notice of Mr. ARTHUR BAILEY. About midnight, November 29, 1878, by the barking of a dog it was discovered that a black moving mass of peat, several feet high, was making its way towards the settlement at the rate of between 4 and 5 miles an hour. The next morning (30th) it was found that the town of Stanley was cut in two, intercourse between east and west end being alone possible by boats. A great quaking vegetable area containing human beings, animals, &c., had thus suddenly, and without warning, shifted its locality. But

many of them having been as much as 4½ inches across. It is a free bloomer, for although the plant is only 2 feet high and less than 3 feet in diameter, there have been above a hundred blooms upon it. Grouped with other blooming plants it is esteemed by him as being the most lovely flower imaginable. Mr. LOWE states that it has been in his collection for about ten years, and as it was unnamed he has called it Ceres. He also sends a couple of blooms of the miniature Camellia figured at p. 433, which is named Polyhymnia. This also is a very great bloomer, as at the time of writing there were twenty-five ex-

and eighty-seven days' labour were expended upon about an acre of ground, each man disabling 5000 of these insidious grubs daily; the total amounting to close upon a million. Another member stated that he had upwards of half a million collected on every hectare of his estate. It was stated that the most effectual and cheapest mode of procedure was to wage war with the May-bug itself. This one of those present conducted in the following manner. He procured worn-out milk-cans of about 2 gallons capacity, and employed school children in the early morning to shake them from the trees, and collect them in

these cans, which they quickly filled. Boiling water was poured on them to kill them. Since this method had been practised, the owner had been troubled with very few grubs.

— PREVALENCE OF THE MAY-BUG IN ENGLAND IN 1747.—Shortly after making the foregoing extract, we accidentally came across an article in the *Philosophical Transactions*, 1747, p. 576, entitled "Concerning the Grubs Destroying the Grass in Norfolk," by Mr. HENRY BAKER, from which it appears that the May-bug was more abundant and destructive in England at that date than it is now. "Crows and hogs," the writer says, "devour these erucæ (larvæ) greedily; but their numbers are too great to be thus diminished. The most effectual way, though very laborious, is to beat them off the trees in the daytime with long poles, and then sweep them together and burn them. On a farm at Heathal, nearly 5 miles south-west of Norwich, of £80 per annum, belonging to St. Helen's Hospital in this city, in the occupation of Mr. JAMES ELDIN, these insects were so numerous last year that the farmer and his servants affirmed they gathered 80 bushels of them, the erucæ of which had so spoiled the produce of his farm that the court of this city, in compassion of the poor man's misfortune, allowed him £25." The writer also states that it is recorded that on February 24, 1574, there fell such a multitude of these insects into the River Severn, that they stopped and clogged the wheels of the water-mills. Further, we are told in the *Transactions* of the Dublin Society, that the country people in one part of that kingdom suffered so greatly by the devastations made by these insects, that they set fire to a wood some miles in length, which parted two adjacent counties, to prevent them dispersing themselves any farther that way.

— EARLY VEGETABLES FOR AMERICAN MARKETS.—The farmers of the Bahama Islands are raising early spring vegetables for shipment to America, instead of the Oranges and Pine-apples to which they formerly devoted their energies. The first result of this adventure, the *Philadelphia Record* reports, arrived in that city in the fore part of February in the shape of 1600 crates of Tomatoes, which found a ready market. Next year it is expected that Peas, Potatoes, &c., will be forthcoming from the same productive source.

— SALVIA SPLENDENS BRUANTIL.—The beauty of *Salvia splendens*, when well cultivated, was perhaps better known to the gardeners of a generation back, than to many of those of the present day, though there are still to be found those who know both how to bring out and to appreciate its merits. The variety *Brauntii* named above, which is of French origin, is, however, decidedly superior, the plant being dwarf and more floriferous, and the brilliant scarlet calyces more ample and conspicuous. It is more vigorous, but compact-growing, with larger round deeply serrated leaves, a bolder inflorescence, and larger flowers, of the same brilliant scarlet hue as in the old but now half-neglected type.

— ACCIDENT TO THE HON. MARSHALL P. WILDER.—We regret to learn from our friend, Mr. C. M. HOVEY, that the venerable Colonel, the Hon. MARSHALL P. WILDER, met with a severe accident on March 22. Colonel WILDER was descending the steps of the State House in Boston and fell, bruising and otherwise injuring himself very severely. We sincerely trust that the results of the accident may not prove serious.

— THE MYRRH OF COMMERCE AND PHARMACY.—Dr. H. TRIMEN exhibited to the Fellows of the Linnean Society (3d inst.) the unique *Balsamodendron Myrrha*, Nees. This was gathered by HILDEBRANDT in Somali Land, 1873, and possesses but few leaves and a single fruit; the traveller, however, saw the myrrh exuding from the tree. The original type specimens of *B. Myrrha*, collected by Prof. EHRENBURG in Arabia, were also shown, and according to Dr. TRIMEN, HILDEBRANDT's late statement of their identity with the foregoing seems well founded. EHRENBURG's other myrrh plant, the *B. Ehrenbergianum*, Berg., with his notes attached, and the *B. Playfairii*, Hook. fil., from Somali Land, with its gum called "Hotai," and other examples of varieties of myrrh and bdellium, were likewise placed before the Society, and commented on by Dr.

TRIMEN. These myrrh-bearing plants possess great interest, inasmuch as botanists have repeatedly made special search for them, but though doubtless within easy reach of many travellers, the Arabs seem loth to furnish information, and indeed in most cases have misled those seeking information thereon.

— GYNERIUM SACCHAROIDEUM is but little known in this country, excepting through the researches of Mr. SPRUCE in the Amazons. A plant, however, obtained through Dr. CAPPENEMAN of Buenos Ayres, lately graced the Kew Gardens, and the peculiar inflorescence of which Mr. W. T. THISELTON DYER brought before the Linnean Society (3d inst), the plant unfortunately having succumbed during the severity of the winter season. The handsome *G. saccharoideum* differs from the *Pampas-grass* in being tropical, like Maize, &c.

— ROCHEA FALCATA.—This small-growing, effective, late summer flowering subject, is remarkably well grown at Messrs. JACKSON'S establishment, Kingston. The plants are confined to single stems, and grow in 48-sized pots; they are about 12 inches high, the stems quite an inch in diameter, bearing leaves from 6 inches to 7 inches long and 1½ inch broad, and no doubt will produce heads of flower proportionate to the more than usual strength of the plants. Its intensely bright red colour and distinct habit of growth and bloom, make it deserving of more general cultivation than it receives.

— GERMINATION OF OLD MELON SEEDS.—We find the following record in the *Philosophical Transactions*, 1742, p. 115:—

"Secretary HÆREUS, of Stockholm, having a large collection of natural curiosities, among which was a number of foreign seeds, and finding he had Melon seeds that were laid up in 1703, Mr. TRIEWALD was curious to try whether they retained their vegetative quality, and accordingly, February 21, 1741, he planted twenty-four of them in a separate hotbed, from which he had twenty-one good plants, which, after they were planted in a new-made hotbed, showed flowers before they began to branch themselves, and their branches were very narrow, yet produced early and plenty of good Melons."

In a later volume is a record of the germination of Melon seeds which were thirty-three years old.

— THE MONŒCIOUS ARAUCARIA AT BICTON.—Mr. J. A. SMITH, The Gardens, Alderley Grange, Wotton-under-Edge, and late foreman of the arbo-retum department at Bicton, informs us, with reference to the monœcious *Araucaria* at that place, that ever since the tree was discovered bearing male and female flowers, some nine years ago (see *Gard. Chron.* 1873, p. 291, fig. 58), it has continued to bear them freely every year.

— SPRING FLOWER SHOWS.—Exhibitions of spring flowers whether hardy or forced, and into which the particular element of "specimen examples" enters but slightly, afford the best opportunities for the display of that peculiar decorative skill which some have so largely developed whilst others are just as woefully deficient in. To grow large show plants and grow them well is one thing, to create out of elements lacking those evidences of cultural skill a group that shall possess the most pleasing example of floral decorative art is another; and both deserve the widest encouragement. In the monster summer exhibitions, where Azaleas, pot Roses, and the usual giants of the stove and greenhouse are at their best, the exhibition of these in classes must ever be an important feature. In little, however, is it possible to create out of such elements specially beautiful effects; they may admirably form a part of a grand whole if the superintending head is capable of so utilising them and the area of the exhibition admits of such an arrangement. In the earlier spring shows groups and miscellaneous collections predominate, and truly miscellaneous as a rule are the elements of these groups. It is first in the massing of these to produce the finest effect as a whole, and second in the arrangement of these in detail to produce the most graceful and pleasing results, that the art genius of both superintendent and individual gardener is brought into play. In this respect the work affords to both a valuable exercise and study, and specially to the gardener is it useful in aiding him to develop those perchance hitherto dormant faculties which the ordinary work of the garden has not called forth. We saw but

a few days since a remarkable example of the way in which under just these conditions a large bare hall was in a few hours converted into a bower of beauty, and when complete none were more surprised than the actual workers at the beautiful result that had followed from their combined labours.

— DOUBLE VIOLET VENICE.—Flowers of one of the Italian Violets figured by us last year have reached us from the Swanley Nursery, where the plant is cultivated under the name of Venice. They fully bear out all we have said of them, being large, double, and of exquisite fragrance, the colour in this case a reddish-purple with a mottled white centre. Those who care for double Violets should make a note of it.

— BROWNEA GRANDICEPS AND SOLANDRA GRANDIFLORA.—The cool conservatories at Glasnevin, as we learn from the *Irish Farmers' Gazette*, "are still gay with Indian Rhododendrons, and in the large stove conservatory of the curvilinear range the stately specimen of the magnificent *BROWNEA GRANDICEPS* is just now quite a sight worth seeing, being in full flower. With over fifty of its large and gorgeous flower-heads depending from among the dark green pinnate foliage, the effect is fine. We much doubt if this grand specimen, which is quite a tree, well furnished and evenly balanced, could be matched in any of the plant stoves of Great Britain. In an intermediate-house adjoining, the remarkable specimen of *SOLANDRA GRANDIFLORA*, which covers a considerable portion of the roof, has been for weeks and is still very striking and noteworthy, producing in profusion its great trumpet-shaped white flowers, in size and shape much resembling those of the white *Brugmansia*, but instead of hanging perpendicularly like those of the latter, they stand out horizontally from the stem. Out-of-doors perhaps the most noteworthy feature is the fine collection of *Hellebores* just now in full flower in the borders; quite the best, perhaps, among them is a hybrid raised at Glasnevin some years ago, "H. Dr. Moore," and believed to be a cross between *Helleborus orientalis* and *H. colchicus*."

— CINERARIAS.—Mr. CANNELL has sent us blooms of a very richly-coloured strain of these showy flowers, which are likely to be very useful for decorative purposes. Amongst them are rich purples and blues which are singularly effective, but the most valuable for floral decoration are the tricolors, the flower-heads of which have the ray florets purple, with a small white ring edged with crimson surrounding the disk. Another attractive variation has the purple rays with the ring surrounding the disk of crimson only.

— GOLDEN SELAGINELLA.—We have received specimens of this novelty, alluded to by us at p. 375, from Mr. SIMPSON, of Brahan Castle Gardens, Dingwall, Ross-shire, where it appears to have originated. Mr. SIMPSON should therefore be duly credited with the introduction of it. He writes:—"I enclose a piece of yellow variegated *Selaginella denticulata*, which originated here two years ago; and as a plant of it found its way to the Kintore Nurseries, Aberdeen, last year, the plant sent by Mr. DONALDSON from Keith Hall to Chiswick may possibly be the same. As it grows as freely as its parent, and remains constant, I find it very useful for decorative purposes." Mr. SIMPSON's is quite the same in character as that to which we alluded at the page above quoted.

— GARDENING APPOINTMENTS.—Our esteemed correspondent, Mr. HINDS, late gardener to Sir THOMAS EDWARDS MOSS, at Otterspool, near Liverpool, has been appointed gardener to Sir IVOR B. GUEST, Bart., at Canford Manor, Dorset, and we heartily wish him success in his new position.

— FLOWER SHOW FIXTURES.—We have received a schedule of prizes for a Rose show to be held at the Alexandra Palace on Saturday, July 5.

— SHEFFIELD AND HALLAMSHIRE GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—The second annual Chrysanthemum show of this Society will be held in the Cutler's Hall, Sheffield, on November 24, when it is proposed to offer a good prize for twenty-four cut blooms of incurved varieties, in the hope of inducing growers from a distance to compete. The Society, which was only established early last year, appears to be making very satisfactory progress, and to be doing good work amongst its members by the diffusion of knowledge through papers read at its monthly meetings.

Home Correspondence.

Royal Horticultural Society.—Many of your readers are more or less interested in the Society, and some of them may be aware that the Commissioners of the Exhibition of 1851 are proposing to take possession of the South Kensington Gardens, that the Society are resisting their doing so, and that it may possibly end in a law suit between the Society and the Commissioners. But I wish all your readers to understand that the Society has not the least wish to keep the gardens, which have done the Society more harm than good, but they are driven to this course as the only means of getting something like justice done to the debenture-holders. The debenture-holders lent £50,000 nominally to the Society, but virtually to the Commissioners, and the money was actually spent by the Commissioners in making the garden. The Commissioners are now trying to get possession of the garden without paying a single farthing to the debenture-holders for the money which the Commissioners themselves spent in making the garden. An individual who took advantage of the terms of a lease to do such a thing would very rightly be deemed to be neither an honest man nor a gentleman, and I hope that all friends, not only of the Society, but of justice and right, will uphold the Society in opposing this attempt. *C. W. Strickland, Hildenley, Malton.*

The Chionodoxa Discussion.—I should like to make a few remarks on the Chionodoxa discussion (p. 439). The flower is certainly very beautiful, and is I think (from an amateur's point of view) one of the most valuable that has come before the committee for many meetings. We grow here most sorts of flowers, from cool Orchids downwards, and find that few beauties are more universally appreciated by visitors than a thickly-planted, well-bloomed clump of *Scilla sibirica*. Now the Chionodoxa promises to be in some respects still more beautiful; it somewhat suggests *Hyacinthus amethystinus* magnified. I think that sufficient was shown in the flower brought up by Mr. Elwes, and those in Mr. Harpur-Crewe's button-hole, backed by the evidence of both that the plant was a hardy one, to justify the committee awarding a certificate; and that Mr. Elwes showing the plant for Mr. Maw, not for himself, was in order in not leaving the table. Mr. Elwes certainly was angry, but it should be remembered that he has a better collection of the rarer hardy and half-hardy bulbous plants, and probably knows more about them, than any other member of the committee. It must have been rather galling to him when he had, for Mr. Maw, brought up what he considered a treasure, to have cold water thrown upon it. I fear if amateurs are asked to dig up rare and valuable bulbs to bring up to the committee, it may lead to considerable delay in their exhibition, to the public loss. I would remind Mr. Cannell (p. 440) of the very different eyes with which different horticulturists look at plants; with his appreciation of *Pelargoniums* he would have been shocked to hear a lady well known in the horticultural world, who owns a great garden, come up to me at a South Kensington show when the *Pelargonium* Society exhibited, and ask, "What is there to see to-day?"—you know I don't care for *Pelargoniums*." She would have been in ecstasy with the Chionodoxa. Mr. Noble's note opens a wider and still more important question. During the unfortunate position of the Royal Horticultural Society the London nurserymen have been its mainstay, they have kept up good shows at the Tuesday meetings, with, I fear, but little profit to themselves and with few prizes or medals; yet I have heard it suggested by good friends of both the Society and of horticulture, that there is danger of the Society becoming too much a trade one. What has prevented our Society taking the hold it should have taken in the country is the widely spread idea that its London supporters cared more for their recreation ground than for the interests of horticulture. *George F. Wilson.*

—It is unfortunate for the reputation of some of the members of the Floral Committee who have entered into this discussion, that they should have so innocently admitted their ignorance of the fact that the Chionodoxa was a hardy plant; at least, such is the inference to be drawn by their queries as to whether the flower in question had been grown under glass or not. When plants even of the hardest kind are new and scarce it is usual to protect them with glass for a season or two until they become more abundant, and the fact that the bulb in question was so grown in a cool frame did not detract from its merits. Naturally, in presenting anything to the committee the grower would desire to present it under the best conditions, and these perchance can only be assured when the plant is so sheltered. The illustration of the Dunrobin Snowdrops is hardly to the point, seeing that the sending of bulbs as well as leaves and flowers was necessary to determine whether it was really a distinct kind of *Galanthus* or not. With the Chionodoxa no such test was requisite; its

entire individuality was evident at a glance, whilst its beauty was so striking that any lover of hardy plants would at once acknowledge that it was a valuable acquisition to the hardy plant garden, and indeed to all places where *Scillas*, *Snowdrops*, and *Crocuses* are grown. It may have been that the manner in which the flower was placed before the committee was somewhat abrupt, but want of courtesy on the part of the exhibitor should not be visited on the unoffending plant. I take exception to the dictum that all exhibitors of plants before the committee of members should at once leave the table. Not only these, but all others, should be first invited to give any information concerning their exhibits, if required, before the awards are voted upon. *A.*

—At p. 439 "F. W. B." speaks of *Chionodoxa Lucilæ*, but his description agrees with *C. Forbesii*; as far as my information goes *C. Lucilæ* is not yet in cultivation: to avoid confusion this should be settled. I was told the confusion had arisen from an incorrectly written label. *Max Leichtlin, Baden-Baden.*

London International Exhibition for 1880.—I fear your correspondent "Alpha's" circle of friends, whose opinion he quotes (see p. 439, April 5), are chiefly composed of those whose faculty of making provision for future events is not very prominently displayed; their ideas are, I fear, confined within a very narrow compass—the future to them is a blank space, and there seems no prospect before them of covering any of the pages of future history with bright and glowing scenes: they quietly sit down, and look at the dark side of the picture and forget that to every black cloud there is a silver lining. Procrastination is the evil genius which prevents their grappling with present difficulties, which should be the great incentive to their future success. Had your correspondent subscribed his name to his criticisms, instead of sheltering himself under a *nom de plume*, his opinion, if it was worth anything, would have carried more weight. [We can assure Mr. Wills that our correspondent's opinion is worthy of every consideration, even though he has not seen fit to sign his name. Eds.] He might, perhaps, have caused a few wavering pilgrims to halt on their journey—he certainly ought to have given his name in full, when trying to write down a great national undertaking. I never yet wrote a letter to the public press without signing my name in full—thus proving myself capable of defending in practice what I had written in public. "Alpha" tells us better days will come, let us hope they may and speedily, but is the world to stand still during this period of depression? Must no man make provision for the future? Must the fires used for cooking our daily food and for driving our ponderous machinery not be rekindled before the advent of better times or until the long-looked-for good times are with us, or perhaps have exhausted their force before we make the attempt to put our house in order? The idea is absurd. Enthusiasm may be a dangerous element when not tempered, as "Alpha" tells us, with soberness and judgment; but all the soberness and judgment in the world would never lead to success without enthusiasm. In every trade or calling enthusiasm is the great motive-power by which success is won, and the largest amount of success invariably follows the man whose enthusiasm is combined with energy and common sense. There is no analogy whatever between the proposed great International Exhibition to be held next year and the disastrous Preston show. The exhibition which is to be held will be a great international display worthy of our country, interesting and instructive to hundreds of thousands of our fellow countrymen, and a source of education and pleasure to Continental and colonial friends. The exhibition will be held on one of the finest sites for the purpose in Europe. I think I have pretty good ground for stating that there is every probability that the proposed International Exhibition will take place next year, and if so my enthusiasm will not have been in vain; whether that enthusiasm was tempered with soberness and judgment time alone will prove, at any rate I feel very confident of success. *J. Wills, April 5.*

Effects of the Late Severe Frosts on Vegetation.—In this favoured locality there is scarcely any appearance of having passed through an unusually long and severe winter. Many shrubs, generally considered half-hardy, are unscathed; amongst them *Aralia Sieboldii*, *Thuja Doniana*, *Dacrydium Franklinii*, *Bambusa gracilis* and *Metake*, *Chamærops Fortunei*, *Desfontainea spinosa*, *Ekeagnus reflexa* var., *Skimmia oblata* and *fragrans*, *Erica codonodes*, *Phormium tenax*, *Olea fragrans* and *ilicifolia*, *Euonymus* (gold and silver), *Eugenia Ugni* and *apiculata*, and double and single *Camellias*. Sweet Bays and *Laurustinus* are in some places a little browned where the foliage was too vigorous, but the new spring growth will soon mend that, especially if the damaged shoots are shortened with a knife. The only Rose affected is *Lamarque*: a whole row of these (amongst many other *Noisette* and *Tea-scented* varieties) is completely killed. The tender nature of

this variety I have before experienced. The season is an unusually late one: a large *Magnolia conspicua*, in full bloom before this time last year, is only just now swelling its buds, the same with *Pyrus japonica* and *Mespilus canadensis*, *Almonds* and *Apricots*. If no late frosts intervene, there is every probability of an abundant fruit crop. Whilst speaking of spring-blooming shrubs I cannot help alluding to several which appear to flourish in our light gravelly peat soil in a manner I have never seen elsewhere, namely, *Erica codonodes*, *Skimmia japonica*, *Gaultheria Shallon*, *Pernettya mucronata*, and *Andromeda formosa*. The latter is one of the most beautiful shrubs in cultivation both for blossom and foliage, and is the admiration of every one who sees it; but unfortunately it is very capricious as to soil and situation—here, however, it appears quite at home. The *Eucalyptus globulus*, many fine specimens of which were growing in this neighbourhood, have all been killed by the frosts. It is evidently not a tree suited to this climate, and can only be cultivated temporarily (as it ought to be for its fragrance, rapidity of growth, and fine glaucous foliage) as a curiosity. *W. H. Rogers, Red Lodge Nursery, Southampton.*

Liriodendron tulipifera.—I have much pleasure in replying to the queries of Mr. Colebrooke respecting the above-named, which, so far as my experience of it goes, enables me to say that it is not at all particular as to soil or situation, as I have found it do equally well in exposed spots, and on land varying from light loam to quite stiff clay. One we have here is growing on a hill-side, fully open to the north and east without the least shelter for miles, a tidal river being on that side of it, and yet I have never known it to become injured in any way from the blast that comes in full force at times up the valley. Another is planted in a very wet place near running water, and of the two this makes the longest shoots in a season; but as regards their healthy appearance I cannot see the least difference. Those referred to at Longleat are in a deep heavy loam, and are probably the finest specimens in existence in this country. It is much to be regretted that a tree presenting such a noble aspect as *Liriodendron tulipifera* should have been so long overlooked, and it is to be hoped, now attention is drawn to it, that it will at least have a trial for town planting, and soon be seen more of in our public parks and grounds, as it is in every way worthy of extended use. *J. S.*

—There is a nice young specimen of this tree growing in the grounds here. It was planted about forty years ago; and has now attained a height of about 50 feet, and stem 6 feet 5 inches in circumference at 5 feet from the ground. It is planted in a rather sheltered situation, in a deep rich loam, what had originally been an old kitchen garden, and it has a damp bottom. Such a luxuriant mass of foliage does it produce that some of the limbs are in great danger of snapping off, especially during rain, when branches (which are in winter high above a man's head) sweep the grass. In a young state it appears to grow as rapidly as most other trees, as a Weeping Elm, planted close to it at the same time, is no larger, and an *Acer campestre* variegatum very little larger. But as the Tulip-tree has made but very little growth of late years, and the other two are growing vigorously, they will eventually outstrip it. *G. Griffin, Slebech Park, Pembrokeshire.*

—This magnificent tree grows to perfection on stiff clay soils to the north of London. In the neighbourhood of Edmonton there are some splendid specimens in the gardens and grounds of old houses. On the light sandy soil of the Royal Gardens it seems incapable of attaining its full development. In the Regent's Park, the northern half of the Green Park, and the district traversed by the Harrow Road, it would without doubt grow well, but on the gravels of the rest of the London parks and squares, and on the Thames Embankment it would probably disappoint the generation which will judge the work of that which plants it. *W. T. Thiselton Dyer, Kew.*

Aralias for Table Decoration.—This is undoubtedly one of the most useful classes of fine-foliaged plants for the above purpose we have, as with moderate care they may be used any number of times without damage, they last a considerable time, are of a useful size, and of very easy culture. They thrive best in a light loam, with the addition of a little leaf-mould and sand, and stand a considerable time in small pots if supplied with sufficient water. Neither are they liable to be overrun with vermin; a few brown-scale will occasionally appear, but they are easily removed with a sponge. The best varieties are very hard to strike, and are usually propagated by grafting on the old *A. reticulata*. A few of the best are *A. elegantissima*, rightly named, foliage very elegant, deeply indented, green, with an orange-coloured midrib, one of the best for the above purpose; *A. leptophylla*, a good constitutioned variety, of heavier habit than the preceding; *A. Osyana*, is rather too stiff in appear-

ance for some purposes; *A. gracilis*, though sent out as a new variety, is nearly the same as the old *A. reticulata*. Neither of these are of much use for the above purpose, unless large specimens are required. *A. Veitchii* is a very pretty variety when well grown. *A. Veitchii gracillima* is probably the gem of the whole lot; if it is possible to find a fault with it, it is because it is too light and graceful for a large table, but it will be found very useful for dotting in when the table is decorated in the plateau style. The above are some of the best, but all the varieties are very useful for decorative purposes. *W. H. Divers, Burghley.*

Rare Phalenopsisids.—A month or so ago there were two new species of *Phalenopsis* flowering in the Veitchian collection at Chelsea—one for the first time in England, while a variety of the other had bloomed previously in Cornwall. These were *P. Esmeralda* and *P. violacea* respectively. At the present time two other kinds are in bloom, namely, *P. intermedia* (= *P. Lobbian*), and the unique specimen of *P. Veitchii*. Of *P. intermedia* there are three tolerably distinct forms—the typical plant of Lindley as represented by a sketch in the herbarium at Kew; the lovely blush or lilac-stained variety figured in Warner's *Select Orchids* as *P. intermedia Portei*; and a still deeper-coloured variety, named *P. intermedia Brymeriana*. *P. intermedia* and its forms were supposed to be natural hybrids between the two Philippine species, *P. amabilis* (= *P. Aphrodite*, Rehb. f.), and *P. rosea* (= *P. equestris*, Rehb. f.). The typical *P. intermedia* and the *Portei* variety are nearly identical with *P. amabilis* in habit, and in having roundish aerial roots, but the foliage of *P. Veitchii* and *P. intermedia Brymeriana* is marbled in a way which at once suggests *P. Schilleriana* as having been one of the parents. The roots of *Brymeriana* I have not seen, but those of *P. Veitchii* are quite of the flat or corrugated band-like *Schilleriana* type. Again, all the *P. intermedia* forms have the apex of the central lobe of the lip terminated by a couple of slender cirrhi or tendril-like appendages, as in *P. amabilis*, but in *P. Veitchii* the same organ is terminated by a pair of straight flat teeth, somewhat similar to those of *P. Schilleriana*, but not recurved. All are beautiful, and so rare that they are scarcely procurable, as the saying is, "either for love or money." *III.*

Cymbidium Lowianum.—We have this plant in flower at the present time, and I can testify to its being a very beautiful Orchid. In February of last year we bought two plants of a *Cymbidium*, named *C. giganteum Lowi*, at Stevens' Rooms, and on comparing *C. Lowianum* with it, which has been brought in but recently, I believe them to be identical, with the exception that *C. giganteum Lowi* is the best variety of the two. One plant of the last-named I find, on referring to my pocket diary, opened its flowers on January 2, and there is one blossom still hanging on the spike, which shows the time it lasts in bloom, and it is showing itself a free bloomer by throwing another spike from the same bulb. The second plant has been in flower about a fortnight, and it is this which we have compared with *C. Lowianum*. Perhaps some of your readers would kindly give me their experience of *C. giganteum Lowi*, and say how long it is since it was first imported to this country. *C. Woolford, Downside, Leatherhead.* [Professor Reichenbach described *C. giganteum Lowianum* in our vol. vii., 1877, p. 685. Eds.]

Double Tropæolums.—Respecting the double *Tropæolums* mentioned by "D. M." in the *Gardeners' Chronicle* of March 29, I may say that we have cultivated the orange-scarlet variety for several years, and possess a good stock of it. Mr. Kinghorn grows it under the name of John Mie. It is very double, and if grown near the glass in a temperature of 55° to 65° it will flower freely all through the winter, and it attracts every one's attention. We have never heard of the other variety you mention, and should be pleased to exchange or purchase it. *H. Cannell.*

Good News for Hop Growers.—The stems and other portions of this plant furnish a fibre almost as good as Flax, and superior to the fibre given by every other vegetable substance. A gentleman at Stuttgart has invented and taken out a patent for the process, by which the stems of the Hops are boiled in soap, soda and water, well washed and re-boiled in very diluted acetic acid, again washed, dried, and combed, when they are quite fit for use, and can be washed like Flax; so now, if the Hop crop fails, one may hope to hear less grumbling from the growers. *H. E. Watney.*

Double Daffodils.—Two years ago I planted some clumps of the common double Daffodil (*Telemonius plenus* of Barr) in my garden. The bulbs have increased, but some flowers produced this year are quite out of character, and of the two I send here-with you will observe that one (No. 1) more especially

has a tendency to run into *N. Eystettensis*, of Herbert, having superposed perianth segments, and there has evidently been quite a struggle between the perianth segments and the coronal ones, especially on one side (the left) of the flower. In the other flower (No. 2) the coronal segments are more numerous. I do not suppose the thing is so very uncommon, but I never noticed so marked a deviation towards *Eystettensis* from the common double Daffodil before. I will look over Mr. Barr's double beds, and see if I can find a more marked deviation from the common double towards *Eystettensis* than is my No. 1. *F. W. Burbridge.*

Camellias Sporting.—The sporting of Camellias is no uncommon occurrence, but I do not remember a year in which it has been so general as the present, as among our small collection we have no less than five plants that show this freak of Nature, and some of the flowers are so good that I hope to perpetuate them by using the shoots that produce them for grafting or inarching on others. Indeed I have already done so in the case of one produced on Jubilee, the blooms of which are the exact counterpart of the parent as regards size and shape, but the colour is a beautifully veined rose, after the way of Comte de Paris, the variety will I think be quite an acquisition. The others, being inferior kinds, are not so striking, except in the contrast they afford, the shades of some being quite opposite, as those of red and white, or pale flesh, while some of the flowers have the petals on one side self and the other striped like a Carnation. The sports in plants are very interesting and deserve close watching, as many good things are obtained in that way, for when worked on stocks or propagated by cuttings they generally come true and retain their character after. Azaleas, perhaps, more than Camellias or other hard-wooded plants are very prone to these singular freaks, which is probably owing to the mixture of blood through grafting or crossing the one with the other for raising seedlings, the stain of colour breaking out at some time and adding to our riches. In soft-wooded plants this sportive tendency is very common, and through it numerous *Chrysanthemums* have made their appearance, as also *Pelargoniums*, the most notable for affording fresh-coloured kinds being *Vesuvius*, which has given us three just lately, and if these should turn out equal to our old favourite, of which I have doubts from what I have seen of them, they will be of great value. *J. S.*

The Weather: a Comparison.—By this time (April 2) last year unpruned Roses outdoors here had made from 2 to 6 inches of new growth, this year they have only just started. This must be much in their favour, and can scarcely be surprising, seeing the temperature of the past three months has been so remarkably different from that of a like period last year. A comparison is given below explaining to a great extent the unusual length of our fuel bills for the winter just passed. It will surely take many years to revive the old notion that a plentiful crop of berries on Hollies, &c., is invariably a forerunner of a severe winter, seeing that in the winter of 1877-8 we had enormous crops of berries; in that of 1878-9 very few. The fact must be clear to all, that heavy crops of Holly-berries, as of every other kind of fruit, are correct indicators of weather past not future.

Average Daily Temperature.

| | 1878. | | 1879. | |
|----------------|-------|------|-------|------|
| | Max. | Min. | Max. | Min. |
| January | 4.6 | 34.1 | 35.9 | 29.2 |
| February | 46.4 | 35.9 | 41.8 | 31.5 |
| March | 49.3 | 34.8 | 47.7 | 31.7 |

The above were taken from the same instruments in exactly the same position. *G. Duffield, Winchmore Hill.*

Mildew on Forced Roses.—The leaves of forced Roses are so liable to the attacks of mildew during the spring months, and such losses are sustained in imperfectly formed flowers and an enfeebled constitution, that the present season may not be inopportune to direct attention to it. A frequent source of the contagion is the rough and ready treatment to which the plants are subjected in ordinary forcing establishments where the area for forcing is of a circumscribed nature, and hard forcing has to be resorted to to meet urgent demands. The opposite extreme has perhaps to be resorted to in a short time afterwards, and the plants are taken suddenly to a house 20° lower in temperature, the result being an immediate attack of mildew. I have invariably observed that immediately forced Roses of the hybrid perpetual type have their quarters suddenly changed the result is a violent attack of mildew; and all know what the effect is on the development of the expanding buds and flowers. Last year we started our hybrid perpetuals in the vineries, and when the day temperature was raised

above 60° we had the Roses shifted into a plant-house kept at the same heat, where air was freely given at the top-lights on all favourable occasions. The plants were never afterwards shifted until all the flowers were cut, and our trouble with mildew was comparatively unknown. It is therefore evident that the better plan would be in Rose forcing to start the plants a month earlier than the majority of people are accustomed to do, and to forward them in a temperature not exceeding 55° to 60°, without subjecting them to higher or lower extremes. After forcing their treatment is no better. Whole batches of plants are turned out-of-doors to make room for others, and exposed to all weathers long before the leaves are anything like hardened, and the germs of disease are laid in healthy plants, proper circulation is arrested, and the leaves become an easy prey to dry mildew, even if they escape the cold frosty winds of our changeable climate. *W. Hinds.*

Pentas rosea.—This is another plant that should be largely grown for winter work. Plants of this struck now and grown on in heat and kept well pinched in—in fact you cannot pinch it in too much—will be found very useful to those that have to supply a quantity of flowers during the winter months: it is cut and come again, for it is never done blooming, and the more you cut it the more blooms you have. It likes plenty of heat and moisture. *John Clews, Headfort Gardens, Kells.*

Neapolitan Violets.—These are extensively grown at Blendon Hall, Bexley, the seat of W. C. Pickersgill, Esq., both in pots and frames, and for the size of the flowers, quantity, and quality, I have never seen equalled. Perhaps Mr. Moore would not mind stating how he grows them. In addition to the Violets the following plants attracted my attention:—*Lycaste Skinneri*, a superb variety, with flowers nearly 8 inches in diameter; and another variety had ten flowers from one single bulb. *Dendrobium heterocarpum*, with a growth 3 feet long; some grand specimens of *D. nobile* as much through and well flowered. *Odontoglossum Roelzii*, a fine variety, flowers over 4 inches in diameter; *Trichopilia suavis*, fine. *Dendrobium Farmeri* and *D. chrysotoxum* will shortly be in perfection. In fact, the whole of this collection is in excellent condition, both indoors and out, fully attesting the abilities of Mr. Moore, the gardener. *A. O.*

New and Old Grass Lawns.—With the present agreeable change in the weather there will be considerable activity displayed in the formation of new grass lawns and in the renovation and improvement of old ones. Perhaps there is no other adjunct belonging to a garden that the zealous amateur takes more delight in than in being the possessor of a lawn which attracts the eye of his friends or the admiration of his neighbours. If we embrace on a still larger scale the area that is laid down annually in grass seeds on large estates where pleasure-grounds are being extended, it is at once evident how desirable it is not only to understand the quantity but also the kinds of grass seeds that will form speedily a compact sward without being either tufty or rough. I have had the privilege lately of inspecting a large piece of pleasure-ground on a nobleman's estate which was laid down only a year ago, and which struck me as being a wonderful success for the short period since the seeds were sown; and, upon enquiry, I find that the following quantity and mixture were used. No less than 2 bushels per acre is recommended of the following kinds:—36 lb. *Ayrshire Perennial*, 12 lb. *Festuca duriuscula* (Hard Fescue), and 8 lb. of *Crested Dog's-tail*, and in case any portion of the ground should be overshadowed by trees, a thin sowing of *Poa nemoralis* (Wood Meadow) might be added. It need hardly be suggested that the seeds should be free from weeds, and that the surface of the ground should be well worked, and the weeds allowed to grow and be destroyed before the seeds are sown. On lawns of smaller dimensions the ground should be carefully prepared by making it all an equal depth of soil, and afterwards pummeling the surface of equal firmness all over. It is a frequent mistake made by small contractors to have the soil (when it has to be carted from a distance) taken over the plot to be sown down in carts instead of employing barrows, and having it wheeled on a strong "board-run." The extra labour pays in the end, for nothing can be more unsightly to the eye than a piece of work of this nature half-executed. The cart-run is so much harder than the surrounding ground, that when the natural subsidence takes place a very uneven surface is left. The surface-soil to the depth of 3 inches should also be as nearly as possible of equal richness, in order that the grass should grow equally and of the same colour. The renovating and improving of old lawns is also a work that is seasonable and important at the present season. Daisies and other weeds should be eradicated, and there is no better plan than that of employing a couple of youths, and furnish-

ing them with proper hand-implements for carrying out the work. After the weeds and Daisies are destroyed the hole should be filled up with soil beaten hard into them, and the surface of the lawn should be sown over moderately thick with the finest lawn mixture and covered with another heavier sowing of sifted soil, the whole being rolled down when there is no danger of the soil or seeds adhering to the roller. It is surprising what good can be effected (to say nothing of the pleasure derived from the improved appearance) from a small outlay annually by employing cheap labour for a few weeks each year, and by giving an annual surface-dressing. *W. Hinds.*

Eranthemum pulchellum.—I think Mr. Hinds is quite justified in speaking so highly of this neglected plant, for I find it one of the most useful plants for winter work, though I have not grown it on so large a scale as I intend to do. I differ in some respects from Mr. Hinds in my treatment of this plant. I have had better results from the old plants, that is, in flowering, than from young ones, though the foliage in young plants is much better; plants that I pruned back last year I have had one mass of bloom, not, as another correspondent says, a few individual flowers. I grow my plants in a cool house. They do not grow so strong, and the plants are more compact and require no sticks, and will stand a much longer time in bloom than when grown in a hot-house. I cannot speak too highly of it. *John Clews, Healfort Gardens, Kells.*

Strawberry Prospects.—I note that your correspondent, "A. D.," takes exception to what I stated a short time back, that although the old foliage of Strawberries was much cut about, the crowns looked as strong and well as ever. In making this statement I, of course, only referred to those in this neighbourhood, where the soil is light and well drained, but that they may be the reverse of this in wet, retentive land I can well understand, the frost and winds there as a matter of course taking much sharper hold of them. In spite, however, of the latter adverse influences prevailing here as elsewhere for so long a time, I am glad to be able to give such a favourable report of the prospects for fruit, and seeing that the blossoms are likely to be nearly a fortnight later than usual, it is hardly possible for them to suffer injury unless we get a spring colder than usual. In any case the foliage of Strawberries is but a poor protection to the flowers, as these are generally thrown up above it and stand clear out till set and the stems are borne down by the weight of the fast swelling fruit. I quite agree with "A. D." that cutting off the leaves is a barbarous practice, and one that cannot be too severely reprehended, the more so as it used to be done immediately after the crop was gathered, when a general clearance of runners and foliage was made. I have seen several instances of the same thing being carried out no longer back than last autumn, which shows how tenaciously some men cling to old customs and go on in the same track without it ever occurring to them how opposed such courses are to Nature, or thinking of the mischief they do. These worthies disdain what they call "book learning," and one remarked to me that people often wrote what they knew little about, which I readily conceded, but at the same time I endeavoured to point out that were it not for books and gardening periodicals some of us would have to live to a great age before we knew much relating to our business, and that in reading we could profit by the experience of others instead of buying it at our own or employer's expense. A few failures, however, are good in their way if not paid for too dearly, as they set us pondering and sharpen our wits, and thus lead on to success in the end. Although this is so I would earnestly urge on all young gardening aspirants to read deeply and observe keenly, taking quiet note of all that is passing around; and if this is done with patience and close application it inspires confidence, and work is then undertaken and carried out in a masterly manner, through having a perfect knowledge of the why and wherefore it is done. *J. S.*

Horticultural Report and Fruit Prospects.—The weather has been and still is very severe. Up to this time I see little injury done to my three gardens. The birds, which have, from the late mild winters, unduly increased upon us and devoured our small fruits, have been much killed off by the severity of the weather. Before winter set in I have had five dozen blackbirds and thrushes killed in and around my gardens. Supposing thirty of these to be hens with five eggs each the product would be 150; add the sixty originals, the amount would be 210 marauders continually, when their natural food is scarce, eating our products. It is of no use arguing with hungry stomachs; I cannot blame the poor things for satisfying their hunger. Round London, no doubt, people are reluctant to have their birds trapped or killed. I am no advocate for bird annihilation—I would rather lose my fruit than have our companions and

charmiers annihilated—but I must say that, overstocked as we have been in wooded Dorset, their diminution is a blessing. Before the winter set in I counted in 1 acre of crop land, close to Mr. Mansel-Pleydell's tenant's garden, at Cleuston, thirty-seven blackbirds and thrushes. The year before last they ate all my small fruits, and then pulled down the Pears and pecked holes in them. They ate the fruits before they were half ripe, so that I got nothing. I told a beggar once "I will give you nothing," on which he replied, "You could not give me much less. There is no taste in nothing. It is what you can't eat, drink, or put in your pocket." Saucy fellow! There is no fear of bird annihilation in a wooded country like Dorset. The only things injured here by birds or winter, or both, are the Gooseberry trees, which, except at their tips, have greatly lost their buds. I see "Wiltshire Rector" in the *Journal of Horticulture* complains of the injury done by birds to his Gooseberry trees. The poor people here also say the same. His man pruned the trees, hence the birds had easy access to them. I never prune till the Gooseberries are fit for pies, and then I cut out twigs and Gooseberries; by this means I get something, for birds cannot wholly demolish the crop. I never saw my small fruits, Raspberry trees, Currants of all kinds, Strawberry plants, Pear trees, Cherry trees, Plum trees, and Apple trees, look more promising. The Peach and Nectarine trees, 121 out-of-doors, have not lost 2 feet of wood, and are in splendid condition and well blossomed (unexpanded). Why in so severe a situation does my wood not die back? Because I attend to the wood in summer, and in the autumn I shorten the leaves, so as to admit the sun and air round the twigs. This causes the twigs by October to become the colour of mahogany or deep red. The foliage here (see the remark of the Editor of the *Florist* on the foliage) is so splendid that I can afford to cut off the points of the leaves which overlap the shoots. If foliage has been bad by mildew, or aphides, or red-spider, I do not advise the shortening of leaves, which are the lungs of the plant. Let what leaves there are stay on as long as they will abide. I think we shall have a good fruit year. A hard fore-winter, an early and genial spring, and a West Indian summer, suit gardens (with plenty of pumps) and farms. Such weather is sure to produce good Wheat. Providence is all-wise and very good to us. Had we the management of the weather we should make a sad mess of it! We should never hold the balance like the all-wise Creator, whose mercy is over all His works—good when He gives and good when He denies. I had a beloved parishioner when I was Rector of Rushton and Rawston, who once said to me, as the rain came down in torrents on his hay, "I wish I had the management of the frying-pan (sun) and the watering-pot (the rain), I would make them go t'other way." "Heaven forbid," said I, "father," for so we all called him—a kind friend to the poor, "for you would have made your hay and spoiled mine!" I had just tucked, tipped, and thatched. I felt confidence in Providence, but also in the cuckoo. Cut your hay when he cries loudly; but "cockoo oats and woodcock hay will make the farmer run away." He came from Lord Nelson's at Trafalgar. We all loved him; I buried him in Rawston Churchyard, not dry-eyed. Ah! he will be missed and wanted. Such, from the poor especially, was the lofty eulogy. Finally, the Roses look well and break well. I have not lost one Rose tree out of 2500. *W. F. Railylyffe, March 30.*

How to Use Soluble Phenyle.—I use the soluble phenyle by mixing about a tablespoonful with a gallon of water, pouring the mixture to and fro till it is thoroughly incorporated, and then applying it, by means of a common watering-pot without a rose, to the earth round the plant. I have applied this proportion of mixture every alternate day in the open ground in summer, but it might probably be used very much stronger. I have used it up to full twenty times stronger in the case of Carrots, but this can only be made out by experiment with each kind of plant, as the "plant stimulants" mixed with the phenol necessarily are not suited for all growths. I find the fluid a perfect defence against attacks of slugs in rockeries by simply pouring a circle of it undiluted on the ground or burr round the plant attacked. If dropped undiluted on a young shoot I have found it kills the growth as far as the fluid reaches, and if syringed on leaves injures them where it settles and evaporates, but my own experiments being with it as an insecticide through absorption into the plant, and consequently poisoning its feeder, I cannot speak from my own experience in this matter. The advantage of this form of phenol over the phenic acid used in the experiments of MM. Cornu and Monilfert, at Cognac, is that the soil can be thoroughly soaked with the fluid without injury to the plant, and if absorbed into its tissues it is necessarily brought (in all its unwholesomeness as larval food) into communication with every feeding larva. It apparently does not kill the larve by contact, at least has not done so in my

experiments, but simply by making their food unsuitable. I attribute this effect partly to the direct effect of the "phenol," partly to the luxuriant growth which was induced, the "growing part" as it is called technically in farming matters. I would remark that if this fluid has to be sent for from a distance it travels much more safely in a metal than a glass vessel. I have had some inconvenience relative to this matter myself. I should be happy to give any further information that may lie in my power, and may I add that as my experiments on it have all been with a view to find some generally applicable and cheap insect deterrent, I should feel greatly obliged by any information as to his success or otherwise with which your correspondent would favour me. *O.*

Insects: the Paraffin Remedy.—As an amateur Peach and Grape grower I have on so many occasions received valuable information from your paper, that I feel desirous of giving my humble assistance, in the hope that, however commonplace the information may appear to the scientific cultivator, it may be useful to those amateur growers who, like myself, have been the victim of the pertinacious attacks of the insect enemy. I recollect last year hearing the lamentation of an unlucky Peach grower who had applied the weak petroleum mixture (1 wineglassful to 4 gallons of water) with the result of killing every tree, though they were old-established trees. In opposition to this experience, I have now a large lot of Peach trees in full healthy bloom, which were a few weeks ago literally saturated with the petroleum mixture. I can only account for the misfortune alluded to above by supposing that the syringe was used as if water alone were in question, instead of syringing the petroleum again and again into the water to thoroughly mix it before syringing the trees. But the healthy bloom is not the only result attained. For years my trees have been assailed by legions of scale-insect and black-fly, the latter being vigorously at work on the bare branches in winter. So far not a fly is visible, and having carefully searched the trees over, I have found scale insects, some standing edgewise away from the tree, others flat to the branch, in the usual form, but all dried up and lifeless. In short, the trees seem quite cleared from the insect pests which have so long plagued me. The bedding plants which were in the orchard-house have not suffered at all by the use of petroleum mixture. But this is only one form of the application of the material. It is very undesirable to use it upon Grapes and Peaches (fruit I mean), especially on Grapes, so I have tried other compounds, so far very successfully. Last year I sent you a Vine leaf anointed while very young, not half grown in fact, with a mixture of equal quantities of kitchen fat and petroleum. It had completed its growth and several months had elapsed before I cut it to send to you, the only damage being an injury to the green film of the leaf, where it had been covered by the mixture. My Vines have been infested by mealy-bug, and by touching them with this mixture they are killed instantly, and completely soaked through, looking like a bit of orange sponge. I have painted the Vines where there are symptoms of mealy-bug, and it penetrates right down to the bottom of every crevice in the stem, and whatever insects there may be they at once give up the ghost. In addition to this I have, while the Vines yet remain dormant, liberally syringed the walls with the water and petroleum first named, to dislodge any insects which may be there, so hope for immunity from them this season. The mixture of petroleum and fat was a consequence of experiments out-of-doors to destroy American blight on the Apple trees, which it does most perfectly. Now seeing that a somewhat infinitesimal dose of petroleum kills insects above-ground without injuring the delicate buds, I am induced to inquire, whether this may not be the remedy for phylloxera so long desired, and as yet in vain? Your widely-read paper will afford effectively, if you will take it up, the means for providing that it shall come under the eye of all the best horticulturists in Britain, and those who have the opportunity may institute experiments, which if successful will benefit millions of Grape growers whose Vines are now becoming exterminated for want of means to destroy the underground enemy. Fortunately for me I have no phylloxera to operate on, or I should certainly try some experiments, so must content myself with the recommendation of a careful trial. *Wm. Rowlett, Princess Road, Leicester.*

Early Flowering Indian Azaleas.—The Azalea as a decorative plant is at all times valuable, but such is enhanced when they can be had during the dull days of early winter, as at no season of the year are we put to so many make-shifts to meet the different requirements incident to home decoration. Having had a little experience in such matters, I beg to urge the claims of Azaleas narcissiflora and Borsig, the former is specially valuable from its earliness. With very little forcing it can be had in flower in October or November presuming that it has got the necessary treatment before. It is white and semi-double,

the flowers having that Narciss-like form which makes it the more attractive; it is also less subject to thrips—the *Azalea* pest—than any variety that I know. Borsig is a fit companion to the above, coming in nicely after; it is also pure white, and forms a nice bush when well grown. *L. L.*

Reports of Societies.

Royal Horticultural: April 9.—“A very nice little show” must be the verdict put on record with reference to the display brought together in the large conservatory on Tuesday. Indeed it was not only very nice and very interesting, it was on one point very remarkable, inasmuch as it is extremely doubtful if so many *Amaryllis* were ever shown together before—a circumstance which compels us to regret, with the officials of the Society, that it was not known in time what was coming to enable the show to be advertised in the public prints, though this can hardly be held as a sufficient excuse for no announcement being made either of the show or the band at any of the entrances to the garden.

Before alluding to the *Amaryllis* we must refer to another striking group of Orchids, contributed by Sir Trevor Lawrence from the abundance of his Orchidic wealth at Burford Lodge, and to which a Large Gold Medal was awarded. Perhaps the most singular plant in the collection was one of the extremely curious *Masdevallia psittacina* with two dozen of its novel shaped flowers; while the most beautiful in point of colour were specimens of *Masdevallia Harryana* and *M. Harryana cœrulescens*, with about three dozen blooms on each, the latter especially being magnificently lustrous in colour. A five-branched spike of *Phalænopsis Schilleriana* bore twenty-eight large flowers; and on a long spike of *Dendrobium Devoniæ* quite a hundred blossoms could be counted. The group also contained the yellow *Oncidium concolor*, with a dozen spikes or more; *Dendrobium Jamesianum*, with about twenty flowers; *D. thyrsiflorum*, with eleven spikes; *Lycaste Skinneri*, with a dozen and a half flowers; *Cymbidium Lowianum*, with nine flowers; and a plant with seven spikes of the white flowered *Cœlia Baueriana*, of which, though inconspicuous, it has been said that “no Hawthorn hedge is more fragrant than a bed of this *Cœlia*.” Sir Trevor and his grower, Mr. Spyers, both deserve the hearty thanks of all for providing so great a treat.

The most extensive exhibitors of *Amaryllis* were Messrs. James Veitch & Sons and Mr. B. S. Williams, and the importance of the respective groups may be realised by the awards made to them—a large Gold Banksian Medal to the former, and a small Gold Banksian to the latter. Messrs. Veitch's collection contained about 300 unnamed seedlings, forming at first sight a grand array of showy colours, but on closer inspection showing no flowers much above average merit, and none of the high standard of excellence which now obtains. Mr. Williams' group was a smaller one, consisting for the most part of named varieties, very attractive as a whole, but calling for no special comment individually. Mr. Williams also staged an effective group of new and rare plants, including such Orchids as *Sobralia aurantiaca*, several *Vandas*, *Odontoglossums*, and *Dendrobiums*, *Lycaste Skinneri*, and *Maxillaria grandiflora*. Messrs. Veitch & Sons also showed several tall standard plants of *Lilac Charles X.*, with well flowered heads, from 2 feet to 3 feet in diameter. Mr. William Bull was awarded a Silver-gilt Flora Medal for a very fine group of plants, including, amongst fine-leafed subjects, such handsome plants as *Curculigo recurvata striata*, *Kentia Belmoreana*, *Dæmonorops cinnamomeus*, *Davidsonia pruriens* and *Encephalartos villosus*; and as flowering subjects, the fine *Hæmanthus cinnabarinus*, the new double white *Epacris*, *Azaleas Marvel* and *balsamæflora*, *Masdevallia Harryana cœrulescens* with finely coloured flowers, also *M. ignea*; and such species of *Odontoglossum* as *gloriosum cirrhosum*, *odoratum*, *Hallii*, *triumphans*, *Pescatorei*, *crispum*, and *Lindleyanum speciosum*; several *Cypripediums* and *Dendrobiums*, *Cymbidium Lowianum* and *eburneum*, and *Cœlogyne ocellata*. A Silver-gilt Medal was also awarded to Messrs. Paul & Son, the Old Nurseries, Cheshunt, for a fine group of forced *Roses*—medium-sized specimens of such excellent varieties as *Dr. Andry*, *Beauty of Waltham*, *François Michélon*, *Edward Morren*, *Catherine Mermet*, *Henri Ledechaux*, *Royal Standard*, *Dupuy Jamin*, and *Duchess of Edinburgh*, &c. The only other medal awarded was a Silver Banksian to Messrs. Barr & Sugden, for an interesting collection of cut flowers of “*Lent Roses*,” *Helleborus*, and a very attractive group of cut blooms of *Lent Lilies*, *Narcissus*, including such fine forms as the fine double *N. Telemonius plenus*, the large showy single yellow *N. obvallaris maximus*; several of Mr. Leed's seedlings, the minute *N. minimus*, the white *N. cernuus*, and the medium-sized yellow *N. nanus*. Messrs. Cutbush & Son, Highgate, sent a nice lot of cut blooms of *Epacris* in variety, and a capital collection of cut blooms of

Camellias, including some handsome flowers of the old *Camellia reticulata*, quite 6 inches in diameter. Miscellaneous collections of flowering and fine-leafed plants were also contributed by Messrs. Osborn & Sons, Messrs. Charles Lee & Son, and Mr. Aldous; and from Mr. R. Dean, Ealing, came a most attractive group of hardy spring-flowering plants, including *Primulas* and *Primroses*, profusely flowered and rich in variety; *Polyanthuses*, laced *Auriculas*, *Aubrietias*, *Myosotis*, &c. Mr. Parker, Tooting, also sent several interesting hardy plants, including *Saxifraga diapsioides*, white; and *S. retusa*, a pretty little pink-flowered species of diminutive form. From Mr. Wiggins, gr. to H. Little, Esq., Hillingdon Place, Uxbridge, came a small group of a dwarf-flowering strain of *Cinerarias*.

The prizes offered by “An Amateur” for *Amaryllis* brought out but a poor display, and only one of the ten offered was awarded, that, which was 1st in a class for the best dark seedling, being taken by Mr. Speed, gr. to the Duke of Devonshire at Chatsworth, with a variety named *Thomas Speed*, a pure scarlet in colour, medium in size, with six flowers in the truss, and these of nice form, with a white instead of the usual green centre, and crimson ring round the base of the stamens—a fine decorative flower, remarkable for the breadth of the three outer perianth segments, but not of A 1 excellence in point of size and smoothness. Mr. Little's gardener was the only exhibitor of six named varieties, three light and three dark, a difficult lot to make up, but no prize was awarded, the collection not being considered to meet the conditions laid down for the guidance of the judges. The light sorts staged were *Panorama*, *Mille Titens*, and *Baron von Beust*; and the dark flowers *Cicero*, *Firefly*, and *Garnet*—the first-named (*Cicero*) being very rich in colour.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, K.C.S.I., in the chair.

Trichomanes alatum.—Dr. Masters reported that he had examined the specimens sent by Mr. Clapham, and found that the fronds produced small viviparous bulbs, which in an early stage presented much of the appearance of prothallia, but on a microscopic examination of these no trace of sexual organs, antheridia and archegonia, could be found.

Insect Pests.—The Chairman showed specimens of Vines from Mr. Nation, grown in Peru, and which were said to be attacked by a beetle. Also specimens of a bug found in imported specimens of *Welwitschia*. Both specimens were referred to Mr. MacLachlan for report.

Hyacinthus orientalis, &c.—Mr. Elwes showed specimens of the wild form of the common *Hyacinth* from the Taurus, and which was interesting as showing the great advance that had been made by the art of the gardener.

Lachenalia hyacinthina (?).—Mr. Elwes also showed a peculiar blue-flowered *Lachenalia* (?) with a somewhat two-lipped flower and declinate stamens. The specimen was referred to Kew for identification.

Tortuous Hazel.—Mr. W. G. Smith showed a remarkable specimen, in which the branches had anastomosed one with another, so as to form a series of loops.

Hybrid Geranium.—Mr. Grieve sent specimens of a plant with the foliage of *Geranium pratense* but more divided than usual and with a yellowish tinge. It was supposed to be the result of the influence of the pollen of a *Pelargonium* on *Geranium pratense*, but the evidence as to the cross is incomplete.

New Aroid.—Mr. Bull sent a remarkable Aroid with the foliage of an *Amorphophallus*, from New Grenada. The specimen was referred to Kew for identification.

Chionodoxa Lucilæ.—Fine specimens of this, grown in the open ground, were sent by Mr. Maw, the introducer of the plant, together with the following letter:

“As the collector and introducer of this plant, and having been the first to flower it in cultivation, I think a few lines from my own pen may give more information about it than is at present known. I must first correct an error of nomenclature, having distributed some bulbs under the name of *C. Forbesii*. Dried specimens of nearly allied species, especially of bulbous plants, are often difficult to determine, and those submitted to Mr. Baker were badly dried and shrivelled, roughly pressed at the time of collecting in a pocket-book; hence it is that the Lycian species, *C. Forbesii*, has been confounded with the western Anatolian *C. Lucilæ*, from the mountains of the east of Smyrna, referred to in the two last numbers of the *Gardeners' Chronicle*. I have also a second species from Crete, for which I am indebted to Mr. Sandwith, H.M.'s Consul, of less beauty than the Anatolian plants. These I believe are the only two species that have ever been in cultivation. *Chionodoxa Lucilæ* I first gathered out of flower on the flanks of the *Taktalie* Dagh, at a height of from 2500 to 4000 feet, and I could not at the time distinguish it from one of the numerous species of *Scilla* which abound in the Levant. I obtained with it, out of flower, *Scilla bifolia*. On my second day's excursion from the little Turkish village of *Taktalie*, which I had made my headquarters for the examination of the interesting range of mountains, including the *Taktalie* and *Nymph Dagh*, I ascended to the summit of the

latter mountain, and just as we were returning my Greek and Turkish attendants became botanically excited and beckoned me to a spot a little way off at an altitude of about 4300 feet—a bank-side thickly covered with *Chionodoxa Lucilæ*, the most brilliant floral display I ever beheld—a bright mass of blue and white, resembling *Nemophila insignis* in colour, but even more intense in effect, and round about it was a complete garden of bulbous plants, including a small yellow *Fritillaria*, *Colchicum bulbocodoides*, two or three species of *Tulips*, some yellow *Gages*, *Crocus*, and great tufts of *Galanthus Elwesii*, with leaves half a yard long. Of *Chionodoxa Lucilæ* as a highly decorative and perfectly hardy plant I can speak with great confidence. The roots dug up in 1877 flowered but sparingly last year, but notwithstanding the late severe winter the patches out-of-doors have fully recovered their transplantation, and are flowering as well as in their native habitat, forming the most brilliant tufts, in which the foliage is almost hidden by the masses of flowers, which tell out as bright spots in the spring garden, some of the scapes bearing from eight to ten flowers 1 inch in diameter. I have had it in flower for nearly a month in the cold frame, where it attains a higher stature, though not quite so rich in colour as the flowers produced in the open air. For pot culture and forcing I believe it will be very useful, and take a prominent place amongst early decorative plants. It produces seed very freely, and will, therefore, be capable of ready multiplication. I obtained with the typical blue form a few bulbs of a pretty pure white variety. I send herewith some specimens flowered in the open air from bulbs collected in 1877, which have been in the open ground the last two winters. *George Maw, F.L.S.*”

Hymenocallis macrostephana.—The following note from Mr. Woodbridge was read by Dr. Masters:—

“I was very pleased to see a description of this plant by Mr. Baker in the *Gardeners' Chronicle* of last week (p. 430). Having grown it for several years I can fully endorse Mr. Baker's statement that ‘it forms a valuable accession to our stock of cultivated stove *Pancratieæ*.’ And I am decidedly of opinion that when it becomes more generally known it will be as extensively cultivated as the *Eucharis amazonica*, to which perhaps, from a gardener's point of view, it may most readily be compared. I think in some respects and for some purposes it will prove even more valuable than that well-known and highly-appreciated plant. The scent I fancy is sweeter, and the form of the flower more elegant, while it is equal if not superior in the delicate pureness of its colour. It is also a continual blooming plant. We have it in flower here almost every month in the year, but more especially in the winter months, when white flowers are most valuable. Mr. Baker says that ‘it flowers in February and March,’ and probably that is its most natural time of flowering, but mode of the treatment may account for its flowering at other times of the year. The bulbs readily throw out offsets, and these if not separated from but grown with the parent bulb, and shifted into larger pots as required, give flowers at different times of the year according to their various sizes, so that with a few well filled pots of the various sized bulbs a succession of blooms is easily obtained. The same result may possibly be obtained by separating and growing them singly; but this I have not proved. They grew well in the same house and under the same treatment as the *Eucharis*. *John Woodbridge, Syon House Gardens, Brentford.*”

A Botanical Certificate was awarded to Mr. Woodbridge.

In reference to the two last-mentioned plants a discussion arose as to the propriety of more systematically and thoroughly carrying out a plan for awarding certificates to plants and specimens which the rules of the Floral Committee preclude under existing circumstances from receiving an award. It was suggested that a sub-committee might be appointed to take into consideration such cases, so as to prevent the anomaly of really interesting plants being passed over because not shown according to the rules laid down for the guidance of the Floral Committee and to prevent the seeming unfairness to amateurs and introducers of new rare or interesting plants. Considerable discussion ensued, but no definite action was taken.

FLORAL COMMITTEE.—Dr. Denny in the chair. The First-class Certificates awarded at this meeting were voted to Sir Trevor Lawrence, Bart., M.P. (Mr. Spyers, gr.), for *Masdevallia bella*, an extraordinary species of the *Chimæra* type, with two large triangular-shaped, shining, dark brown, yellow-spotted flowers, with three brown tails on each flower measuring 6 inches in length, and a white labellum; and for *Dendrobium crassinode* var. *album*, a white-flowered form of this beautiful and distinct Indian species, with a lemon-yellow blotch at the base of the lip. To Mr. B. S. Williams, for *Cœlogyne ocellata maxima*, a white-flowered species with yellow blotches on either side of the base of the lip, and a transverse yellow bar across its centre. To Messrs. James Veitch & Sons for *Dendrobium Brymerianum*, the distinct new species alluded to in our last issue, and now illustrated at fig. 438; and for *Amaryllis Duke of Connaught*, a fine smooth, dark crimson flower of medium size, conspicuous for its fine colour as well as for its white instead of green centre; and to G. Maw, Esq., Benthall Hall, Broseley, and Messrs. Barr & Sugden, for the splendid new *Chiono-*

doxa Lucilie, so much commented upon in our last two and present numbers. A Cultural Commendation was awarded to Mr. C. Green, gr. to Sir George Macleay for cut flowers of that remarkably beautiful South African Acanthaceous plant, *Mackaya bella*, a specimen of which, more than 6 feet high and 4 feet through, is flowering freely in a warm greenhouse in the garden at Pendell Court. The flowers are campanulate in shape, delicate pale lilac in colour, and produced on pendent terminal racemes from 4 to 6 inches long. It well deserved a First-class Certificate, as well as a medal for good cultivation, though perhaps we ought not to say so, as the plant was not shown, root and branch, according to the regulations. Mr. Green also showed cut blooms of the old deep crimson-flowered *Abutilon venosum*, which for its rich colour has not yet been superseded. A Cultural Commendation was also

varieties of *Amaryllis*, the most remarkable of which, not even excluding the Duke of Connaught above-mentioned, was a pure white, medium-sized variety, named *Duchess of Connaught*, which is the best white that has yet been shown. A vote of thanks was accorded to the Hon. and Rev. J. T. Boscawen for a white-flowered *Rhododendron* named *Mrs. Townshend Boscawen*; and to J. T. Dillwyn Llewelyn, Esq., for a pretty mauve-coloured seedling *Primula*, probably a hybrid. Mr. Howe, gr. to A. Smith, Esq., Park Hill, Streatham, sent some cut blooms of the noble white-flowered *Rhododendron Nuttallii*. From Mr. Bull came, amongst other new plants, a very distinct seedling hybrid *Coleus* named *Harlequin*, with leaves brightly mottled with red, crimson, magenta, yellow, and other shades of colour; also a plant of the new *Odontoglossum hebraicum*, described by Professor Reichenbach in

culars of what I have found to answer the desired end; and if any one interested in hedge culture can suggest or recommend any improvement so much will be thereby gained in that department. I have no doubt, though the practice of hedge culture is well advanced, there is yet ample room for improvement.

When protection against heavy animals is the primary object sought, no species of plant known to the writer is so suitable as the common *Whitethorn* or *Quick*. There are at least some half-dozen varieties of *Thorn* plants composing our common hedges, each differing from the other in some important particular, such as size and texture of leaves, spines, strength of stem, texture, and colour of bark, liability to disease, long or short life, &c.



FIG. 65.—DENDRORIUM BRYMERIANUM. FLOWERS YELLOW. (SEE P. 474.)

awarded to Mr. J. Woodbridge, gr. to the Duke of Northumberland, Syon House, for a fine plant of the old Brazilian *Cyrtopodium punctatum*, a stately Orchid with long curved leaves, and four immense spikes of brown-spotted yellow flowers. It is a plant not often seen at exhibitions now, and the committee recommended it to the Council for the award of a Silver Medal. Mr. Woodbridge also showed a large plant of the fine new white-flowered *Hymenocallis macrostephana*, described by Mr. Baker in our last issue. A Cultural Commendation was bestowed on a fine specimen, about 20 inches high, of *Echinocactus myriostigma*, shown by Mr. H. Boller, who also received a vote of thanks for a plant about 28 inches high of the Old Man Cactus, *Pilocereus senilis*. In addition to the Orchid above-mentioned Mr. B. S. Williams showed several other new plants, including the bold and brightly-coloured new *Crotons* *Henryanus* and *Burtoni*. From the Messrs. Veitch & Sons also came several new

another column. Mr. C. M. Hovey again showed cut blooms of his new *Camellias*; and from Mr. Croucher, gr. to J. T. Peacock, Esq., came specimens of two new *Agaves*.

The proceedings of the FRUIT COMMITTEE call for no notice, the only things shown being a couple of fine Citrons from Mr. J. Muir, gr., Margam Park, South Wales.

Forestry.

HEDGES.—As the management of hedges upon most extensive estates is under the charge of the foresters, and having myself had for many years the management of a very large extent of hedges of all sorts in different parts of both England and Scotland upon different soils, composed of different plants and grown for different purposes, I shall state a few leading parti-

There is no use planting *Thorn* in any except good strong loam or clay soils, for although the plants may grow comparatively well for some years they do not survive long, and die out at the very time they are expected to constitute a good and serviceable fence.

Beech is very suitable for light sandy soils, and will live to old age upon them, but is much too soft for a serviceable fence against heavy cattle or even sheep.

Preparation of the soil or hedge-bed is the first and most important matter to attend to, and is best done by trenching the ground 4 feet wide and about 2 feet deep when the soil is good, and 1½ foot deep when the subsoil well broken when the subsoil is not sufficiently deep and good to warrant turning it up. As far as practicable the hedge-bed should be prepared during the summer months. If it cannot be prepared in summer, the next best thing to do is to dig and pre-

pare it in autumn, and lay up the soil in ridges, so that the frost may pulverise it thoroughly, which it usually does before the end of March, when the hedge should be planted. Of course when the soil has been previously under culture no following or pulverising is required; but in all cases where the ground has been lea, or in its natural state, so as to turn over in lumps, the exposure to the summer's sun or the winter's frost, together with liming and sometimes enriching by compost, rotten leaves, road scrapings, or such-like, will prove beneficial; but in no case should strong fresh stimulating dung or manure of any kind be applied. Lime is not a manure, nor does it any way injuriously affect the Thorns, but, on the contrary, very materially improves their growth.

DRAINAGE.—When the soil is at all wet it should be thoroughly drained with underground tile-drains, 3 feet to 4 feet deep, and laid with pipes 2, 3, or 4 inches diameter as may be necessary. The drain should be put in about 6 feet distant from the line of hedge, and on the opposite side to that on which the roots are laid, thereby placing the tile in the best possible position to prevent the hedge roots from reaching and choking it. Open ditches and mounds of earth, at one time commended, and even then commendable, are now very properly discontinued, and the plants put in on the flat ground, planted, not perpendicularly, but slightly inclining, always observing to lay the roots so that they may receive nourishment from the higher ground or arable land, as the case may be.

The plants succeed best when of small size, say three-year-old seedlings, or one year transplanted. Having tried plants of all ages and sizes, I am fully satisfied that the younger the plants are, if kept properly clean and the ground well raked, the sooner will the hedge be a fence. In planting I prefer 3 inches to 4 inches apart, or ten plants to the yard, as the best and most suitable distance. I am aware some prefer 6 inches, others 9 inches, and I have by way of experiment tried it, and proved, to my own satisfaction at least, that no such good hedge is thereby grown as with the plants at closer distances.

How the plants should be treated subsequently to planting, and the hedges in future maintained, are important considerations. In the first place I do not usually cut-over the plants in the bed till they have made two years' growth, except in cases where the growth is very luxuriant, when they are cut-over at the end of one year, in the month of April or beginning of May, 2 or 3 inches from the ground. By this time the plants are usually well established, and thus able to produce strong and vigorous shoots. If very strong they may be cut-over again next spring about 9 inches from the ground, and every succeeding or second year as the growth suggests—cut-over 9 inches above where last cut, till the desired height is attained, usually 4 or 5 feet. No pruning should be done on young hedges during summer, nor at any time till the young wood is fully ripe and matured, as by so doing the buds from which the succeeding year's shoots emanate are rendered small and feeble and thus the hedge is prematurely thrown into a set and stunted condition—a state by no means objectionable in a mature or old hedge, but altogether against the prosperity of a young one. When the hedge in course of years grows large, broad, loose and open, it should be cut-in close to the stem, first the one side and then the other, at intervals of one, two or more years between the operations, thereby allowing the first side to be properly clothed with young wood before the other side is operated upon, and thereby avoiding the necessity of artificial protection, which would be required if both sides were cut-in at one time. I seldom cut down and plash very old hedges, as they rarely succeed well, but prefer pruning-in their sides alternately and planting into open gaps large plants grown for the purpose with abundance of roots—grown, say, in the local nursery when the soil is moderately light.

The cutting-over old Thorn hedges should be delayed till the leaf is expanded and the sap in full flow, and should never be done in the dead of winter. This I have so often seen verified that I have no hesitation in commending it, and may add that many an old hedge might be maintained serviceable for years by cutting them over when in leaf, instead of in winter, when the work is usually done. *C. Y. Michie, Forester, Cullen House, April 1.*

Natural History.

SNAILS EATING WORMS.—It is not at all unusual to see the shelled slug devouring small worms, and I believe some remarks on the subject appeared in your pages some time ago, but I was a little surprised to find they will attack a worm of the size of a goose quill. One day last week on removing a plank that had lain some weeks on the ground two of the yellowish individuals in question were found fastened on a worm

5 inches long and of the size mentioned, and with their heads close together were quietly sucking in the reptile head first. The unfortunate worm seemed to take it, or rather was being taken, very quietly, and now only an inch of him remains, but that is still alive. *G. Duffield.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, April 9, 1879.

| MONTH AND DAY | BAROMETER | | TEMPERATURE OF THE AIR. | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|---------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|-------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | | | |
| April 3 | In. 29.41 | —0.30 | 51.1 | 34.1 | 17.0 | 39.5 | —5.1 | 38.3 | 0.6 |
| 4 | 29.65 | —0.09 | 56.3 | 32.5 | 23.8 | 43.8 | —1.0 | 31.8 | 0.00 |
| 5 | 29.59 | —0.15 | 54.5 | 39.8 | 14.7 | 46.0 | —1.1 | 41.7 | 0.05 |
| 6 | 29.18 | —0.56 | 51.0 | 42.3 | 8.7 | 45.5 | —0.5 | 43.3 | 0.05 |
| 7 | 28.82 | —0.92 | 60.6 | 44.0 | 16.6 | 50.4 | —5.2 | 43.4 | 0.31 |
| 8 | 29.13 | —0.61 | 58.5 | 43.3 | 15.2 | 48.8 | —3.1 | 41.3 | 0.00 |
| 9 | 29.26 | —0.48 | 54.2 | 40.6 | 13.6 | 45.7 | —0.1 | 42.2 | 0.00 |
| Mean | 29.30 | —0.41 | 55.4 | 39.5 | 15.0 | 45.7 | —0.6 | 40.3 | 0.57 |

April 3. —Fine till 1 P.M.; dull and overcast afterwards. Very dark, showery, with frequent thunder in afternoon. Fog in morning.

- 4.—A very fine bright warm day. Overcast at night. Cool.
- 5.—Fine, but very cloudy till 6 P.M.; overcast and wet after. Milder.
- 6.—A dull cloudy day. Occasional showers of rain. Slight gusts of wind.
- 7.—Dull and showery till 10 A.M.; fine and bright after. Shower at 3 P.M. Cloudy at night. Warm day.
- 8.—Overcast till 10 A.M.; then fine till 3 P.M., and generally overcast afterwards. Mild.
- 9.—A fine day, but dull and gloomy; occasional gleams of sunshine. Cool.

* The reading of the barometer at 9 A.M. was 28.78, being the minimum for the day.

LONDON: Barometer.—During the week ending Saturday, April 5, in the vicinity of London the readings of the barometer at the level of the sea decreased from 29.79 inches at the beginning of the week to 29.64 inches by the afternoon of March 31, increased to 29.70 inches by the morning of April 1, decreased to 29.58 inches by the evening of the 2d, increased to 29.89 inches by the evening of the 4th, and decreased to 29.70 inches by the end of the week. The mean reading for the week at sea level was 29.70 inches, being 0.05 inch below that of the preceding week, and 0.23 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 58½° on March 31 to 53° on April 1 and 3; the mean value for the week was 55½°. The lowest temperatures of the air observed by night varied from 32½° on the 4th, to 40½° on April 1; the mean for the week was 37°. The mean daily range of temperature in the week was 18½°, the greatest range in the day being 23½°, on the 4th, and the least, 12½°, on April 1.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—March 30, 44°.9, + 1°.2; 31st, 47°.2, + 3°.2; April 1, 45°.3, + 1°.1; 2d, 42°.6, — 1°.8; 3d, 39°.5, — 5°.1; 4th, 43°.8, — 1°.1; 5th, 46°.1, + 1°.1. The mean temperature of the air for the week was 44°.2, being 0°.2 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 119° on March 30, 122° on the 31st, and 126° on April 2; on April 1 the reading did not rise above 87°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 29° on March 31 and 26° on April 4; the mean of the seven lowest readings was 32°.

Wind.—The direction of the wind was variable, and its strength gentle.

The weather during the week was fine, but the sky was generally cloudy. Thunder was heard during the afternoon of April 3.

Rain fell on four days during the week, the amount measured was 0.31 inch.

ENGLAND: Temperature.—During the week ending Saturday, April 5, the highest temperatures of the air observed by day were 60° at Notting-

ham, 59° at Sunderland, 58½° at Blackheath, and 57½° at Cambridge; the highest temperature of the air at Liverpool was 52½°, and at Leeds was 53°; the mean value from all stations was 55½°. The lowest temperatures of the air observed by night were 26½° at Nottingham, 28° at Wolverhampton, 30° at Truro, 31° at both Cambridge and Sheffield, and 31½° at Leicester; the lowest temperature of the air at Brighton was 36½°, and at Sunderland 35°; the mean from all stations was 32°. The extreme range of temperature in the week was the greatest at Truro and Wolverhampton, both 27°, and the least at Brighton and Liverpool, both 18½°; the mean range of temperature from all places was 23½°.

The mean of the seven high day temperatures was the highest at Nottingham and Sunderland, both 56°, Cambridge 55°, and Leicester 54½°; and the lowest at Leeds, 49½°, and Liverpool 50°; the mean from all places was 53½°. The mean of the seven low night temperatures was the lowest at Wolverhampton and Nottingham, both 33½°, Sheffield 35½°, and Cambridge and Hull, both 36°; and the highest at Brighton, 39½°, and Norwich, 38½°; the general mean from all stations was 36½°. The mean daily range of temperature in the week was the least at Liverpool, 11½°, and the greatest at Nottingham, 23°; the mean daily range of temperature from all places was 16½°.

The mean temperature of the air for the week from all stations was 43½°, being 4½° higher than the value for the corresponding week in 1878, and the same as that of Scotland. The mean temperature of the week was highest at Sunderland, 45½°, and Brighton and Plymouth, 44½°, and lowest at Wolverhampton and Leeds, both 41½°, and Bradford, 42½°.

Rain.—The heaviest falls of rain were 0.82 inch at Sheffield, 0.57 inch at Brighton, 0.46 inch at Cambridge, and 0.43 inch at Truro; and the least fall; were 0.07 inch at Wolverhampton, and 0.08 inch at Hull, at Sunderland no rain was measured; the average fall over the country was 0.28 inch.

The weather during the week was fine, but the sky was very cloudy. Slight thunderstorms occurred at places.

SCOTLAND: Temperature.—During the week ending Saturday, April 5, the highest temperatures of the air observed by day varied from 61° at Perth to 50½° at Glasgow; the mean value from all stations was 53½°. The lowest temperatures of the air observed by night varied from 28° at Perth and 29½° at Edinburgh, to 33° at Glasgow and Aberdeen; the mean from all places was 31°. The mean range of temperature in the week from all places was 22½°.

The mean temperature of the air for the week from all stations was 43½°, being 4½° higher than the value for the corresponding week in 1878. The highest was 44½° at Perth; and the lowest was 41½° at Aberdeen.

Rain.—The amounts of rain measured during the week varied from 0.57 inch at Greenock to 0.10 inch at Aberdeen. The average fall over the country was 0.22 inch.

JAMES GLAISHER, F.R.S.

Florists' Flowers.

NOTES ON DAHLIAS, WITH SELECTIONS.—Already the dealers in Dahlias are commencing the work of propagating the young stock for the spring sales; and though frost and snow and winter gloom be without, yet indoors the propagator must be active, for time waits not on account of weather, and May will come even if frost covers the earth with a white shroud for another month to come. It is when the Dahlia grower is surveying his stock, and calculating what he shall provide to grow in the coming summer, that some account of the new Dahlias of the past year may prove acceptable to the fanciers of this late summer flower.

Such an unusually fine batch of new flowers were sent out from the Castle Street nurseries, Salisbury, that they may be taken first in the order of criticism without danger of suspicion of favouritism. Louisa Neale (Keynes) has a creamy-white flower, with a delicate pink tinge on the circumference of the petals; it is large, full, constant, and first-class in every respect. Henry Bond (Keynes), a fine, bright, rosy lilac self, is of splendid form and full size, and will no doubt prove one of the most useful Dahlias ever sent out. Bessie Ford (Keynes) is another fine self, of a charming, soft, rosy lilac colour, becoming deeper towards the tips of the florets; When caught in good condition it is a telling show flower, but it is rather uncertain. There is very little uncertainty about Riffeman (Keynes), as it is one of those constant flowers that is always ready, and therefore very useful: it is of good shape and substance, and in colour a brilliant scarlet-crim-

son. William Dawkins (Keynes) is a fawn-coloured flower edged with bright crimson, very attractive from its charming combination of colours, but it comes thin; yet its novelty of appearance will cause it to find favour with growers. Michael Saunders (Keynes), is a large rosy crimson self, bright and rich in colour and of good form: it will be found useful at times. The Countess (Keynes) has a pale ground edged with bright purple; it is a pretty show flower, but growers need to be careful not to cut it out too much, or the flowers come coarse and flat. Empress Maude (Keynes), white edged with purple, comes thin, and excepting in rare cases cannot be relied upon. Admiration (Keynes) is a somewhat striking looking yellow ground flower deeply edged with lake, large in size, and fine in respect of petal and outline, but difficult to close in the centre, which is likely to prevent its being much grown for show purposes. Esther Newcome (Keynes) is free flowering and useful, and of a pleasing clear primrose colour. Dictator (Keynes) is of a fiery scarlet colour, a capital exhibition flower when caught at the proper time, but very apt to fall prematurely.

The batch that went out from Slough in May last consisted of Lady Golightly (Fellowes), French-white, delicately suffused with pale lilac to the edges of the petals, a charming flower, which requires some thinning out to get it large enough for show purposes; when in good form it is a most winsome Dahlia. Charles Lidgard (Fellowes), deep yellow edged with crimson, which is generally well defined; though not a constant flower it yet proves very useful at times. Alderman (Turner), shaded lilac inclining to purple, a flower that comes in handy in making up a large stand. Philip Frost (Fellowes), shaded orange; a flower with a good outline but deficient in substance; Estelle (Turner), white, with a suffused margin of purple; very pretty indeed, but too thin to make an acceptable show flower. Silvia (Fellowes), yellow, with a bright red edge; very striking in appearance, but with little else than its colour to recommend it. Lastly comes Constaney (Harris), yellow ground, deeply edged with lake; a large telling flower, so constant as to need little or no thinning.

The list of fancy varieties sent out in May, 1878, was, as usual, much less bulky than that of the new show varieties; it comprised seven varieties in all, and of these Mr. Keynes contributed six and Mr. Turner one. The Salisbury flowers consisted of Charles Wyatt (Keynes), deep rose, flaked with crimson and purple, large, full, of considerable depth and fine form, and excellent for exhibition whether as a fancy or as a self. George Barnes (Keynes), rich lilac striped with crimson, a variety equal to Charles Wyatt in point of quality, but blooms later and is not quite so free. Maid of Athens (Keynes), dark maroon tipped with red and white, a very distinct and beautiful flower; Enchantress (Keynes), creamy white, with purple stripes, a constant and useful flower; Marchioness of Salisbury (Keynes), white, mottled with purple, pleasing and useful; and Robert Burns (Keynes), lilac, flaked with maroon, but quite uncertain. Lastly comes Wizard (Fellowes), fawn, tipped white, and striped with maroon, very pretty and useful in a stand.

A selection of twenty-four of the finest show flowers will be found in Mrs. Downie (Keynes), Henry Bond (Keynes), Louisa Neate (Keynes), John William Lord (Keynes), John Wyatt (Keynes), Alexander Cramond (Keynes), Cremorne (Eckford), Henry Walton (Keynes), Herbert Turner (Turner), James Service (Keynes), John Neville Keynes (Keynes), Mrs. Stancomb (Keynes), Prince Arthur (Fellowes), Royal Queen (Eckford), Thomas Goodwin (Goodwin), Constaney (Harris), James Cocker (Keynes), King of Primroses (Rawlings), Christopher Ridley (Turner), John McPherson (Keynes), John Standish (Turner), Vice-President (Keynes), Lady Gladys Herbert (Keynes), and Ovid (Turner).

A selection of the leading eighteen fancy varieties will be found in Charles Wyatt (Keynes), George Barnes (Keynes), Flora Wyatt (Keynes), Fanny Sturt (Pope), Henry Glasscock (Keynes), Mrs. Saunders (Turner), Miss Lily Lane (Keynes), Parrot (Keynes), John L'Amorel (Keynes), Maid of Athens (Keynes), Hercules, Enchantress (Keynes), Monsieur Chauvière (Keynes), Richard Dean (Keynes), James Carter (Rawlings), Octoroon, Rev. J. B. M. Camm (Keynes), and Mrs. Bunn (Keynes).

The three best self yellow flowers will be found in John Neville Keynes (Keynes), Prince Arthur (Fellowes), and King of Primroses (Rawlings). The

three best self purples in James Cocker (Keynes), John McPherson (Keynes), and Ovid (Turner). The three best crimson selfs in John Wyatt (Keynes), John Standish (Turner), and Alexander Cramond (Keynes). The three best scarlet selfs in Charles Backhouse (Goodwin), Christopher Ridley (Turner), and Charles Leicester (Keynes). The three best lilac selfs in Henry Bond (Keynes), Baron Taunton (Turner), and Mrs. Boston (May). The three best white selfs in Miss Henshaw (Henshaw), Herbert Turner (Turner), and Flag of Truce (Wheeler). Six very fine flowers which come under the denomination of edged show varieties, but which are not to be confounded with edged fancy flowers, will be found in Lady Gladys Herbert (Keynes), Harriett Tetterel (Keynes), Picotee (Keynes), William Dawkins (Keynes), Cremorne (Eckford), and Mr. Stancomb (Keynes). Six other fine flowers, not included in any of the above, are found in Henry Walton, John William Lord, Thomas Goodwin, Vice-President, Mrs. John Downie, and James Service.

Tipped fancy flowers are always great favourites, and the finest six varieties are comprised in Mrs. Saunders (Turner), Fanny Sturt (Pope), Maid of Athens (Keynes), Queen Mab (Turner), Laura Haslam (Fellowes), and Prospero (Goodwin). R. D.

Variorum.

DRAINING BOG LAND BY PLANTING.—In the current number of the *Journal of Forestry* Messrs. Maule of Bristol relate how a bog in South Wales, which was not only useless but dangerous, was reclaimed by planting it with Black Italian Poplar. The trees grew so well that at the end of fifteen years, when they were cut down, the produce realised £13 per annum per acre for the whole period of fifteen years, during which the crop had occupied the ground, it luckily happening that the poles were wanted in the neighbouring copper-works. The strong roots of the trees running through the underlying clay thoroughly drained the bog, letting off the water in such a way that no other process of draining can accomplish. In these days of great demand for packing-cases, say Messrs. Maule, the timber of the Poplar is very valuable, and the tree has the additional property at arriving at a fit state to be cut down in a man's lifetime. When the timber was removed, a charge of gunpowder was inserted in each stool, which effectually burst them up, and rendered their removal easy. After the ground was cleared a beautiful, rich, firm pasture remained. With reference to the drainage effected by the Poplars, we are quite of opinion, from what we have seen in Italy and the South of France, that the good effects attributed to the Eucalyptus are mainly due to its rapid growth, and the drainage of the soil by the roots, which not only absorb great quantities of water, but also supply channels for the water to filter away. The balsamic emanations are, to our thinking, of questionable influence in cases of malaria. In this country, at any rate where we can get Willows, Poplars, or Alders, for planting in damp places, we need not envy the Australians their Eucalyptus.

RAINING IVY SEEDS.—We extract the following curious communication to the *Philosophical Transactions* for 1687, p. 281, by a Mr. Wm. Cole, of Bristol:—"This city and country round about are filled with reports of raining Wheat about Warminster and other places within six or eight miles of it; and many believe it. I have procured several parcels of it, and carefully examined them, and find it to be the seeds of Ivy berries, which from towers and churches, chimneys, walls, and high buildings were lately by very fierce tempests of wind and hail driven from the holes, chinks, and other parts where birds had brought them, especially starlings and choughs. It were to little purpose to tell you the prodigious stories which have been made of it; but I have, by all the ways I can imagine, examined and compared them with the seeds of Ivy berries, as by the taste, smell, size, and figure; and with the assistance of magnifying glasses viewing them in both the superficial and inward parts."

Answers to Correspondents.

AZALEA. *J. V. & Sons.* Your correspondent's hybrid Azalea is, we think, a very beautiful one. It appears to belong to one of the dwarf growing evergreen species of the obtusa or amena type; the corollas are not indeed of the hose-in-hose form of the latter but there are petaloid stamens. The colour is a very vivid purple-rose colour, and the flowers about the size of those of amena, but in the two specimens sent they are collected into a terminal truss, in one instance consisting of two dozen flowers which form a close head like the truss of a Rhododendron. If this feature is constant and the habit is good, the variety will be a very great acquisition, being both distinct and in the highest degree ornamental.

BOOKS: *G. H. H. Maund's Botanic Garden* is a well-known publication, which was brought out regularly for many years by the late Mr. Maund, of Bromsgrove; and the figures, though small, are, as you say, excellent. We believe a revised edition has recently been prepared by Mr. J. C. Niven, but we can give you no further information about it, as the publishers do not appear to advertise, or otherwise announce its issue.

ERRATUM.—At p. 442, col. *b*, line 22 from bottom, for "Then" read "They." By the error, Messrs. Downie & Laird get credit for Messrs. Thos. Methven & Son's contributions.

NAMES OF FRUITS: *Hermann Frommer.* We do not recognise your Apple as one that is grown in English gardens, consequently we have no means of identifying it. Mr. C. M. Hovey, of Boston, to whom we showed the specimen, thought that it might be an American variety known as the Oatley Pippin, or a variety closely allied to the Bellefleur of American gardens.

NAMES OF PLANTS: *B. P. Cologyne elata.*—*A. L. 1, Selaginella uncinata (caesia); 2, Torenia asiatica; 3, Doryopteris palmata; 4, Duranta Ellisii variegata; 5, Begonia Craigii; 6, Polystichum angulare proliferum; 7, perhaps Anthericum Williamsii.*—*J. G. K. Lachenalia tricolor.*—*A. Z. B.* We cannot name Camellia blossoms.—*M. G.* Miserable scraps, quite unfit for examination. *1* is Asplenium Belangeri, *alias* Veitchianum. The bulb is *Triteleia uniflora.*—*A. M. 1, Nephrolepis tuberosa; 2, Pteris longifolia; 3, Pteris serrulata cristata—a poor form; 4, Selaginella Martensii variegata; 5, Cyrtodeira cupreata; 6, Dendrobium Phippsii.*—*G. W. A. 1, Rhododendron formosum, alias* Gibsoni; *2, Daphne Laureola.* The *Alternanthera* is apparently *A. paronychioides*.

NITRATE OF SODA: *F. S.* The best plan of using it is as a top-dressing, mixed with three times its weight of fine soil. You may safely apply another dressing in the middle of the summer, if necessary; and if the weather be showery it will be all the better.

PRIMULA SINENSIS: *T. Kettle.* Curious, but of no merit from a cultural point of view.

VINES—GIVING AIR: *C. C. S.* It is not only practical, but advisable, to follow the plan adopted by many good growers, of giving "a chink of air" at the top of the house, the last thing at night; but if you do not understand your business, you had better not give air at night except during very mild weather.

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COMMUNICATIONS RECEIVED:—*D. T. F.*—*R. D.*—*A. M.*—*T. E.* (in an early number).—*W. C. A.* (next week).—*A. W.*—*T. Reid.*—*J. W.*—*W. G.*—*T. Turner.*—*H. B.*—*H. W.*—*J. D.*—*J. v. V.*—*H. C.*

Markets.

COVENT GARDEN, April 9.

This being Passion Week, and the market bare, business is quite at a standstill. *James Webber, Wholesale Apple Market.*

| FRUIT. | | s. d. s. d. | s. d. s. d. |
|-------------------------------|----------|-----------------------|-------------|
| Apples, $\frac{1}{2}$ -basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 3 0-12 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per oz. | 0 3-1 0 |

| VEGETABLES. | | s. d. s. d. | s. d. s. d. |
|------------------------|-----------|-------------------------|-------------|
| Artichokes, English | 2 0-4 0 | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 4 0-.. |
| Jerusalem, bush. | 6 0-.. | Lettuces, Cabbage, | .. |
| Asparagus, Fr. sprue, | 1 6-.. | per doz. | 1 6-.. |
| per bundle | 1 6-.. | Mint, green, bunch. | 1 6-.. |
| Eng., per 100 | 10 0-15 0 | Onions, per bushel. | 4 0-7 0 |
| Fr. giant, p. bun. | 30 0-.. | — young, per bun. | 0 4-0 6 |
| Toulouse, bun. | 5 0-7 0 | Parsleys, per lb. | 2 0-3 0 |
| Beans, French, p. 100 | 3 0-4 0 | Pears, per quart | 5 0-.. |
| Beet, per doz. | 1 0-2 0 | Potatoes, new, basket | 1 0-.. |
| Brus. sprouts, bush. | 10 0-.. | Radishes, Fr., bunch | 0 6-.. |
| Cabbages, per doz. | 1 0-2 0 | — New Jersey, doz. | 2 0-.. |
| Carrots, per bunch | 0 4-0 6 | Rhubarb, doz. | 6 0-8 0 |
| Cauliflowers, per doz. | 2 0-5 0 | Shallots, per lb. | 0 6-.. |
| Celery, per bundle | 1 6-2 0 | Seakale, per punnet | 2 6-.. |
| Chilis, per 100 | 2 0-.. | Spinach, per bushel | 5 0-10 0 |
| Cucumbers, each | 0 9-1 6 | Sweet Potatoes, per lb. | 0 6-.. |
| Endive, Batav. dozen | 1 6-.. | Tomatoes, per dozen | 2 6-3 0 |
| Garlic, per lb. | 0 6-.. | Turnips, p. 12 bunch. | 3 0-6 0 |

Potatoes: — Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

| CUT FLOWERS. | | s. d. s. d. | s. d. s. d. |
|-------------------------|----------|------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Narcissus, paper- | .. |
| Azaleas, 12 sprays | 0 6-1 6 | white, 12 sprays | 1 0-2 0 |
| Bouvardias, per bun. | 1 0-4 0 | Pelargoniums, 12 spr. | 1 0-2 0 |
| Camellias, per dozen | 1 0-6 0 | — zonal, 12 sprays | 0 6-1 6 |
| Carnations, per dozen | 1 6-4 0 | Primroses, single yel- | .. |
| Cineraria, 12 bunches | 9 0-18 0 | low, 12 bunches | 1 0-3 0 |
| Cyclamen, 12 blooms | 0 3-1 0 | — double white, 12 | .. |
| Daffodil, 12 bunches | 3 0-9 0 | bunches | 2 0-4 0 |
| Deutzia, 12 bunches | 6 0-12 0 | Primula, double, per | .. |
| Epiphyllum, 12 blms. | 1 0-3 0 | bunch | 0 9-1 6 |
| Eucharis, per doz. | 6 0-18 0 | — single, 12 bunch. | 6 0-12 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Roses (indoor), doz. | 1 6-9 0 |
| Gardenias, 12 blms. | 4 0-12 0 | Stephanotis, 12 sprs. | 9 0-18 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tropæolum, 12 bun. | 2 0-6 0 |
| Hyacinths, 12 spks. | 4 0-12 0 | Tuberose, per dozen | 3 0-6 0 |
| — Roman, 12 spks. | 0 6-2 0 | Tulips, 12 blooms | 1 0-2 0 |
| Lily of Val., 12 sprays | 1 0-3 0 | Violets, 12 bunches | 0 6-2 0 |

*. These prices are not to be depended on during Easter, on account of decorations.

| PLANTS IN POTS. | | | s. d. s. d. | | |
|-------------------------|-------------|-----------------------|-------------|--|--|
| Arum Lily, or Rich- | s. d. s. d. | Ficus elastica, each | s. d. s. d. | | |
| ardia aethiop., doz. | 9 0-18 0 | Foliage Plants, vari- | 2 6-15 0 | | |
| Azaleas, per dozen. | 18 0-60 0 | ous, each .. | 2 0-10 6 | | |
| Begonias, per doz. | 9 0-18 0 | Fuchsias, per dozen | 9 0-18 0 | | |
| Bouvardias, per doz. | 18 0-24 0 | Genista, per dozen.. | 9 0-24 0 | | |
| Camellias, per dozen | 18 0-60 0 | Hyacinths, per doz. | 6 0-18 0 | | |
| Cinerarias, per doz. | 6 0-12 0 | Mignonette, per doz. | 6 0-9 0 | | |
| Cyclamens, per doz. | 9 0-30 0 | Myrtles, per doz. .. | 6 0-12 0 | | |
| Cyperus, per dozen | 6 0-12 0 | Palms in variety, | | | |
| Dielectric, per dozen | 9 0-18 0 | each .. | 2 6-21 0 | | |
| Dracæna terminalis | 30 0-60 0 | Pelargoniums, scar- | | | |
| — viridis, per doz. | 18 0-24 0 | lets, zonal, doz. .. | 6 0-12 0 | | |
| Erica hyemalis, doz. | 9 0-30 0 | Primulas, per dozen | 4 0-12 0 | | |
| Euonymus, var., doz. | 6 0-18 0 | Spiræa, per dozen.. | 6 0-24 0 | | |
| Ferns, in var., p. doz. | 4 0-18 0 | Tulips, per dozen .. | 8 0-12 0 | | |

SEEDS.

LONDON: April 9.—As the Corn Exchange is, of course, closed on Good Friday and Easter Monday there was a larger attendance on Mark Lane to-day than is usual on a Wednesday, and a fair trade was done. The stocks of all the leading varieties are now reduced to a comparatively narrow compass: current rates, moreover, are so low that many holders appear indifferent whether they sell out or hold over what little seed they have left. The sowing time this season will necessarily be much later than usual: however, considerable progress has lately been made with spring tillage, and the consumption of Clover, &c., is now very heavy. The Government returns just issued show a noteworthy shrinkage during the past month in the imports of Clover and grass seeds, the figures being as follows:—March, 1878, 85,771 cwt.—£220,684; March, 1879, 68,824 cwt.—£157,818. Cable advices just received quote Western seed in America as easier; but as the period is now too advanced to import thence to meet present requirements, this concession in Chicago and elsewhere has no interest for the moment for the English trade. There is no variation in the prices of either white Alsike or Trefoil. Grass seeds are in improved request at full rates. For Mustard and Rape seed there is a better inquiry. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Trade at Mark Lane on Monday was very quiet. No change was reported in the value of Wheat, but buyers secured some advantage. The supply of English Wheat was short, and of foreign fairly plentiful. Malting Barley was well held; grinding and other kinds were dull and without change. Malt was very quiet. Oats experienced a better trade without realising any improvement in price. Maize was flat at a slight reduction on the week. In Beans and Peas prices fluctuated but little, the demand remaining slow. Flour was inactive, and the turn easier.—On Thursday English Wheat was in short supply, and foreign was not plentiful; transactions were at about previous currencies. All descriptions of Barley sold slowly on former terms. Malt was without change. For Oats prices remained about the same. Maize was dull and weak, Beans and Peas without change, and the flour market was inactive and unaltered.—Average prices of corn for the week ending April 5:—Wheat, 40s. 11d.; Barley, 32s. 6d.; Oats, 21s. 1d. For the corresponding period last year:—Wheat, 50s.; Barley, 42s.; Oats, 25s. 3d.

CATTLE.

At the Metropolitan Market on Monday the supply of beasts was small but the demand was still less, and the previous Monday's quotations were not realised. Trade in sheep was very dull at reduced prices. The only article really in brisk demand was lamb, a clearance of which was quickly made. Choice calves made a good price. Quotations:—Beasts, 4s. to 4s. 4d., and 4s. 6d. to 5s.; calves, 5s. 6d. to 6s. 8d.; sheep, 4s. 8d. to 5s., and 5s. 2d. to 5s. 8d.; lambs, 8s. to 9s.; pigs, 4s. to 5s.

HAY.

Tuesday's Whitechapel report states that a steady enquiry prevailed for fodder, and prices were without variation. Prime Clover sold at 100s. to 110s.; inferior, 85s. to 95s.; prime meadow hay, 80s. to 87s.; inferior, 40s. to 70s.; and straw, 30s. to 37s. per load.—Cumberland Market quotations:—Superior meadow hay, 86s. to 92s.; inferior, 65s. to 74s.; superior Clover, 105s. to 115s.; inferior, 80s. to 90s.; and straw, 34s. to 40s. per load.

POTATOS.

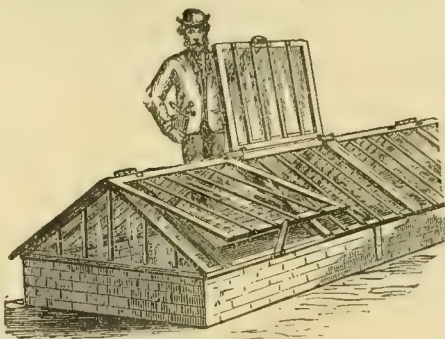
The Borough and Spitalfields markets reports state that sound Potatoes command a steady sale, but a dull trade continues for inferior kinds. Supplies are moderate. Regents, 90s. to 120s.; rocks, 65s. to 70s.; Champions, 70s. to 95s.; Victorias and flukes, 110s. to 140s. per ton.—In the course of last week 22,542 bags were received from Hamburg, 2524 Ghent, 1364 Antwerp, 678 Boulogne, 600 Bremen, 204 Stettin, 826 packages Malta, 104 Turkey, and 20 Harlingen.

COALS.

There was a dull market for house coal on Monday, but prices closed 1s. per ton higher than those last reported.—On Wednesday, owing to the strike in the Durham collieries, but few house coals were at market. The top price advanced to 20s. per ton. Quotations:—Walls End—South Hetton, 20s.; Original Hartlepool, 20s.; Tees, 20s.; Chilton Tees, 19s.; Tunstall, 17s. 9d.; Springfield West Hartley, 13s. 6d.; West Hartley, 13s. 6d.; Radfords' Navigation, 15s. 6d.; Birley Silkstone, 14s.

Government Stock.—On Monday, Tuesday, and Wednesday, Consols closed at 97½ to 98 for delivery and the account.

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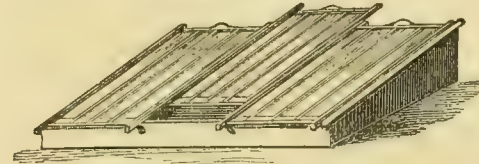
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Section No. 64 shows the frame built on brickwork, with a pit sunk low enough for making a dung bed for growing Cucumbers, Melons, &c. This form can be made up to any length required. (See List, free on application.)

CASH PRICES, including two glass ends to each length, painted four times, glazed with 21-oz. glass. Carriage paid.

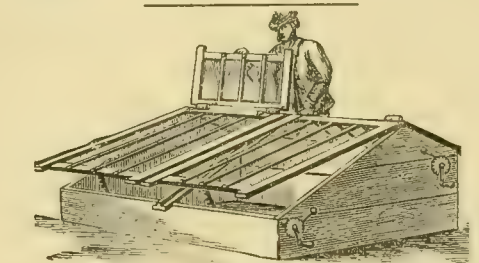
| Length. | Width. | £ s. d. | Length. | Width. | £ s. d. |
|---------|--------|---------|---------|--------|---------|
| Feet. | Feet. | | Feet. | Feet. | |
| 12 | 5 | 5 5 0 | 24 | 6 | 11 10 0 |
| 18 | 5 | 7 5 0 | 30 | 6 | 14 0 0 |
| 24 | 5 | 9 2 6 | 30 | 7 | 17 0 0 |
| 30 | 5 | 11 2 6 | 30 | 7 | 17 0 0 |
| 12 | 6 | 6 10 0 | 24 | 7 | 14 0 0 |
| 18 | 6 | 9 0 0 | 30 | 7 | 17 0 0 |



100 MELON and CUCUMBER FRAMES

Ready to dispatch on receipt of order. These Frames are made of the best red deal, thoroughly seasoned, and fitted by first-class workmen: 24 inches high at the back, 13 inches high in front; painted three coats of good oil colour, glazed with the best 21-oz. glass, every pane of which is nailed in and bedded in putty—the best method of glazing known, and adopted by the most eminent Builders and leading Nurserymen (see the *Garden* for January 13, 1877, p. 30). Iron handles to each light, and an iron strengthening bar across. Each light is 6 feet by 4 feet, and 2 inches thick.

| CASH PRICES. | | | £ s. d. | | |
|--------------------|------------------|-------|---------|----|---|
| 1-Light Frame..... | 4 feet by 6 feet | | 2 | 0 | 0 |
| 2-Light „..... | 8 „ 6 „ | | 3 | 7 | 6 |
| 3-Light „..... | 12 „ 6 „ | | 4 | 17 | 6 |
| 4-Light „..... | 16 „ 6 „ | | 6 | 7 | 6 |
| 5-Light „..... | 20 „ 6 „ | | 7 | 17 | 6 |
| 6-Light „..... | 24 „ 6 „ | | 9 | 7 | 9 |



No. 74. NEW THREE-QUARTER SPAN-ROOF GARDEN FRAME.

Our illustration shows a New Frame for Growing Cucumbers, Melons, &c., and for storing plants. It is made to give greater height and more convenience than the Melon Frame, No. 75. The front is 11 inches high, without the light, 32 inches high at the ridge, and 22 inches high at the back. The front lights can be turned back on the lights behind, and the back lights turned on to the front lights, giving access to all the plants. They are made of the best red deal, sides and ends 1½ inch thick, 2 inch lights; all are painted three times and glazed with 21-oz. sheet glass.

| CASH PRICES—Carriage paid. | | | £ s. d. | | |
|----------------------------|---------|--------------|------------------------|----|---|
| Size. | Long. | From front | Gearing extra to 8 ft. | | |
| Feet. | Feet. | to back. | size and upwards. | | |
| No. 1 .. 4 | 6 | 3 0 0 | 0 | 15 | 0 |
| No. 2 .. 8 | 6 | 4 15 0 | 1 | 2 | 0 |
| No. 3 .. 12 | 6 | 6 10 0 | 1 | 10 | 0 |
| No. 4 .. 16 | 6 | 8 5 0 | 1 | 10 | 0 |
| No. 5 .. 20 | 6 | 10 0 0 | 1 | 10 | 0 |

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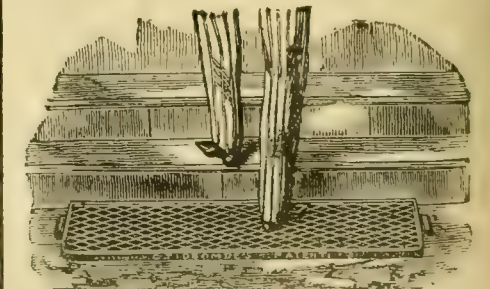
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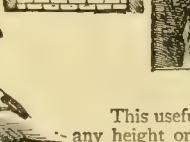
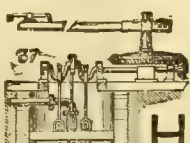
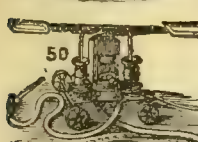
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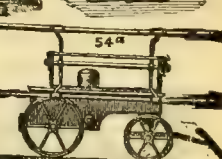
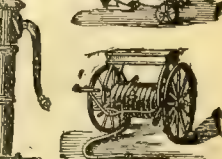
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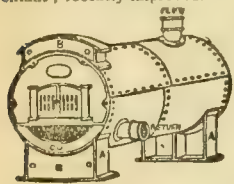
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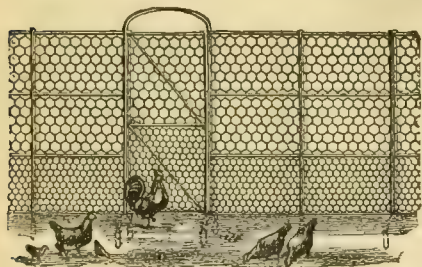
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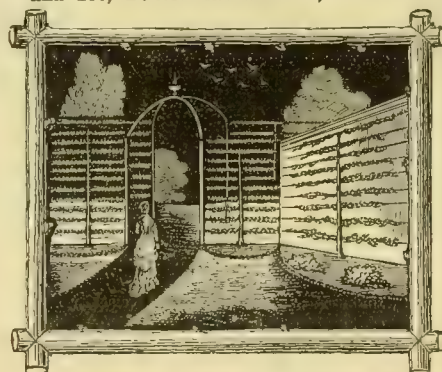
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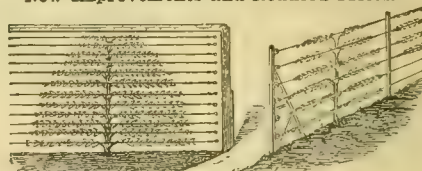
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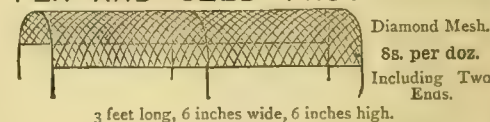
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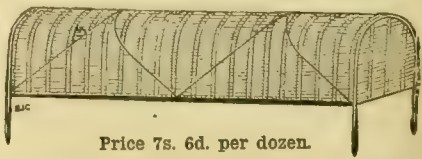
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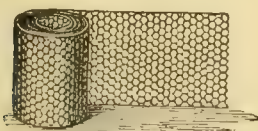
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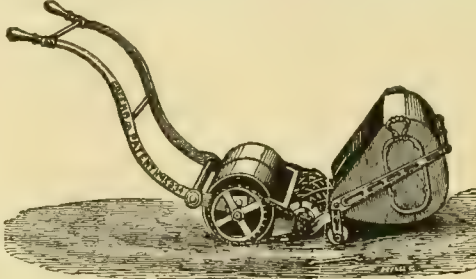
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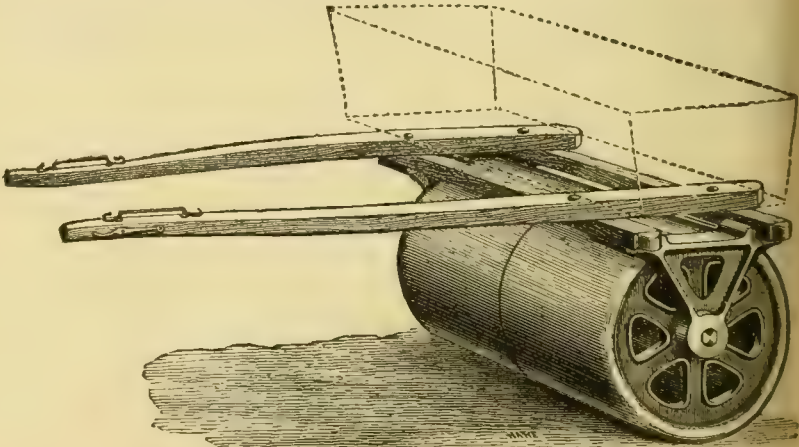
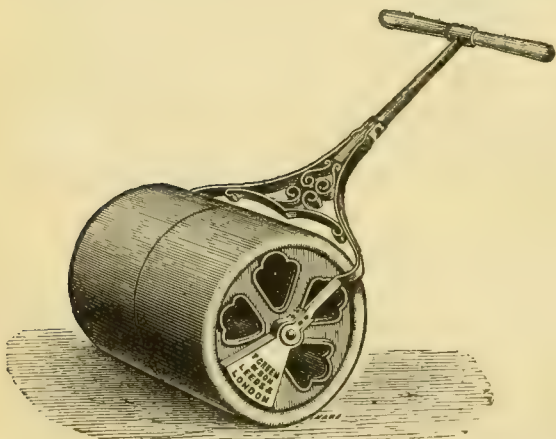
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GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.


No. 277.—VOL. XI. { NEW }
SERIES.

SATURDAY, APRIL 19, 1879.

{ Registered at the General } Price 5d.
Post Office as a Newspaper. POST FREE, 5½d.

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 With the Gardeners' Chronicle for Saturday next, April 26, will be published a Coloured Plate of "NEW CINERARIAS."

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

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VOLUME for JULY to DECEMBER, 1878.
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ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE.—SCIENTIFIC, FRUIT, and FLORAL COMMITTEES' MEETINGS on TUESDAY next, April 22, at 11 o'clock. SHOW of the NATIONAL AURICULA SOCIETY. Band of Royal Horse Guards at 3 o'clock in the Conservatory. Admission, 1s.

ROYAL BOTANICAL SOCIETY,
Gardens, Regent's Park, N.W.
EXHIBITION of SPRING FLOWERS, WEDNESDAY NEXT, April 23. The Band of the First Life Guards from 2.30 to 5.30 p.m. Tickets to be obtained at the Gardens only, by Vouchers from Fellows of the Society, price 2s. 6d. each.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
FLORAL MEETING in the Town Hall, Manchester, on TUESDAY, the 29th inst. The National Auricula Society's Show will be held in connection with this Meeting. Open from 12 till 4.
BRUCE FINDLAY.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.
THE GRAND NATIONAL HORTICULTURAL EXHIBITION of 1879 will be opened by the President of the Society, the Right Hon. the Earl of Derby, on MAY 30. ONE THOUSAND POUNDS in PRIZES. Schedules may be had from the undersigned.

BRUCE FINDLAY, Curator and Secretary.
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HORTICULTURAL CLUB, 37, Arundel Street, W.C. Prospectuses and all information given on application to H. HONYWOOD D'OMBRAIN, Sec.

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On view morning of Sale, and Catalogues had.

Orchids and Lilies.

MR. J. C. STEVENS will include in his SALE by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 21, a quantity of IMPORTED ORCHIDS, consisting of fine plants of Dendrobium bigibbium, D. superbiens, D. rhodocentrum, D. formosum giganteum, D. Johannis, D. cretaceum, fine masses of Epidendrum vitellinum majus, Saccolabium giganteum; a collection of ESTABLISHED ORCHIDS, comprising fine plants of choice and rare varieties, a quantity of plants Ipsea speciosa; 4500 good Bulbs of LILIUM AURATUM, 2000 L. KRAMERI, just arrived from Japan in splendid condition, and a consignment from New Jersey of DIONEÆ MUSCIPULA, SARRACENIA FLAVA and RUBRA; choice GLADIOLI from France and Holland; two cases of FERNS from New Zealand.

On view morning of Sale, and Catalogues had.

Odontoglossum Alexandræ, Cattleya Trianae, TRICHOPILIAS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 23, at half-past 12 o'clock precisely, by order of Messrs. Hugh Low & Co., Choice Imported ORCHIDS, just arrived, in the best possible condition, by the R.M. ss. "Essequibo" and "Nile," consisting of several hundred selected specimens of ODONTOGLOSSUM ALEXANDRÆ, many of a size rarely seen, and all with sound bulbs and strong young growths; specimens of CATTLEYA TRIANÆ, splendid varieties, amongst them three masses, 2 to 3 feet in length, with upwards of 100 bulbs each; TRICHOPILIA SUAVIS and T. COCCINEA in quantity. At the same time will be offered good plants of VANDA PARISHI, Fourteen established plants of CYMBIDIUM LOWIANUM, and twenty-five ODONTOGLOSSUM ROEZLI, the latter all with flower-buds.

On view morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will include in his SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY and THURSDAY, April 23 and 24, a large consignment of ORCHIDS, just brought home by Mr. Freeman the Collector, including good plants of Anactochilus, several good varieties, Arundina bambusaefolia, Cypripedium insigne Maulei, C. Pardinum, Thunia alba, Dendrobium sulcatum, D. nobile, D. densiflorum, D. Hookerianum, Pleione maculata, P. Wallichii, P. præcox, Vanda cœrulea, V. teres, V. striata, Epidendrum species, Cymbidium giganteum, C. eburneum, C. species, Calanthe species, Aerides Fieldingii, Cœlogyne barbata. The above are quite fresh. The Collector will be present on the days of Sales.

On view mornings of Sales, and Catalogues had.

Epidendrum rubescens.

MR. J. C. STEVENS has received instructions from Messrs. J. Blackhouse & Son, of York, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 24, at half-past 12 o'clock precisely, an interesting collection of IMPORTED and FLOWERING ORCHIDS, comprising fine plants of Epidendrum rubescens, of which the dried flowers sent by their Collector prove it to be not only about the finest of the genus, but one of the grandest Orchids known; grand masses of Epidendrum nemorale and E. vitellinum majus; Odontoglossum Londeborghianum; strong blooming plants of O. vexillarium, nebulosum and membranaceum; Disa grandiflora, Dendrobium Dalhousianum; and the rare Oncidium zebrinum and Masdevallia Bella, to a plant of which, from a well-known collection, a First-class Certificate was last week awarded by the Floral Committee of the Royal Horticultural Society.

On view morning of Sale, and Catalogues had.

16, Wickham Road, Lewisham, S.E.

MR. J. C. STEVENS has received instructions from the executors of the late — Silverlock, Esq., to SELL by AUCTION, on the Premises as above, on SATURDAY, April 26, at half-past 12 o'clock precisely, a splendid assortment of CAMELIAS, in bud and bloom, comprising some of the finest sorts in cultivation; ORANGE TREES and Miscellaneous GREENHOUSE PLANTS.

May be viewed the day before and morning of Sale, and Catalogues had of Mr. J. C. STEVENS, Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Important Sale of Established Orchids.

MR. J. C. STEVENS has received instructions from the Rev. J. B. Norman of Whitchurch Rectory, Edgware, to SELL by AUCTION, without reserve, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, WEDNESDAY, and THURSDAY, April 29, 30, and May 1, at half-past 12 o'clock precisely each day, the first portion of this well-known collection of ORCHIDS, which has been formed regardless of expense, and comprising many of the finest plants and varieties in cultivation. Amongst them will be found large plants of Cattleyas in great variety, and in most select specimens, including Cattleya Normanni, Skinneri, Dawsoni, Bassetti, Wagneri, exoniensis, lobata (old variety), Minas, Keineckiana, Dowiana, gigas and finest forms of Mossiae, Trianae and Mendelli. Also magnificent specimens of Laelias, such as purpurata in selected varieties, aniceps Dawsoni in good plants, aniceps Barkeri, elegans in many varieties, Wolstenholmiæ, Blunti, Dennisoni, lobata, Steutzeriana, Schilleriana, splendens, autumnalis (selected varieties), majalis, &c.; Aerides, Vanda, Saccolabium, Phalaenopsis, Angraecum, Cypripedium in many varieties, Oncidium in great variety, crispum marginatum, Rogersi (true), Marshallianum, tigrinum, splendens, macranthum, zebrinum, &c.; Odontoglossums in great variety, including Andersonianum, 250 plants of Alexandræ, vexillarium in large plants, Roezli, blandum, Pescatorei, citrosium, &c.; Dendrobiums in variety, Ainsworthi, Schroderi, Griffithianum, transparent, &c.; Masdevallias in variety, Bull's Blood variety, Harryana, Vietchii, Lindeni, Chimera, &c.; a large spotted variety of Anthurium Scherzerianum, with many other varieties of Orchids, all in the finest possible health.

On view mornings of Sale, and Catalogues had.

New Guinea Bird Skins, Insects, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, April 25, at half-past 12 o'clock precisely, the valuable collection of BIRD SKINS, collected in and sent home from New Guinea, by Mr. Goldie, when in search of plants for Mr. B. S. Williams, of Victoria and Paradise Nurseries, Upper Holloway, N., amongst which will be found many new and rare specimens, all in the finest possible preservation; the whole have been named by Mr. Sharpe of the British Museum. To which is added several small collections of British and Foreign LEPIDOPTERA, BUTTERFLIES and MOTHS in paper, from Madagascar, several INSECT and EGG CABINETS, SETTING and STORE BOXES, stuffed Mexican TAPIR, &c.

On view morning of Sale, and Catalogues had.

FOR IMMEDIATE DISPOSAL, through death, a first-class FLORIST, SEED, and FRUIT BUSINESS, doing a large and increasing trade. A small amount only for Lease and Goodwill, &c., to an immediate and bona fide purchaser.—A. B., *Gardeners' Chronicle* Office, W.C.

Near to the Crystal Palace (4620).

TO BE DISPOSED OF, a thoroughly Genuine NURSERY, SEED, and FLORIST'S BUSINESS, the owner (who has successfully carried it on for many years) being about to retire. Comprises about 2 acres of Land, convenient semi-detached Dwelling-house with commanding Shop, a handsome Conservatory and Aviary in front, possessing together a noble frontage of 144 feet to the main road, in the best part of a high-class neighbourhood. Also ten modern Greenhouses, admirably planned and heated, with ranges of Pits, stocked with a well-selected assortment of thriving Stove, Greenhouse and Bedding Plants, including Stephanotis, Gardenias, Azaleas, Camellias, and other plants for cutting from. Extensive Jobbing Trade. Several good Contracts in hand. Good Seed and Cut Flower and Furnishing business. Personally inspected and recommended. Immediate possession. Rent, on lease for twenty-one years, £160 per annum. Stock, including Horse, Cart, Utensils, Goodwill and Fixtures, £1100. The Freehold, together with the Stock, &c., may be purchased on moderate terms.

For further particulars and orders to view, apply to PROTHEROE AND MORRIS, Auctioneers, 98, Gracechurch Street, E.C.

Warwickshire (4625).

A GENUINE and long-established NURSERY and SEED BUSINESS, comprising a House and Shop, Home and Park Nurseries, of about 70 Acres in extent, two Greenhouses and Outbuildings. A remunerative Business has been carried on, and the Stock is young, thriving, and well chosen.

Detailed particulars and orders to view of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C., and Leytonstone, E.

To Nurserymen and Market Gardeners.

TO BE LET ON LEASE, 24½ Acres of first-class ARABLE LAND, at Heston, having extensive frontages to two good roads. Apply to

Mr. W. G. LEADER, Land Agent and Auctioneer, 115, High Street, Brentford.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN AND ESTATE AUCTIONEERS AND VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Borough of Wolverhampton.

THE PARK AND BATHS COMMITTEE of the Corporation of Wolverhampton invite DESIGNS for Laying-out the Interior of a proposed PUBLIC PARK, about 47 acres in extent, at an expenditure not exceeding £5000.

A Lithograph Plan and printed General Instructions and Conditions may be obtained from Mr. G. Eastlake Thoms, C.E., the Borough Engineer, at his Offices, Town Hall, on and after the 20th inst., on payment of One Guinea, which will be returned on receipt of bona fide Design.

The Committee offer Premiums of £50 and £25 for the best and second best Designs respectively. No premiums will be paid unless the works can be carried out for the sum named—£5000. If the competitor obtaining such first-named premium is employed to carry out the work the premium shall merge in his commission, the rate of such commission to be hereafter agreed upon by the Committee.

Designs, accompanied in each case by Specification and detailed Estimate, under Motto, must be left at the said Offices not later than 12 noon, on SATURDAY, May 3, next, addressed to "The Chairman of the Park and Baths Committee."

H. UNDERHILL, Town Clerk.

Town Hall, Wolverhampton, March 12.

FOR SALE, VERBENAS, Purple, White, Scarlet, and Pink, Good plants, 6s. per 100, package free. Cash with order.

S. BIDE, Alma Nursery, Farnham.

FOR SALE, strong healthy Cuttings of Purple, White, Scarlet, and Pink VERBENAS, 3s. per 100. Twenty good exhibition varieties, 4s. per 100, free by post. Cash with order.

S. BIDE, Alma Nursery, Farnham.

To Seedsmen and Market Gardeners.

THE FOLLOWING POTATOS to be Sold cheap:—About 1 ton of Early Vermont, 4 cwt. Ruby, 4 cwt. Snowflake, and 1 cwt. Early Oxford. Enquire at STEELL'S Nursery, Richmond, Surrey.

New Spring Catalogue.

WOOD AND INGRAM'S New Priced Descriptive LIST for 1879 of BEDDING PLANTS, Stove and Greenhouse Plants, Ferns, Climbers, &c., is now ready, and will be sent free on application.

The Nurseries, Huntingdon.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to

The LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

SURPLUS STOCK.—50,000 MANETTI STOCKS and a few thousand Fastoff RASPBERRY CANES. Prices on application to EWING AND CO., Eaton, near Norwich.

Cabbage Plants—Cabbage Plants.

W. VIRGO, Womersley Nurseries, can still supply RED PICKLING PLANTS at 7s. 6d. per 1000 for cash, all good strong healthy plants.

GREEN HOLLIES—GREEN HOLLIES.

The best time for planting. A large quantity of good rooted plants to be disposed of, at a very moderate price for cash: 2 to 5 feet and more. Also BOX, about 2 feet.

ALEXANDER DANCER, The Nurseries, Fulham, S.W.

Remarkable Cover Plant.

RODGER, McCLELLAND AND CO. beg to offer ELYMUS GLAUCA at the following low prices. It is nearly blue in colour, grows 3 to 4 feet high, and spreading in all directions, forming so close a tangled mass that no person can walk through it. 5s. to 10s. per 100.

64, Hill Street, Newry.

Seed Potatoes.

G. BRAMLEY has to offer a few cwt. of International Kidney, Schoolmaster, Rollison's Challenger, Trophy, Magnum Bonum, Snowflake, &c., at low prices. Hambleton, near Selby, Yorkshire.

RASPBERRIES.—50,000 Fastoff for Sale; also several tons of CHAMPION SEED POTATOS. This Potato is the best disease-resisting and heaviest cropping variety in cultivation. Price on application to JOSIAH H. BATH, Manor Farm, North Cray, Kent.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE have still in stock most of the best varieties of SEED POTATOS, and are prepared to take reduced prices to clear out. Special offers on application.

Seed Growing Establishment, Wisbech.

To the Trade.

SEEDLING HOLLIES.—Strong, excellent roots, 6s. per 1000, for cash.

C. WHITEHOUSE, Breton Nursery, Rugeley.

STRAWBERRY PLANTS.—Strong and good sorts, 10s. per 1000 for cash. Apply at once to JOSEPH GREEN AND SON, Nurseries, Garforth, near Leeds.

DUKE OF EDINBURGH STRAWBERRY (Moffat).—The best Main Crop and Market variety; commands a higher price than any other in Edinburgh Market. Strong, well-rooted runners, 5s. per 100, 1s. 3d. per dozen, post-free. Trade price on application.

TODD AND CO., Seedsmen, Maitland Street, Edinburgh.

GERANIUMS.—New Double, all best named varieties, twelve for 6s., the set of twenty-four for 10s. White Vesuvius, 6s. to 8s. per dozen. Twelve choicest named, including the above, for 3s. 6d.

LOBELIAS from Cuttings; for names, &c., see Lists, to be had on application.

AGERATUM.—Lady Jane, Countess of Stair.

FUCHSIAS.—Choicest named, 1s. 6d. per dozen.

Small parcels safe by post. Cash with order to

G. GUMMOW, 114, Loughborough Road, Brixton, S.W.

SMITH'S BALSAM.—Seed of the above can

be had from most Seedsmen throughout the world, in 1s. and 2s. packets mixed, and in 2s. 6d. collections of nine colours; also CINERARIA, PRIMULA and CALCEOLARIA, in 1s., 2s. 6d., and 5s. packets, or direct from

F. AND A. SMITH, The Nurseries, West Dulwich, S.E.

N.B.—Blooms from our superb collection of Cinerarias sent per post on receipt of four stamps.

Verbenas.

FIFTY THOUSAND now ready for Sale. All good, strong, spring-struck plants, perfectly free from all disease, of Purple King, Scarlet, White, and Pink, 6s. per 100. Twenty other good exhibition varieties, true to name, 8s. per 100. Package free for cash. Also strong healthy Cuttings of the above at half-price: free by post.

S. BIDE, Alma Nursery, Farnham, Surrey.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879.

Extra Strong SEAKALE, 2s. per dozen.

RICHARD SMITH, Nurseryman, Worcester.

Aucuba japonica.

W. FROMOW AND SONS beg to announce that they have taken Mr. Riddy's well-stocked Nursery, Hanworth Road, Hounslow, and can therefore offer perhaps the finest stock of AUCUBAS in the trade, good bushy stuff and beautifully rooted, at low prices for cash, delivered free within 6 miles of Sutton Court Nursery.

Turnham Green, London, W.

EXTENSIVE STOCK of young PALMS, in the best condition possible and at really moderate prices. Arecomonostachya, 16s. per 100, 150s. per 1000; Corypha australis, 14s. per 100, 130s. per 1000; Seaforthia elegans, 12s. per 100, 100s. per 1000; Latania borbonica, Chamaerops Fortunei and humilis, 10s. per 100, 80s. per 1000; Phoenix reclinata and tenuis, 12s. per 100, 100s. per 1000; Dracena indivisa and Veitchii, 12s. per 100, 50s. per 1000.

See also Special List for Spring, 1879, free on application.

J. VAN DER SWAELMEN, Lily Nursery, Ghent, Belgium.

Roses, Roses, Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100. Price to the Trade on application.

RICHARD WALKER can still supply any quantity of the best CABBAGE PLANTS in England, Red Dutch for pickling, and Enfield Market, 7s. per 1000; SEAKALE for planting, 4s. per 100; LEMON THYME and PENNYROYAL ROOTS, 8s. per 100; SAGE and BLACK THYME, 15s. per 100; SWEET WILLIAM, best in England, 1s. 6d. per dozen, or 10s. per 100; Seedlings of all best named PICOTEES, 1s. 6d. per dozen, or 15s. per 100; splendid double white ROCKETS, 2s. per dozen; and all sorts of HERB ROOTS. Cash with orders.

Market Gardens, Biggleswade, Beds.

Trade Offer.

DWARF ROSES.—Good plants, my own selection, £10 per 1000; £5 5s. per 500; 25s. per 100. Good planting SEAKALE, 25s. per 1000. For cash nett, with orders.

R. LOCKE, Redhill, Surrey.

Illustrated Catalogue of Hardy Perennials.

THOMAS S. WARE has pleasure in announcing the issue of the above for the present year, containing New, Rare, and Select Hardy Perennials, with which is combined extensive Lists of Aquatics, Bog Plants, Hardy Terrestrial Orchids, Bamboos, and Ornamental Grasses. Gratis and post-free on application.

Hale Farm Nurseries, Tottenham, London.

NORTH AMERICAN PLANTS—

including Hardy Bulbs, Orchids, Ferns, and Hardy Herbaceous Perennials generally; also Climbers and Small Shrubs, from both sides of the continent, the Rocky and other Mountain ranges, &c. Our new Descriptive CATALOGUE, Wholesale and Retail, is now ready, and will be sent free by post. By far the largest collection in the country. Many rare species never before offered for sale, and some entirely new. **WOOLSON AND CO.**, Passaic, N.J., United States, America.

To the Trade.

SCARLET RUNNERS and CANADIAN WONDER BEANS.

H. and F. SHARPE can offer the above, of English growth, and very fine samples, at moderate prices.

Seed Growing Establishment, Wisbech.

VERBENAS, VERBENAS, VERBENAS.

—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s.

HELIOTROPES, strong, healthy, well-rooted cuttings, of light and dark named varieties, 6s. per 100.

IRISINE LINDENI, HERBSTII and ACUMINATA, strong young plants, from stores, 5s. per 100.

FUCHSIAS, 100 plants in 12 splendid varieties, from store pots, for 8s. Terms cash.

H. BLANDFORD, The Dorset Nurseries, Blandford.

Cheap Bedding Geraniums.

ALFRED FRYER offers the following good Bedders, at per dozen for Cash:—Golden Tricolors: Peter Grieve, 6s.; Prince of Wales, 6s.; Isle of Beauty, 4s.; Lady Cullum, 3s. 6d.; Mrs. Pollock, 2s. 6d.; Sophia Dumesque, 2s. 6d.; Sir Robert Napier, 3s. 6d. Silver Tricolors: Lass o' Gowrie, 3s. 6d.; Mrs. John Clutton, 2s. 6d.; Prince Silverwings, 2s. 6d.; Queen of Hearts, 3s.; Happy Thought, 5s. 6d.; Distinction, 2s. 6d.; or one of each for 5s. 6d. Post-free or 6d. per dozen extra. Hammer and packing 1s. per dozen, or 3s. 6d. per 100; half price for packing out of pots. For Priced LISTS apply to **ALFRED FRYER**, The Nurseries, Chatteris, Cambridgehire.

Hardy Florists' Flowers.

THOMAS S. WARE'S SPRING CATALOGUE of the above for the present year is now ready, containing a good list of Novelties, and including selections of choicest varieties of Carnations and Picotees, Chrysanthemums, Delphiniums, Pansies, Phloxes, Pyrethrums, and other families. Free on application.

Hale Farm Nurseries, Tottenham, London.

ALTERNANTHERAS, of the following varieties, from stores:—Amœna, spatulata, magnifica, aronymioides, amabilis latifolia, and versicolor; also **LOBELIA RIGHTON**, and **MESEMBRYANTHEMUM CORDIOLIUM VARIEGATUM**, 8s. per 100, 70s. per 1000. Also **MENTHA PULEGIUM GIBALTARICUM**, 8s. per 100; and **NERTERA DEPRESSA** 20s. per 100.

Terms cash.

M. BALCHIN, Hassock's Gate Nursery, Keymer, Sussex.

GERANIUMS, &c., for Bedding.—Strong autumn-struck plants from store pots, of Vesuvius, Dr. Indley, Indian Yellow, Christine, Stella, Tom Thumb and her varieties, 10s. per 100; Madame Vaucher, Crystal Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of alderdale, &c., 12s. per 100.

HELIOTROPE, Light and Dark, 6s. per 100.

CALCEOLARIA, Golden Gem, 6s. per 100, package free for cash.

CENTAUREA CANDIDISSIMA, autumn-struck, good plants in large 60s, 30s. per 100.

S. BIDE, Alma Nursery, Farnham, Surrey.

To the Trade.

JAS. GARAWAY AND CO. offer:—

ELARGONIUMS, Show and Fancy choice varieties, good bushy plants, to bloom in May, in 48-pots, 50s. and 60s. per 100.

ARNATIONS, best named varieties, 8s. per dozen pair.

CHRYSANTHEMUMS, large flowered, Japanese and Pompon, in 3-inch pots, 20s. per 100.

ANGLIAS, named varieties, 21s. per 100.

ELPHINIUMS, single and double, best named sorts, 6s. per dozen, 40s. per 100.

YRETHRUMS, Double, best named sorts, 21s. per 100.

HLOX, leading and distinct varieties, 4s. per dozen, 25s. per 100.

Jas. Garaway & Co.'s own Selection.

JAS. GARAWAY AND CO., Durham Down Nurseries, Upton, Bristol.

ILLUSTRATED CATALOGUE of FERNS.

—The above, comprising 80 pages of illustrations, synonyms, Notes on Cultivation, &c., is the most complete Fern List in Trade, and will be forwarded on application. Postage 2d. Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

To the Trade.

SEEDLINGS:—**FIR**, Native Scotch, 2-yr., 4s.; **Pinus Laricio**, 2-yr., 3s. 6d.; **P. Strobus**, 2-yr., 4s. 6d.; **Picea Nordmanniana**, 1-yr., 25s.; **P. maritima**, 1-yr., 2s. per 1000.

TRANSPLANTED:—**PINUS STROBUS**, 2-yr., 1-yr., 12s. 6d. per 1000; **ASH**, Mountain, 4 to 5 feet, 25s. per 1000; **LIMES**, 4 to 6 feet, 15s., and 6 to 8 feet, 25s. per 100; **WALNUTS**, 4 to 6 feet, 15s., and 6 to 8 feet, 25s. per 100. Above offered as unsold on receipt of orders.

P. LAIRD and SINCLAIR, Nurserymen, Dundee, N.B.

NEW DOUBLE-FLOWERED INDIAN AZALEA, EMPRESS OF INDIA

(A. Van Geert).

This Finest of all New Indian Azaleas

Won the First Prize at the International Show in Ghent, in April, 1878, and received a First-class Certificate from the Royal Horticultural Society, London, on March 11 last. Its merits are so exceptional that we have not hesitated to place it under the high protection of the title of the Most Gracious Sovereign of its original home.

It will be sent out on and after Sept. 1.

Orders, which are now being booked, are solicited at once, and will be executed in strict rotation.

A Descriptive and Priced LIST will be sent on application to **A. VAN GEERT**, Continental Nurseries, Ghent, Belgium; or to his Agents, Messrs. **R. SILBERRAD AND SON**, 15, Harp Lane, Great Tower Street, London, E.C.



SPECIAL.



FOR PRESENT SOWING.

SUTTON'S CHOICE FLOWER SEEDS

(POST-FREE.)

ASTERS.

| | Per Packet.—s. d. |
|---|-------------------|
| Truffaut's French Pæony-flowered .. | 6d. and 1 0 |
| Goliath , four varieties, separate .. | 2 6 |
| „ mixed .. | 1 0 |
| Washington , Silver-grey .. | 2 6 |
| „ Rose and White .. | 2 6 |
| „ White .. | 1 6 |
| „ Peach-blossom .. | 1 6 |
| German Globe .. | 3d., 6d., and 1 0 |
| Dwarf Pæony Perfection , Blue-black .. | 2 6 |
| „ „ Rose and White .. | 2 6 |
| Large-flowered Rose , eight varieties, separate .. | 2 6 |
| „ mixed .. | 1 0 |
| Dwarf Diamond , six varieties, separate .. | 3 6 |
| „ mixed .. | 1 0 |
| Sutton's Miniature , six varieties, separate .. | 5 0 |
| „ mixed .. | 2 6 |
| Dwarf German , mixed .. | 6d. and 1 0 |

GERMAN STOCKS.

| | |
|--|-----|
| Large-flowered Ten-week , Canary-yellow .. | 1 0 |
| „ Scarlet Bouquet .. | 1 0 |
| „ Blood-red .. | 1 0 |
| „ Crimson .. | 1 0 |
| „ White .. | 1 0 |
| „ Purple .. | 1 0 |
| „ mixed .. | 1 0 |
| Miniature Ten-week , six varieties, separate .. | 2 0 |
| „ mixed .. | 1 0 |

BALSAMS.

| | |
|--------------------------------------|-----|
| Sutton's Camellia-flowered .. | 1 6 |
| Fine Double .. | 0 6 |

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

GEO. JACKMAN & SON,
(ESTABLISHED 1810.)



Cultivators of
FRUIT and FOREST TREES
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.

THE CLEMATIS
A SPECIALITY.

Descriptive Priced Catalogues free.

WOKING NURSERY, SURREY.

New Coleus.

THE TWO FOLLOWING are very distinct new types; both have been introduced from the Islands of the South Pacific, and are totally different to anything before in cultivation:—

COLEUS DISTINCTION, deeply crenated leaves of a bronzy green colour shaded with violet-crimson, the centre of the leaf prettily feathered with creamy yellow, the midrib and veins rosy purple. 7s. 6d.

COLEUS SURPRISE, leaves bright green, centrally banded and feathered with primrose-yellow, the variegation becoming white as the leaves mature; extremely attractive. 7s. 6d.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Pinus Laricio.

CORSICAN PINE.—Now is the best time to remove them. For prices of this valuable Pine, which is seldom eaten by rabbits—never if they can get any other food—apply to **JAMES SMITH**, Darley Dale Nurseries, near Matlock.

MILES' NEW HYBRID SPIRAL

MIGNONETTE.—This being the best time to sow I beg to offer from the original stock, at 1s. per packet, or 12s. per dozen. The usual allowance to the trade.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown **MANGEL WURZEL**, and **SWEDE** and other **TURNIP SEEDS** of 1878 growth, and raised from transplanted Bulbs.

Seed Growing Establishment, Wisbech.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.

THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.

CATALOGUES on application.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy. The Ottershaw Nursery, Chertsey.

ALTERNANTHERAS of Sorts, from Stores, 8s. per 100, or 70s. per 1000. Orders now booked and executed in rotation.

LIST of Carpet and other Bedding Plants free on application. Terms cash.

WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

Special Cheap Offer.

TO SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to **W. BALL and CO.**, Bedford Road Nursery, Northampton

MANGEL and SWEDE, Choice Stocks.

We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.

SANDER AND CO., Seed Growers, St. Albans.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of **VINES** is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see **B. S. W.'s BULB CATALOGUE** for this year.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

PINUS INSIGNIS.

—Very fine, well-rooted, and quite safe plants of this beautiful Pine can be supplied in large quantity, of sizes as under. Now is the best time to plant.

| | |
|--------------------|-------------------------|
| 12 to 18 inches .. | 40 0 per 100. |
| 18 to 21 inches .. | 50 0 „ |
| 21 to 24 inches .. | 75 0 „ |
| 30 to 48 inches .. | 18s. to 24 0 per dozen. |

RODGER, McCLELLAND and CO., 64, Hill Street, Newry

NEW AZALEA INDICA

of real merit. The following are now offered in good clean healthy plants, with buds, at reduced prices, viz.:—

EMPEREUR DU BRÉSIL (J. V.).—Large double flowers, pure rose, finely and broadly edged with a pure white band. Extra fine plants, with buds, 12s.; strong plants, 12 inches in diameter, 21s.

TRIOMPHE DES DOUBLES BLANCS (J. V.).—A perfect gem; was awarded several first prizes for the best seedling Azalea at different shows. Strong plants, 21s.

REINE DE PORTUGAL (J. V.).—A first-class double-white variety. Strong plants, with buds, 6s.

ORANGE BRILLANT (J. V.).—One of the best dark orange-flowered varieties. Very strong plants, with buds, 12s.

IMPERATRICE CHARLOTTE (Comte de Beaufort).—A very fine variety, rosy salmon, edged white, and striped with crimson and pink. Very strong plants, 12s.

The collection of fine sorts for 48s. Early orders solicited by **JEAN NUYTENS VERSCHAFFELT**, The Nurseries, 134, Faubourg de Bruxelles, Ghent, Belgium.

JULES DE COCK, NURSERYMAN, Ghent,

Belgium, offers to the Trade Seedlings in store pots:—**Arceia lutescens**, 40s. per 100; **Arceia rubra**, 30s. per 100

Chamaerops excelsa, 8s. per 100; **Cocos Weddelliana**, 100s. per 100; **Corypha australis**, 20s. per 100; **Euterpe edulis**, 25s. per 100; **Lantana borbonica**, 8s. per 100; **Pandanus utilis**, 25s. per 100; **Phoenix reclinata**, 16s. per 100; **Phoenix tenuis**, 12s. per 100; **Scaevola elegans**, 25s. per 100; **Thrinax elegans**, 32s. per 100; **Aralia Sieboldii**, 6s. per 100; **Dracæna indivisa**, 6s. per 100.

THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.

No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.

No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.

A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

CALCEOLARIA, Golden Gem, strong autumn-struck, clean and good, 5s. per 100, 4s. per 1000. **VERBENA**, Purple King, the only really good bedder, 5s. per 100, 50s. per 1000. **LOBELIA**, Bluestone, strong, 4s. per 100. Package free for cash.

WILLIAM FIELD, Tarvin Road Nursery, Chester

EVERGREENS.—

Plant in April.

HOLLIES, Specimen, 3, 4, 5, 6, to 15 feet.
LAURELS, bushy Portugal, 2, 3, 4, and 5 feet.
AUCUBAS, perfect globes, 2, 3, and 4 feet.
YEWs, English, 3, 4, 5, and 6 feet.
Also other Evergreens, extra bushy and good.
Many thousands of splendid plants, hardy, thoroughly transplanted, therefore well-rooted and lifting with balls.

Special prices and samples sent on application.
Prices low to clear ground. Nurseries, 250 acres.
JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

CHEAP ORCHIDS.

Special List of Cheap and Desirable Kinds.



B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

| Each.—s. d. | Each.—s. d. |
|--|---|
| AERIDES roseum .. 10 6 | LIMATODES rosea .. 3 6 |
| " virens .. 10 6 | LYCASTE Skinneri .. 5 6 |
| " odoratum majus .. 7 6 | " Harrisoni .. 5 6 |
| " Lobii .. 15 0 | MASDEVALLIA Lindenii .. 15 0 |
| " Fieldingii .. 15 0 | " polysticta .. 15 0 |
| AROPHYLLUM giganteum .. 10 6 | " Hairyana .. 7 6 |
| BRASSIA verrucosa .. 7 6 | " igneia .. 7 6 |
| " major .. 7 6 | MAXILLARIA venusta .. 10 6 |
| CATTLEYA Mendelii (imported) .. 10 6 | " tenuifolia .. 3 6 |
| " Aclandiae .. 10 6 | " lutea alba .. 7 6 |
| " citrina .. 10 6 | MESOSPINDIUM sanguineum .. 7 6 |
| " Trianae .. 10 6 | ODONTOGLOSSUM Insleyi leopardinum .. 5 0 |
| " Warszewiczii delicata .. 15 0 | " Hallii .. 7 6 |
| " Warnerii .. 15 0 | " hystrix .. 7 6 |
| " lobata .. 10 6 | " cucurum .. 3 6 |
| " crispata .. 10 6 | " pulchellum majus .. 3 6 |
| " maxima .. 15 0 | " Phalenopsis (imported) .. 7 6 |
| " Regnellii .. 15 0 | " Rossii majus (imported) .. 7 6 |
| " Mossie .. 5 6 | " Alexandriae (nice plants, imported) .. 7 6 |
| " speciosissima .. 10 6 | " Pescadorei (imported), from .. 7 6 |
| " marginata .. 10 6 | " gloriosum .. 5 0 |
| CALANTHE Veitchii .. 7 6 | " grande .. 5 0 |
| " vestita luteo-oculata .. 2 6 | " Lindleyana .. 3 6 |
| " rubro-oculata .. 2 6 | " Cervantesii .. 5 0 |
| COELOGYNE cristata .. 5 0 | " rubescens .. 5 0 |
| " corrugata .. 7 6 | ONCIDIUM aurosum .. 5 0 |
| CYMBIDIUM eburneum .. 15 0 | " Baueri .. 5 0 |
| " Mastersii .. 15 0 | " sphacelatum .. 5 0 |
| CYPRIPIEDUM barbatum superbum .. 3 6 | " incurvum .. 7 6 |
| " insigne .. 3 6 | " verrucosum .. 5 0 |
| " spectabile .. 3 6 | " concolor .. 10 6 |
| " Boxallii .. 3 6 | " flexuosum .. 3 6 |
| " Pearcei .. 3 6 | " Papilio .. 7 6 |
| " Harrisianum .. 7 6 | " Krameri .. 5 0 |
| " niveum .. 5 6 | " bicallosum .. 7 6 |
| " Crossii .. 7 6 | " cucullatum .. 3 6 |
| DENDROBIUM formosum giganteum .. 5 0 | " pulvinatum .. 5 0 |
| " chrysotis .. 10 6 | " Warnerii .. 15 0 |
| " cretaceum .. 3 6 | ORNITHIDIUM so-phronites .. 10 6 |
| " Pierardii .. 3 6 | " Phajus grandifolius .. 3 6 |
| " pulchellum purpureum .. 3 6 | " albus .. 7 6 |
| " Fendleyanum .. 10 6 | PLEIONE lagenaria .. 3 6 |
| " bigibum .. 7 6 | " Wallichiana .. 3 6 |
| " nobile .. 3 6 | SACCOLABIUM ampullaceum .. 5 0 |
| " chrysanthum .. 3 6 | " Blumei majus .. 7 6 |
| " Gibbsii .. 3 6 | " curvifolium .. 7 6 |
| " densiflorum .. 10 6 | " giganteum (fine imported plants), from .. 15 0 |
| " Benoniense .. 10 6 | STANTHOPEA tigrina .. 7 6 |
| " rhodocentrum .. 10 6 | " Vanda tricolor insignis .. 10 6 |
| " thysiflorum .. 10 6 | " tricolor .. 10 6 |
| DENDROCHILUM filiforme .. 21 0 | " Roxburghii .. 15 0 |
| " glumaceum .. 21 0 | " crispum .. 10 6 |
| EPIDENDRUM vitellinum majus (imported), from .. 2 6 | ZYGOPETALUM Makayi .. 5 0 |
| GOODYERA discolor .. 3 6 | |
| LÆLIA cinnabarina .. 7 6 | |
| " elegans .. 21 0 | |
| " Dayana .. 10 6 | |

Specimens of the above can be supplied, prices of which will be forwarded on application.

B. S. WILLIAMS,

VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

ED. PYNAERT VAN GEERT, NURSERYMAN, Ghent, Belgium, offers the following
NEW CARPET-BEDDING PLANT: ALTERNANTHERA PURPUREA.

It is of a dense, compact habit, rapidly forming a close and bushy carpet, or a uniform and regular border.

In its peculiar shade of colour it differs completely from that of other Alternantheras, which are all so well adapted to Carpet-bedding. Alternanthera purpurea is of a deep purple shade, with a grey metallic reflection in the sun. We can affirm that it is also perfectly distinct in tint from Iresine Verschaffeltii and Wallisi, from Coleus Nero, and other plants of deep foliage.

The new Alternanthera is very vigorous and comparatively hardy, and can be easily kept over the winter in a cool greenhouse. It is offered at the following prices:—

| s. d. | £ s. d. |
|----------------------|---------------------|
| Single Plants .. 4 0 | 25 Plants .. 1 12 0 |
| Ten Plants .. 16 0 | 100 Plants .. 4 0 0 |

R. W. BEEDELL offers strong rooted

Cuttings of **FUCHSIAS**, best named sorts, including

Earl of Beaconsfield, 5s. per 100, or 40s. per 1000.

LOBELIA, Bluestone, 6s. per 100, 50s. per 1000.

HELIOTROPE, 6s. per 100.

MESEMBRYANTHEMUM, 5s. per 100, 40s. per 1000.

MUSK, Harrison's, 1s. per dozen, 7s. per 100.

COLEUS, choice sorts, 1s. per dozen, 7s. per 100.

IRENESE LINDENI, 5s. per 100.

MIMULUS, Dark Double

NASTURTIUM, Double Climbing } Three, 1s.

TROPEOLUM, Ball of Fire

Twenty-five of the above description can be had at a proportionate rate.

The Nurseries, Wallington, Surrey.

ROOTED CUTTINGS.

(Choice Varieties with Names.)

FREE AND SAFE BY POST. **FREE AND SAFE BY POST.**

We have much pleasure in offering the following in well-rooted healthy Cuttings, which, by our improved system of packing, can now be sent by post with perfect safety to any part of the British Isles. The selection of varieties must in all instances be left to us:—

| | Per Doz. |
|---|----------|
| BEGONIA FUCHSIODES , a pretty pot plant for the greenhouse .. each, 4d. 3 0 | |
| CHRYSANTHEMUMS , large-flowered, new and choice sorts .. per 100, 10s. 6d. 1 6 | |
| " good standard varieties .. per 100, 10s. 6d. 1 6 | |
| " Pompon, a first-class selection .. per 100, 10s. 6d. 1 6 | |
| COLEUS , from our splendid collection of nearly 100 newest and choicest varieties, extra choice sorts .. per 100, 12s. 6d. 2 0 | |
| " handsome varieties .. per 100, 12s. 6d. 2 0 | |
| DAHLIAS , all the newest and best in cultivation. Show varieties, new and choice .. 3 6 | |
| " fancy varieties, new and choice .. 3 6 | |
| " fancy varieties, good popular sorts, per 100, 12s. 6d. 2 0 | |
| FUCHSIAS , a splendid collection of all the newest and finest single and double-flowered varieties .. 2 6 | |
| " finest single, good popular varieties, per 100, 10s. 6d. 1 6 | |
| FUCHSIA SPLENDENS , a rare and beautiful species .. each, 4d. 3 0 | |
| GERANIUMS (Pelargoniums), show and fancy, in fine variety .. 4 0 | |
| " ZONAL and NOSEGAY , upwards of 250 of the newest and most splendid varieties in commerce, extra choice sorts .. 4 0 | |
| " choice sorts, fine exhibition varieties .. 2 6 | |
| " choice sorts, popular varieties .. per 100, 10s. 6d. 1 6 | |
| " choice sorts, twelve new varieties of 1878, including Cannell's New Life, White Vesuvius, Salmon Vesuvius, &c. .. 9 0 | |
| " double-flowered Zonals, choice varieties .. 4 0 | |
| " very good sorts .. 2 6 | |
| " silver variegated, Daybreak, &c., per 100, 10s. 6d. 1 6 | |
| " gold variegated, C. P. Gem .. per 100, 10s. 6d. 1 6 | |
| " Ivy-leaved, a beautiful class for hanging baskets, vases, &c. .. per 100, 10s. 6d. 1 6 | |
| " sweet-scented varieties .. each, 4d. 3 0 | |
| IRENES , Herbistii and Lindenii .. per 100, 7s. 6d. 1 0 | |
| LOBELIA ERINUS , Emperor William, per 100, 7s. 6d. 1 0 | |
| MIMULUS , Daniels' superb large-flowered, very fine, per 100, 10s. 6d. 1 6 | |
| MUSK , Harrison's Giant .. per 100, 7s. 6d. 1 0 | |
| PHLOX , Perennial or Herbaceous, all the best varieties .. per 100, 12s. 6d. 2 0 | |
| PENTSTEMONS , in beautiful variety .. 1 6 | |
| TROPEOLUMS , double-flowered and beautiful varieties of Lobbianum, fine for pots, hanging baskets, vases, &c. .. 2 0 | |
| VERBENAS , in choice variety .. per 100, 10s. 6d. 1 6 | |
| VERBENA , lemon-scented .. each, 4d. 3 0 | |

Not less than 50 will be supplied at the rate per 100, or 6 at the rate per dozen.

From **R. J. HAMILTON, Esq., Tonbridge, November 11, 1878.**

"Enclosed please find P.O.O. in payment of account for Rooted Cuttings, all of which have turned out splendidly, especially the Chrysanthemums, which are very fine."

From **Mr. W. D. PENNY, Nairn, N.B., November 5, 1878.**

"I am very glad to say that the Rooted Cuttings I had of you in the spring turned out very well indeed, not a single failure in the lot."

Cheques or Post-office Orders to
DANIELS BROTHERS,
TOWN CLOSE NURSERIES, NORWICH.

ORCHIDS.

THE NEW PLANT and BULB COMPANY

Reg respectfully to inform their Friends that their SPECIAL LIST, No. 43, is now published, contents as follows:—Colombian, Mexican, Japanese and East Indian Orchids; and the finest representatives from each country, embracing Odontoglossums, Cattleyas, Oncidiums, Aerides, Dendrobies, Vandas, Cologynes, Cypripediums, Pleiones, Saccolabiums, Lælias, Maxillarias, &c. This List contains both the Prices for Established and Imported Plants, and the Prices range from 2s. 6d. upwards.

CATALOGUES free by post on application.

LION WALK, COLCHESTER.

CRANSTON'S NURSERIES.

ESTABLISHED 1785.

EIGHTY ACRES.

ROSES, FRUIT TREES, CONIFERS,

FOREST TREES, &c.

Descriptive and Priced Catalogue for 1878 now ready.

Address—
CRANSTON & CO.,
KING'S ACRE, near HEREFORD.

New and Extra Choice Exhibition

PINKS, PANSIES, PHLOX, PENTSTEMONS, FUCHSIAS, GERANIUMS, the very cream of the best English and Scotch raisers, true to name, 3s. per dozen. Free with Descriptive CATALOGUE.
SAMUEL SHEPPERSON, Florist and Seedsman, Prospect House, Belper.

New Catalogue for 1879.

WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire, will have great pleasure in sending their Descriptive LIST on application. Their stock of Florist Flowers, Bedding and Soft-wooded Plants generally, is surpassed by very few, if any, either in extent or quality, all the newest and best varieties being constantly added to the various classes, and the greatest care is taken to keep the varieties true to name. Another great advantage to purchasers is that none of the plants offered are taken from a warm propagating house and sent off immediately, but are all carefully hardened, and most of them potted off singly, and thereby fitted for transit by rail or post without the slightest injury. A great proportion of the undermentioned are autumn-struck plants, and can be had in pots if required, and all in variety of sorts and colours. All good for exhibition or home decoration.

| Our selection. Per doz.—s. d. | Our selection. Per doz.—s. d. |
|--|--|
| Abutilons, in variety .. 3 6 | Ivies, Irish .. 3 0 |
| Achimenes .. 2 6 | Kleinia repens, per 100, 20s. .. 3 0 |
| Ageratums, small plants, per 100, 5s. .. 1 0 | Lantanas .. 3 0 |
| Ageratums, in pots, per 100, 15s. .. 2 6 | Lilium auratum, strong, each, 1s. and 1s. 6d. .. 2 6 |
| Antirrhinums .. 3 6 | Lobelia, small, per 100, 4s. .. 1 0 |
| Azalea indica, 9s. .. 60 0 | Lobelia, in pots .. 2 6 |
| Begonias, tuberous, from 4s. to .. 18 0 | Mesembryanthemum variegatum, per 100, 10s. 2 0 |
| See Catalogue: our collection is very fine. | Mimulus, in variety .. 3 0 |
| Begonias, other kinds .. 3 0 | Myosotis, 6s. per 100 .. 3 0 |
| Bouvardias, 4s. and .. 6 0 | Pæonies, splendid white, bluish crimson, and other shades, 6s. to .. 9 0 |
| Caladiums, 12s. and .. 18 0 | Pansies, show, 25s. per 100 .. 3 6 |
| Calceolarias, Golden Gem, not in pots, per 100, 5s. .. 1 0 | Pansies, bedding (about 20,000 to select from), 12s. per 100 .. 2 0 |
| Carnation and Picotee plants .. 7 0 | Pentstemon, 25s. per 100 .. 3 6 |
| " pairs .. 12 0 | Phloxes, 25s. per 100 .. 3 6 |
| Chrysanthemums, per 100, 18s., in great variety .. 3 0 | Pelargoniums, show, fancy, and French, 6s. to .. 9 0 |
| Clematis .. 8 0 | Pentstillas, double .. 6 0 |
| Carpet Bedding Plants: see Catalogue | Polyanthus, seedlings, 5s. per 100 .. 1 0 |
| Coleus .. 3 0 | Polyanthus, named sorts: see Catalogue |
| Cyclamens, 4s. and .. 6 0 | Primroses, double, 4s. to .. 9 0 |
| Dactylis elegantissima, per 100, 6s. .. 1 0 | " Old Double Velvet, each, 1s. 6d. .. 2 0 |
| Dahlias, per 100, 20s. .. 3 6 | " single, assorted colours .. 2 0 |
| Delphiniums, 6s. to .. 9 0 | Primroses, other sorts, great variety: see Catalogue |
| Epiphyllums, 9s. to .. 12 0 | Pyrethrums .. 6 0 |
| Echeveria secunda glauca, 1s. 6d. to .. 2 6 | Roses, H.P., fine plants from ground, per 100, 45s. .. 6 0 |
| Ferns, stove and greenhouse, 6s. to .. 18 0 | Roses, Tea, &c. .. 12 0 |
| Fuchsias, per 100, 18s. .. 3 0 | Roses, climbing or mosses .. 4 0 |
| Gardenia florida, 6s., 9s., to .. 18 0 | Rhododendrons, fine varieties, with buds, 30s. to .. 35 0 |
| Geranium, tricolor .. 3 6 | Rock plants, 15s. per 100, 2s. to .. 4 0 |
| " bicolor .. 3 6 | Salvias .. 3 0 |
| " silver-edged .. 3 6 | Saxifrages .. 3 0 |
| " double, 20s. per 100 .. 3 0 | Sedums .. 3 0 |
| Geranium, zonals, for bedding, 15s. per 100 .. 3 0 | " acre aurea, elegans, and glaucum, 8s. per 100 .. 1 6 |
| Geraniums for pot culture, 2s. to .. 6 0 | Stove plants, 9s. to .. 18 0 |
| Gladioli, Brechleyensis, 6s. per 100 .. 1 0 | Succulents, 4s. to .. 6 0 |
| Gladioli, seedlings, a fine mixture .. 3 0 | Tropeolums .. 3 0 |
| Gloxinas, 6s., 9s. .. 12 0 | Violas, immense stock of best sorts, 8s. to 12s. per 100 .. 1 6 |
| Greenhouse Plants, 9s. to .. 18 0 | Verbenas, stock plants in pots .. 3 0 |
| Hardy climbing plants in great variety, 6s. to .. 9 0 | Verbenas, young, not in pots .. 1 6 |
| Hollyhock, seedlings .. 4 0 | Violets, sweet .. 3 0 |
| Helianthemums .. 2 6 | Vines, all the leading kinds for planting and fruiting, 30s. to .. 60 0 |
| Herbaceous plants, 20s. per 100 .. 3 0 | Apples, Pears, Plums, and Cherries, pyramidal, 6s. to .. 18 0 |
| Heliotropes, in variety .. 2 6 | " dwarf trained, 18s. to .. 30 0 |
| Hepaticas .. 4 0 | |
| Hydrangeas .. 4 0 | |
| Iresine Lindenii, 10s. per 100 .. 2 0 | |
| Strawberry runners: our collection contains 65 varieties, 2s. 6d. per 100 .. 3 6 | |
| Pinks, 25s. per 100 .. 3 6 | |
| Iris, German .. 3 0 | |
| Ivies, in variety .. 6 0 | |

Cheap Plants by 100 or 1000.

WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter.

VERBENAS, purple, white, scarlet, rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 1s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.

LOBELIA Emperor William and Bluestone, two of the very best, 2s. 6d. per 100, 20s. per 1000.

CALCEOLARIA Golden Gem, best yellow, 10s. per 100; Kayii, yellow, 4s. per 100.

PELARGONIUMS, Vesuvius and Jean Sisley, best scarlets, 7s. per 100, 60s. per 1000; Madame Vaucher and Virgo Marie, fine white, 10s. per 100; Master Christine, best bedding pink, 10s. per 100; Striped Vesuvius (New Life), 6s. per dozen, 40s. per 100.

 " Silver variegated, May Queen and Flower of Spring, 10s. per 100; Waltham Bride, 15s. per 100.

 " Gold-leaf, Crystal Palace Gem, 10s. per 100.

 " Tricolor, Mrs. Pollock, 15s. per 100; other good sorts, 2s. Sir R. Napier, 18s. per 100.

 " Double, Smith's Wonderful, good plants, 15s. per 100, or from stores, 12s. per 100; Madame Thibaut, finest double pink, 12s. per 100.

AGERATUM, Imperial Dwarf, 5s. per 100.

COLEUS and **IRENE LINDENI**, crimson, 6s. per 100, 50s. per 1000.

HELIOTROPIUM, light and dark, 6s. per 100, 50s. per 1000.

DAHLIAS, all the best sorts, 15s. per 100.

CENTAUREA CANDIDISSIMA, 18s. per 100.

Note: 25 of any sort can be had at 100 rate.

Packing included. Terms cash.

Cemetery Nursery, Gravesend.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, CYCLAMEN, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.



TREE FERNS and PALMS.

THE LARGEST AND BEST STOCK IN EUROPE.

ALSO MANY OTHER

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,
Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

ODONTOGLOSSUM ALEXANDRÆ,
CATTLEYA TRIANÆ, TRICHOPILIAS, &c.

MR. J. C. STEVENS will **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, on **WEDNESDAY**, April 23, at half-past 2 o'clock precisely, by order of Messrs. HUGH LOW & Co., Choice Imported ORCHIDS, just arrived, in the best possible condition, by the R.M. ss. *Essequibo* and *Nile*, consisting of several hundred selected specimens of **ODONTOGLOSSUM ALEXANDRÆ**, many of a size rarely seen, and all with sound bulbs and strong young growths; specimens of **CATTLEYA TRIANÆ**, splendid varieties, amongst them three masses 2 to 3 feet in length, with upwards of 100 bulbs each; **TRICHOPILIA SUAVIS** and **T. COCCINEA** in quantity. At the same time will be offered good plants of **VANDA PARISHI**, fourteen established plants of **CYMBIDIUM LOWIANUM**, and twenty-five **ODONTOGLOSSUM ROEZLI**—the latter all with flower-buds.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN,
LONDON, W.C.

EPIDENDRUM ERUBESCENS, &c.

JAS. BACKHOUSE & SON

HAVE INSTRUCTED

MR. J. C. STEVENS to **SELL** by **AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY**, April 24, at half-past 12 o'clock precisely,

An interesting Collection of Imported and Flowering Orchids,
comprising fine plants of

EPIDENDRUM ERUBESCENS,

of which the dried flowers sent by their Collector prove it to be not only about the finest of the genus, but one of the grandest Orchids known; grand masses of **EPIDENDRUM NEMORALE** and **E. VITELLINUM MAJUS**; **ODONTOGLOSSUM LONDESBOROUGHIANUM**; strong blooming plants of **O. VEXILLARIUM**, **NEBULOSUM**, and **MEMBRANACEUM**; **DISA GRANDIFLORA**, **DENDROBIUM DALHOUSIANUM**, and the rare **ONCIDIUM EBRINUM** and **MASDEVALLIA BELLA**—to a plant of which (from a well-known collection) First-class Certificate was last week awarded by the Floral Committee of the Royal Horticultural Society.

YORK NURSERIES,

NEW ENGLISH ROSES.—The following twelve new English-raised Roses for 25s. basket and packing free for cash with order:—May Quennell, Mabel Morrison, Robert Marnock, Dean of Windsor, Richard Laxton, John Bright, Mrs. Laxton, Penelope Mayo, Red Dragon, Marchioness of Exeter, Magna Charta, and Lady Mary Keith, all extra fine plants. List of Roses in pots (Tea-scented, new French varieties of 1879, &c.), gratis and post-free.
GEORGE COOLING, Nurseryman, Bath.

To the Seed Trade.

MALDEN AND SON have to dispose of from Two to Three Tons of their Champion Yellow Globe MANGEL SEED, and One Ton of Berkshire Prize ditto; also a few bushels of Thousand-headed CABBAGE SEED, first-class stock; and a few cwt. of their Prize Green-top KOHL RABI. All nett seed grown harvest 1878.

MALDEN AND SON, Seed Growers, Biggleswade, Beds.

The New Plant of the Year.

CALCEOLARIA FUCHSIÆFOLIA.

RODGER, MCCLELLAND AND CO. are now sending out this wonderful plant. For full description see *Gardener* of March 29, which also contains a coloured plate. Price 7s. 6d. each.

We can also offer the following species, all autumn and winter flowering, except the last:—

| | s. | d. |
|-------------------------------|-------------|-----|
| CALCEOLARIA BICOLOR .. | 1 | 6 |
| " HYSSOPIFOLIA .. | 1 | 6 |
| " LOBATA .. | 1 | 6 |
| " PAVONII .. | 2 | 6 |
| " VIOLACEA .. | 1s. 6d. and | 2 6 |

64, Hill Street, Newry.

TELEGRAPH CUCUMBER,

Rollisson's True Selected Stock.

To the Trade, 5s. per 100 Seeds.

TURNER'S BLUE GOWN,

7s. 6d. per 100 Seeds.

And at per ounce on application.

PENGILLY AND POOL,

Seed and Plant Merchants,

59, QUEEN VICTORIA STREET, LONDON, E.C.

SEED POTATOS.

Several Tons of Myatt's Prolific Ashleaf Kidney, Early Rose, and other varieties for Sale, at Low Prices.

JOHN BATH,

Fruit and Potato Salesman, 32 and 34, Wellington Street, Covent Garden, London, W.C.

CHEAPEST PLANTS

EVER OFFERED.

12 STOVE PLANTS, 12s., splendid selection.

12 GLOXINIAS, 10s., splendid selection.

12 CHOICEST CALADIUMS, 12s.

Rooted Cuttings of extra fine varieties of Plants at very low prices.

OTHER PLANTS EQUALLY CHEAP.

Universal satisfaction given, and money returned if plants not approved.

LISTS now ready, post-free, which please send for and compare before purchasing elsewhere.

FELTON & SONS,

Nurserymen, &c., by special appointment to H.R.H. the Prince of Wales,

HARBORNE ROAD, BIRMINGHAM.

MILLER AND JOHNSON

(ESTABLISHED 1855)

Manufacture the highest quality of
ARTIFICIAL MANURES

For Root, Corn, and Grass Crops.

36, Mark Lane, London.

COCOA-NUT FIBRE REFUSE.—Reduced Price:—In 4 bushel bags, bags included, at 11s., or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—**J. STEVENS AND CO.**, Greyhound Yard and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, as supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 11s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

RICH (late Finlayson & Hector), Cocoa-Nut Fibre Works, 24 and 25, Redman's Row, Mile End Road, London, E.

GARDEN REQUISITES.—COCOA-NUT FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners, 3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s. 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 6d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF-MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c.

Write for free PRICE LIST. Goods free to rail.

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PEAT SOIL, PEAT SOIL.—

BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. **BLACK**, good quality for American Plants, Rhododendrons, Azaleas, Heath, &c., 17s. per ton, or 6-ton truck for £4 10s. Delivered on rail at Blackwater, S.E.R., or Camberley, S.W.R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER AND SON, Crown Nurseries, Reading.

Fibrous Peat for Orchids, &c.
BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, &c., per ton.
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 Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

Under Royal Patronage, and by the Nobility, Gentry, CLERGY, NURSEYMEN, HORTICULTURISTS, GARDENERS, &c.

SELECTED SILVER SAND, PEAT, LOAM, SPHAGNUM PALUSTRE, &c., on Sale, by railway truckloads and in casks and new sacks, at moderate prices. Forwarded to all parts of the United Kingdom and abroad.
WILLIAM SHORT, Horticultural Depot, Reigate, Surrey.
 Established 1862.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d. Wholesale by **PRICE'S PATENT CANDLE COMPANY** (Limited).

By Permission of the Hon. Board of Customs,
Free of Duty.

NICOTINE SOAP.
 A NEW AND UNRIVALLED INSECTICIDE
 FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing properties, with perfect safety to foliage. No known blight can resist it, and it is the cheapest in the market.

Price, in jars, containing 8 oz., 1s. 6d., and 20 oz., 3s.; drums, 28 lb., 25s.; and 2 oz. samples jars, 6d. each. Two ounces sufficient for one gallon of water for ordinary use.

THE LONDON GROUND TOBACCO.
 THE LONDON TOBACCO JUICE.
 TOBACCO PAPER, CLOTH, and CORD.

Wholesale from the Manufacturers,
CORRY & SOPER,
 SHAD THAMES, LONDON, S.E.;
 And Retail from all Seedsmen and Florists.

For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER.
 Established 40 Years.



This Manure is unequalled in effect for speedy and certain action in producing desired results, the strength and quality being highly concentrated.



(Should be used by every one.)

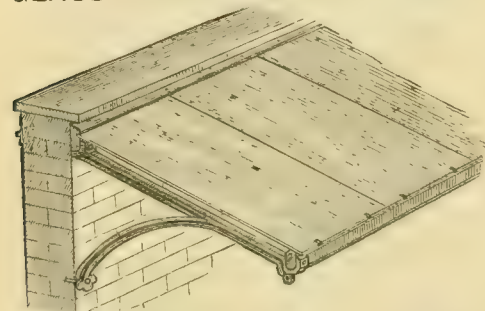
For the convenience of consumers our Manure is packed in bags containing:—
 1 cwt., 16s.; ½ cwt., 9s. 6d.; ¼ cwt., 7s.; 14 lb., 5s.; 7 lb., 3s. 6d.; 3½ lb., 2s. 4d.; Tin, 1s.;

And may be obtained of all principal Nurserymen, Florists, and Seedsmen; or direct from the Works, by application to **W. TRINDER**, Chemical Manure Works, Stroud, Gloucestershire; or, **T. HARDY**, 27, Crosby Hall Chambers, Bishopsgate, London, E.C. Agents wanted.

Glasshouses.

B. W. WARHURST (late Hereman & Morton) will give Prices for all kinds of **HORTICULTURAL BUILDINGS IN WOOD** on receipt of particulars.
 Price Lists free. A Pamphlet for three stamps.
B. W. WARHURST, 43, Highgate Road, London, N.W.

RICHARDSON'S
GLASS WALL-TREE PROTECTOR



CHEAPEST EVER SUPPLIED.

Guaranteed best quality.

2 feet wide, 1s. 10d. per foot run.
 3 feet wide, 2s. 6d. per foot run.

Carriage paid for orders over £5. Send for particulars to

W. RICHARDSON & CO.,

Horticultural Builders and Hot-water Engineers,
DARLINGTON.

DOULTON AND CO.,
 Manufacturers of
IMPERISHABLE GARDEN EDGING,
 Of various patterns, in
Terra Cotta, Stoneware, & Blue Staffordshire Ware.
VASES, PEDESTALS, PENDANTS, &c.,
 In Terra Cotta and Doulton Ware.

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Chief Offices: High Street, Lambeth, S.E.

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Manufactories: Lambeth, Staffordshire, and Lancashire.

Rosher's Garden Edging Tiles.



THE ABOVE and many other **PATTERNS** are made in materials of great durability. The plainer sorts are specially suited for **KITCHEN GARDENS**, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design. **F. ROSHER AND CO.**, Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for **LOOKER'S PATENT "ACME FRAMES,"** PLANT COVERS, and PROPAGATING BOXES; also for **FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.**

Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.
T. ROSHER AND CO., Brick and Tile Merchants.
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SILVER SAND, fine or coarse grain as desired. Price by Post per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or **LOAM** supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
 N.B.—Orders promptly executed by Rail or to Wharves.
 A liberal Discount to the Trade.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

BETHAM & SON,

9, LOWER THAMES STREET, LONDON, E.C.
 B. & Son have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., 20-in. by 18-in., in 16-oz. & 21-oz.

HORTICULTURAL WINDOW GLASS.

A large variety of sizes, 15-oz., 12s. 6d.; 21-oz., 16s. 6d., per 100 feet. Large sizes, in Cases, for Cutting up—15-oz. 4ths, 30s.; 3ds, 40s. per 300 feet;—21-oz. 4ths, 30s.; 3ds., 40s. per 200 feet.—**ALFRED SYER**, Glass, Lead, Zinc, Oil and Colour Merchant, 8, Pentonville Road, London, N.

ARCHANGEL AND PETERSBURG MAT MERCHANTS and IMPORTERS.

All the usual kinds at reduced rates. **SACKS and SEED BAGS**, new and second-hand, of every description, **RAFFIA FIBRE, NETTING and TIFFANY. TARPULINS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES.** Price LIST on application to **J. BLACKBURN AND SONS**, 4 and 5, Wormwood Street, London, E.C.

Wholesale Russia Mat Merchants.

MARENDAZ and FISHER, Importers of **ARCHANGEL and ST. PETERSBURG MATS, RAFFIA FIBRE, &c.** Manufacturers of **TANNED NETTING, TIFFANY**, and other Garden Requisites.
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ANDERSON'S RUSSIA MATS

For **COVERING, TYING, and PACKING**, are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. **SACKS and BAGS** of every description. **TARPULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.**—**JAMES T. ANDERSON**, 149, Commercial Street, Shoreditch, London, E.

FOR SALE, a 16-inch **GREEN'S LAWN MOWER**, price 30s.; also an 18-inch **MOWER**, price 35s.; in fair going order.

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This Boiler, when fixed on our improved principle, is the most economical and most powerful, and requires less attention than any Boiler manufactured.

We have made special arrangements that will enable us to supply these at lower prices than any other house in the trade. Sheet, showing Improved Method of Fixing, sent with every Boiler.

HOT-WATER PIPES and CONNECTIONS from London Stock.

Before buying elsewhere apply for our Reduced PRICE LIST, free on application.

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THE LAYING DOWN OF LAND FOR PASTURE.

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THE BEST TREATISE on the CULTIVATED GRASSES:

NEW EDITION WITH ILLUSTRATIONS.

MAY BE HAD OF

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OLD BARGE WHARF,

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Have the largest and most complete stock in the Trade; upwards of £20,000 worth to choose from.



HOT-WATER BOILERS, PIPES, and CONNECTIONS,

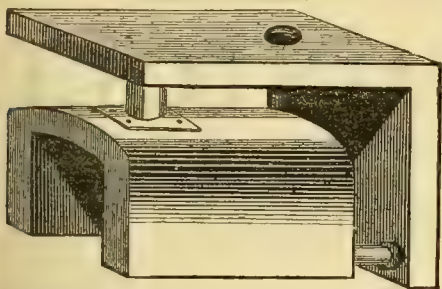
And all **CASTINGS** for **HORTICULTURAL PURPOSES.**

Their New Illustrated Catalogue, 8th Edition, now ready
 (price Sixpence).

Hot-water Apparatus erected complete, or the Materials supplied at Wholesale Prices

BOOTE AND MILLSON, LEAD and GLASS
MERCHANTS, 64, City Road, E.C., have always on the
premises a large Stock of all kinds of Horticultural Glass, at
lowest market rates.

**JONES'S PATENT "DOUBLE L"
SADDLE BOILER.**



These Boilers possess all the advantages of the old Saddle
Boiler, with the following improvements—viz., the water-space
at back and over top of saddle increases the heating surface to
such an extent that a "PATENT DOUBLE L SADDLE
BOILER" will do about twice the amount of work with the same
quantity of fuel; the cost of setting is also considerably reduced,
and likewise the space occupied; at the same time these Boilers
are simple in construction, and being made of wrought-iron are
not liable to crack. They are made of the following sizes:—

| Sizes. | | | To heat of | Price. | |
|--------|--------|--------|-------------|--------|-------|
| High. | Wide. | Long. | 4-in. Pipe. | £ | s. d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 | 0 0 |
| 20 " | 18 " | 24 " | 400 | 8 | 0 0 |
| 20 " | 18 " | 30 " | 500 | 9 | 0 0 |
| 24 " | 24 " | 24 " | 700 | 12 | 0 0 |
| 24 " | 24 " | 30 " | 850 | 14 | 0 0 |
| 24 " | 24 " | 36 " | 1000 | 16 | 0 0 |
| 24 " | 24 " | 48 " | 1400 | 20 | 0 0 |
| 28 " | 28 " | 60 " | 1800 | 25 | 0 0 |

Larger sizes if required.

From Mr. CHARLES YOUNG, Nurseries, Balham Hill, S.W.,
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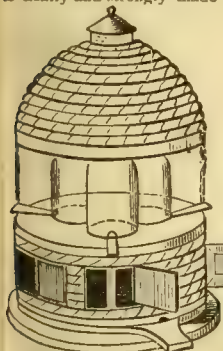
"Having given your Patent 'Double L' Boilers a fair trial
at my Nurseries, I beg to say that they are most satisfactory.
I consider them the best in use, and without doubt the most
economical of all boilers; they will burn the refuse of other
tubular boilers I have in work."

PRICE LISTS of HOT-WATER PIPES and CONNec-
TIONS, with Boilers, of all sizes and shapes; or ESTIMATES
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When ordering Boilers please refer to the above advertisement.

**Gather Honey from Your Flowers.
NEIGHBOUR'S Celebrated BEEHIVES.**
PHILADELPHIA EXHIBITION, 1876.

PARIS EXHIBITION, 1876, 1878.
Three Silver Prize Medals awarded George Neighbour & Sons.
The IMPROVED COTTAGE BEEHIVE, as originally in-
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is neatly and strongly made of straw; it has three windows
in the lower Hive. This
Hive will be found to
possess many practical
advantages, and is more easy
of management than any
other Beehive that has
been introduced.



Price, complete £1 15 0
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Also BAR FRAME
HIVES of most approved
construction, at 7s. 6d.,
12s. 6d., to 25s. each, and
Philadelphia Frame Hives,
complete with Cover and
Stand, 42s.

An Italian Alp Queen,
with full directions for
uniting to Black Stocks, at
current prices.

LIGURIAN and ENGLISH BEES.—Stocks and swarms
may be obtained as heretofore.

THE APIARY. By ALFRED NEIGHBOUR. 5s., postage 5d.
A newly arranged CATALOGUE of other improved Hives,
with Drawings and Prices, sent on receipt of two stamps.

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BAMBOO CANES, RAFFIA for tying, VIRGIN CORK,
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Wholesale prices on application to
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J. SMITH'S IMPERISHABLE
STRATFORD LABELS.**



The above Labels are made of a White Metal, with RAISED
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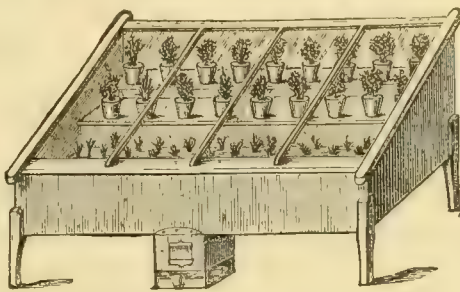
The *Gardeners' Magazine* says:—"We must give these the
palm before all other plant labels, as the very first in merit."
Samples and Price Lists free.

J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO'S PATENT.—
Prices, Printed Patterns, and Specimens, sent post-
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MAW AND CO., Benthall Works, Broseley.

**RIPPINGILLE'S
PROPAGATING PLANT FRAME,
HEATED BY PATENT STOVE.**

The simplest and best ever introduced for Raising Seeds,
Striking Cuttings, &c.



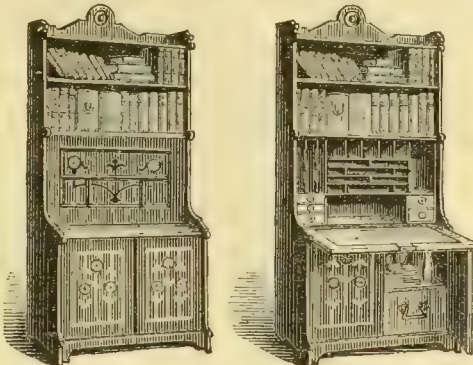
The *Gardeners' Magazine* says:—"A most valuable invention."
(Copy of Testimonial.)

"Yardley, near Birmingham, May 23, 1878.
"DEAR SIR,—I am much pleased with the new Propagating
Plant Frame which you supplied two or three months ago,
heated by Rippingille's Patent Stove. The frame does its work
in the most perfect manner, and at a very trifling cost for oil.
I have used it with great advantage in raising plants from
seeds, and in propagating trees from cuttings, and I think the
apparatus just the thing for amateur gardeners who do not
happen to possess luxurious and costly forcing houses."
Yours obediently,
"GEORGE LINDSEY."

Sent packed free and carriage paid to any railway station in
England.

Write for Price List and particulars to—
THE ALBION LAMP COMPANY,
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And say where you saw this advertisement.

**THE
Salisbury Combination Secretaires.
FOLEY'S PATENT.**



No. 2 D. 6 ft. 9 in. by 3 ft. 3 in.
THE SALISBURY COMBINATION SECRETAIRES
are adapted to all purposes and classes of society.

Combine the uses of Bookcases, Bureaus, China Cabinets,
Cellaret, Sideboards, Escritoirs, Secretaires, &c.
Every part is utilised, the floor space is the same, whether
open or closed.

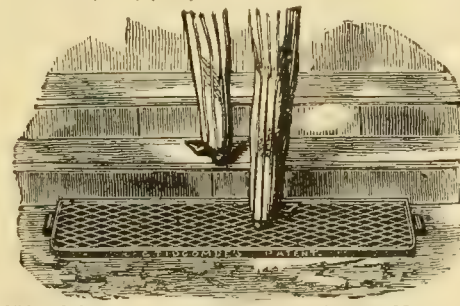
These Secretaires are elegant and original in design and con-
struction, and destined to become the Cabinet of the age.

List of Prices and Illustrations of other Combinations can
be obtained of the Patentee and Manufacturer.

**ARTHUR FOLEY,
FISHERTON MACHINE CABINET WORKS,
SALISBURY.**

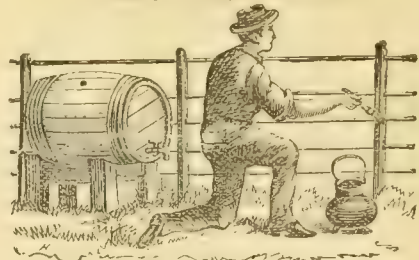
THE GRAVEL-WALK METAL

SCRAPER MATS.—They improve the appearance of
Entrances, are suitable for all kinds of Gravel-walk Entrances, in
all weathers, either to remove the loose grit after summer showers,
or the dirt or snow of winter. Their texture gives a firm hold
to the feet in whatever direction you step. They are the width
of an ordinary step, and being directly in the path cannot escape
use, save much wear in other mats, floorcloths, and carpets, and
their endurance is incalculable. Lengths, 2 feet 3 inches, price
10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.;
3 feet 8 inches, 18s.; 4 feet, 20s. All 12 inches wide.



Tidcombe's Patent Gravel-walk Metal Scraper Mats are
suitable for Mansions, Villas, French Casements, Conservatories,
Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens,
Places of Worship, Colleges, Schools, Manufactories, Hotels,
Public Institutions, and all Entrances leading from Sandy,
Gritty, or Gravel Walks. Delivered on Railway on receipt of re-
mittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

Oil Paint No Longer Necessary.



(Registered Trade Mark.)

**HILL AND SMITH'S BLACK
VARNISH** for Preserving Ironwork, Wood, or Stone,
is an excellent substitute for oil paint on all outdoor work,
while it is fully two-thirds cheaper. It was introduced upwards
of thirty years ago by the advertisers, and its genuine good
quality, notwithstanding a host of unprincipled imitators, is
fully attested by its constantly increasing sale. It may be
applied by an ordinary labourer, requires no mixing or thinning,
and is used cold. It is used in the grounds at Windsor Castle,
Kew Gardens, and at the seats of many hundreds of the
Nobility and Gentry, from whom the most flattering testimo-
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Sold in casks of about 30 gallons each, at 1s. 6d. per gallon,
at the Manufactory, or 1s. 8d. per gallon carriage paid to any
Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Pierrefield Park, June 21, 1873.—Sirs,—I have this day
forwarded from Chepstow to your address a black varnish cask,
to be filled and returned with as good Varnish as the last we
had, which I candidly admit was the best we ever had. Address
Varnish to Pierrefield Park, Chepstow.—I am, Sirs, yours
respectfully, WM. COX."

CAUTION.—It having lately come to the knowledge of
HILL & SMITH that spurious imitations of this Varnish are
being offered by unprincipled dealers at a slight reduction in
price, they would specially draw attention to the fact that it
can ONLY be obtained DIRECT FROM THEM, and that every cask
is legibly marked with their name and address, without which
none is genuine.

Large Illustrated CATALOGUE of Fencing, Hurdles, Field
and Entrance Gates, &c., sent free on application to

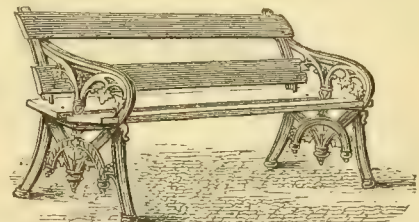
HILL AND SMITH, Brierley Hill Ironworks, Staffordshire;
118, Queen Victoria Street, London, E.C.; and 180, Buchanan
Street, Glasgow.

REGISTERED
December 24, 1878.



No. 6119.

ROOT CHOPPER, used in the Farm, Field,
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Tops of Turnips, Mangels, Celery, Cabbage, Carrots, Beets,
Bulbous Roots, &c. Handy for Pruning young and tender
Shoots off the Hedgerows of Fields, Gardens, Vineries, &c.
JOHN GRAY, Proprietor and Manufacturer, Duke Place,
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Rustic Garden Furniture in great variety.

Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and
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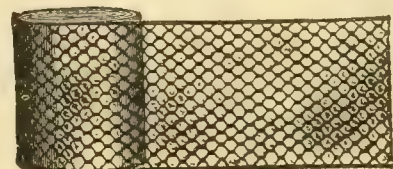
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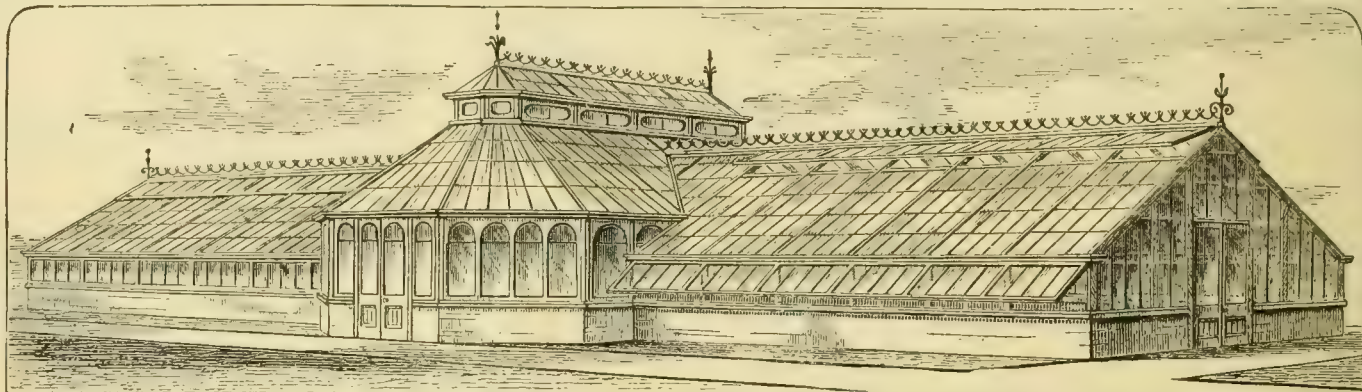
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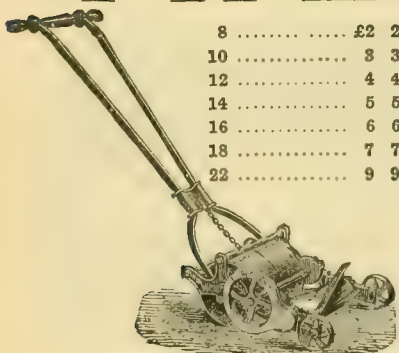
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SATURDAY, APRIL 19, 1879.

CAMELLIAS AND CAMELLIA CULTURE.

(Continued from p. 462.)

THE FLORICULTURE OF THE CAMELLIA.

IT is interesting to trace the progress of the Camellia. It is more than a century ago (1739) that the species *C. japonica*, or single red, was introduced, but it was not till early in the present century that the other species, with several improved varieties, were imported. The beauty of the plants naturally attracted the attention of the cultivator, and awakened in his mind the desire to increase the number and variety of sorts. Probably the first step was to sow the seeds indiscriminately, and to preserve such kinds only as were considered different or more beautiful than their prototypes. Artificial fertilisation was next resorted to, and as the seedlings increased in number and variety no doubt a standard of beauty was set up, to the attainment of which artificial fertilisation was directed. In the *Transactions of the Royal Horticultural Society*, vol. vii., p. 545 (1829), four Camellias are figured, which appear to be all of the Anemone-flowered type. While not wishing to disparage these we should judge that they were selected from the botanist's rather than from the florist's point of view. At that date, indeed (1829), the florist had probably paid but little attention to this plant. Later on we find, by the new varieties introduced, that the "double white" was considered the more desirable type of flower; but even now it would be taking a very narrow view of the value of this plant to exclude the Anemone-flowered kinds.

In our judgment the floriculture of the Camellia admits of at least three types, which we shall describe, with the view of guiding the cultivator in the improvement of varieties:—

1. *The Imbricated Form of Flower.*—Example, Double White. The flowers here should be full, and the petals, whether pointed or round, regularly arranged, thick, smooth, and clear in colour.

2. *The Anemone-flowered.*—Example, Press' Eclipse. The outer petals here should be large, thick, smooth, and well rounded; the centre being made up of a series of small thickly-set petals, leaving a broad margin of the outer petals.

3. *The Large-petalled Kinds.*—Example, Conspicua. The petals here should be few, but large, thick, and smooth.

This is our idea of the three distinct types or strains of flower that are open to development at the hands of the florist. They all belong to *C. japonica*; but if he choose to extend the area for improvement, he may set up separate ideals for the other species, especially *C. reticulata* and *C. Sasanqua*; but these do not at present seem to present so fair a field for the exercise of his ingenuity and skill, or to promise so remunerative a return for his labour.

There are also already in existence some single and semi-double varieties of *C. japonica* which are characterised by the prodigious quantity of flowers they produce, and there is room for improvement here by extending the range and introducing intermediate tints of colour. The cultivator who stands by hard and fast lines might probably look coldly on such kinds, but they have their admirers, and they certainly are gorgeous objects from the wonderful profusion of bloom they produce. The old *Corallina* with its blood-red flowers, and

Tricolor, white flaked with crimson, are examples of these, and few of the more exact flowers produce anything like the effect of these, whether grown in pots or tubs, or planted out in the conservatory.

In writing on the improvement of the Camellia by raising seedlings from artificially-fertilised flowers, while paying first and due regard to the shape, substance, and colours of the flowers, it would be a great mistake to overlook the constitution and habit of the plant. This is unquestionably a point of vital importance, and the improver who does not pay due regard to it only half does his work. However beautiful a flower may be, if the habit of the plant is inelegant or the constitution feeble, the pleasure derived from its cultivation is considerably lessened.

When fertilising artificially with the object of raising improved varieties no flowers should be used except such as are the most perfect of their kind, and on one side or the other the habit should be comely, and the constitution sound.

Proceeding upon these grounds there opens before us almost an unbounded field for the variation and amelioration of the Camellia. Former labourers have but broken up the ground, and the rich harvest they have obtained augurs well for the results of higher and more extended cultivation. To particularise, there is the variety known as Mathotiana, perhaps the finest in flower of all the crimsons, but the habit is unquestionably bad. Lady Hume's Blush, although one of the oldest varieties, is still of unsurpassed loveliness, but is generally, although not always, met with in an unsatisfactory condition; and even the old Double White, which everybody grows, is open to improvement on this ground—it is a long way behind Elegans, for example, in constitution. Those who may engage in raising seedlings should seek to obtain a cross between such kinds, and others of good habit and better constitution. In the present state of the Camellia we may conceive increase of size and substance, higher models of form, an extension of the range of colour, as well as improvement of habit and constitution, and work for the realisation of our conceptions. And in this labour Nature, though abounding in vagaries, is on the whole working with us, or, to put the matter more correctly, we are working with her, and she often encourages us with unlooked-for results, which at once help forward our aims, and surprise and delight us.

What florists call branch-sports are of frequent occurrence among Camellias, and this is a means of improvement which should not be overlooked. It is not yet made clear how these sports are produced, that is to say, it is not within the gardener's power to produce them at will. It would seem, however, that anything which leads the plant out of its natural course—especially an excessively vigorous growth—is favourable to their production. When sports occur they should be scrupulously preserved by inarching or grafting, a process which will be described by-and-bye.

The exactness of form of many varieties of Camellias appeals strongly to the sympathies and taste of the educated florist, and those who take more delight in colour than in form will find here the most varying and delicate shades of white, rose, crimson, &c., and the great substance of the petals presents the eye with a charming solidity of colour scarcely met with in any other group of cultivated plants. *William Paul, F.L.S., F.R.H.S., Paul's Nurseries, Waltham Cross.*

(To be continued.)

New Garden Plants.

ODONTOGLOSSUM PHALÆNOPSIS (*Lind., Rehb. f.*)
var. SOLARE, n. var.

All the varieties of this old species I have seen show a broad disk of purple colour on the lip, now consisting of long stripes, now of a continuous mass, and usually there are very long lines radiating on the basilar side lobes. I have at hand the first inflorescence developed in Europe in Mr. Linden's garden, I believe in 1850 or 1851. There is a good deal of variation, according to the intensity of the purple. The possessors of bright varieties urge the beauty of intensity,

and those who have delicate varieties find delicacy of colours most desirable.

There is now a peculiar variety at hand with a larger flower, the anterior part of the lip very broad, and the basilar portion broad, nearly circular, and in colour yellow, with stripes, all with outward points of purple. One might compare this with those radiating figures intended to represent the sun. This curious variety was sent by Mr. W. Bull. *H. G. Rehb. f.*

ARISTOLOCHIA PROMISSA, *Mast., sp. n.**

To form an idea of this extraordinary plant one must imagine long brownish ropes or stems hanging from trees, and devoid of leaves at the time of flowering. The flowers, which are 3—5 inches long, have the bent, prominently ribbed tube and distended base common to most of the species of the genus, while the limb is divided on one side into three triangular lobes, ending in as many long narrow straps or tails, measuring 12—18 inches in length, and even as much as 24 inches, according to Kalbreyer. In the young state these tails are joined at the edges so as to form a three-sided tube, by-and-bye they become detached one from the other, and each one (according to Mr. Thomson) becomes ultimately split into two. The colour of the flower is described as a dull yellow sprinkled all over with small dull purplish-brown spots. The interior of the flower is provided with the usual fly-catching apparatus, and possibly the long tails may serve as landing-piers for such insects as may be desirable, while who knows that by waving in the wind they may deter the approach of unwelcome visitors? The staminal column has 9—12 anthers. Of the three flowers examined by me one had twelve, the other two nine stamens. The peculiar acumen to the stylar branches is also noteworthy, and recalls the two-lobed appendages of *A. Goldieana*. I have had no opportunity of seeing the fruits or seeds.

My first knowledge of this remarkable species was obtained from the examination, while engaged on a monograph of this genus, of some detached flowers preserved in spirit in the Kew Museum, to which establishment they were sent by Mr. G. Thomson, Victoria, West Africa, with the following memorandum—"Long ropes, numerous tufts of flowers, no leaves.—Jan. 5, 1877." In a letter addressed to Sir Joseph Hooker by Mr. Thomson, and which I have been kindly allowed to inspect, occurs the following passage, descriptive of the habit:—

"The stock near the root is $1\frac{1}{2}$ inch in diameter, soon dividing into 3—4 stems or ropes, which, after warping about tortuously ascend right up and fix themselves in the branches of a tall tree. These ropes are rough, knotted and somewhat gnarled, about $\frac{3}{4}$ inch in diameter, leafless, but sending out at irregular intervals from near the ground, and as far as it can be traced upwards, numerous tufts of flowers, each tuft composed of from 3—5 flowers. The long tails depending from the flowers are at an early stage three in number, but when the flowers open these become divided each into two."

As the specimens were imperfect, I refrained from describing the species, contenting myself with noting its peculiarities. Quite recently, however, Mr. Bentham has kindly drawn my attention to other specimens in the Kew herbarium, collected by Kalbreyer, and communicated by Messrs. Veitch. On seeing these, I at once recognised them as belonging, in all probability, to the same species as that which I had examined two years previously in the museum—a surmise which subsequent comparison has verified, the only material difference being that the dried specimens from Kalbreyer are younger, and therefore smaller than those preserved in spirit. Mr. Kalbreyer, who, it appears, collected the plant at the same time and place as Mr. Thomson, gives a similar account, his note running thus:—

"Climbing shrub 20—25 feet; flowers 2—3 inches through, inside light yellow, brown spotted and with

* *Aristolochia promissa*, Mast., sp. n.—Glaberrima, foliis adultis oblongis vel obovato-oblongis acuminatis basi subcuneatis, 3 nerviis; floribus fasciculatis e ramis nudis orientibus; perianthii refracti tubo obovato basi oblique ventricosos vel subglobosos, limbo late oblongo vel suborbiculato antice in lobos caudiformes longi-simam promissos; staminibus 9—12; lobis stylinis totidem oblongis acuminatis.—Hab. in Afric. trop. Occident. Victoria, Cameroons, ubi legerunt cll. Thomson et Kalbreyer.

Frut. volubilis 20—25 ped. Rami herbacei teretes. Folia distantes. Petioli pollicares, basi incrassati, medio torti. Phylla haud visa. Laminæ membranaceæ 4 poll. long., 2 poll. lat., nervi secundarii remotiusculi arcuati, tertiarii intricate reticulati parum conspicui. Flores flavi purpureo-maculati, 3—5 poll. long. (caudis non inclusis). Perianthii refracti pars inferior ventricosa 1—1½ poll. long., costata intus pilis lanatis obiecta, pars intermedia infundibuliformis intus a parte ventricosa processu membranaceo annulari separata, perianthii limbus diametro 2—3 pollicaris, lobi caudiformes 1—2 pedales, e basi triangulari lineari-loriformes æstivatione ad margines valvatis coherentibus tubum triquetrum efformantes, postea libera, demum (teste G. Thomson) bifida. Columna ½ pollicaris infundibuliformis breviter stipitata. Antheræ 9—12 lineari-oblongæ basin stylorum vix attingente. Styli rami 9—12 oblongi obtusi abrupte acuminati marginibus stigmatosis velutinis eversis. Ovarium et fructus haud vidi.

white hairs, outer side dirty yellow; lower part of the circumference with three [tails], $1\frac{1}{2}$ —2 feet long, brown, no leaves if in flower, these [the leaves] appear much later (March); flowering on the old stem freely almost from the ground to the top. Bush, shade, near the seashore. Cam., Victoria, 1, 77."

The present species seems to belong to the West African group described by Sir J. D. Hooker in *Trans. Linn. Soc.*, vol. xxv. (1865), p. 185, a group consisting of three species, and distinguished from other sections of the genus by the relatively large number of stamens. To this group the noble *A. Goldieana*, figured in our columns in 1867, p. 1143, belongs. The length of the three tail-like processes renders the present species almost as remarkable as the species just named. It is, therefore, satisfactory to learn that the plant is in cultivation with Messrs. Veitch, of Chelsea, though it has not yet flowered. The leaves from a young seedling plant kindly furnished me by those gentlemen are considerably different from those in the dried specimen sent home by Kalbreyer, being suborbicular, deeply cordate at the base, with the basal lobes rounded and very widely divergent. If they really belong to the same species the leaves must alter considerably as the plant becomes older. The habit of flowering from the old wood after the fall of the leaf, is possessed by this in common with some of the Central American species.

Such is the history, so far as we at present know it, of one of the most extraordinary members of an extraordinary genus. Let us hope that Messrs. Veitch may soon be enabled to flower the plant. *M. T. M.*

THE SANDWICH ISLANDS CIBOTIUMS.

(Continued from p. 431.)

CIBOTIUM GLAUCUM, *Hooker and Arnott, Bot. Beech. Voy.* 108; *Hooker, Sp. Fil.* i. 82, t. 29A; *DICKSONIA GLAUCA*, *Smith, Rees' Cycl.* xi.; *Hooker and Baker, Syn. Fil.* 49; *HIATEA, Menzies, MS.* (Fig. 66.)

Arborescent; fronds tripinnate, ovate, glabrous, green above, very glaucous beneath, subcoriaceous; pinnæ ovate, 12—18 inches long, primary pinnules linear-oblong, much acuminate; secondary pinnules sessile, those at the base of primary ones separate, narrow-oblong falcate, subacute, crenate-serrate, those towards the middle slightly connected at the base, those of the apex confluent into a long serrated point, as are the segments at the apex of the frond and pinnæ; veins rather prominent, usually twice forked; sori numerous, closely placed on each margin, commencing at the sinus; involucre horny, glaucous outside, the inner valve longish oblong.

This fine and distinct species has a stem of moderate stoutness and about 2 feet high in the specimens which have come under our notice; 6—8 feet according to Brackenridge; they are clothed at the crown with tawny scales, which are not spreading, but adherent in flakes to the smoothish rachis and stipites. The fronds are ovate, tripinnately divided, the lobes at the base of the primary pinnules being distinctly separate; these basal lobes, moreover, that is the lowest of them, are auricled and more or less inciso-dentate on the side next the rachis of the pinnæ, which they overlap. The pinnæ are broadly ovate, with a smooth rachis. The pinnules are sessile and closely set, the auricles of the broad pinnules overlying the rachis; they are linear-oblong, very much acuminate, about 6 inches long and $\frac{3}{4}$ inch broad, cut into crowded oblong falcate lobes, the lower of which are quite separate, making the frond tripinnately divided, and the upper confluent into a long point toothed at the margin. The fructification is copious on the basal half of the pinnules, and confined also to the lower part of the lobes, the apices of which are sterile. The under-surface is very distinctly glaucous, and the fructification quite characteristic of the genus.

This plant, which was discovered in Oahu, one of the Sandwich Islands, so long since as 1807, by Menzies, was first described by Sir J. E. Smith in *Rees' Cyclopædia*, its distinctness as a genus having been observed by Menzies, and noted under the MS. name of *Hiatea* in his Herbarium. It does not appear to have been found elsewhere during the period which has elapsed since then, though it has been gathered by others, and recently by Mr. Bull's collector in Oahu, our knowledge of it as a garden Fern being derived from plants now growing in Mr. Bull's collection. Brackenridge observes that it is the most graceful and the rarest of the species found in the Sandwich Isles, and describes its stems as rather slender for their height. *T. Moore.*

CIBOTIUM CHAMISSOI, Kaulfuss, *Enum. Fil.* 230, t. 1, fig. 14; *Hooker, Sp. Fil.* i. 83; *DICKSONIA CHAMISSOI*, *Hooker and Baker, Syn. Fil.* 50; *DICKSONIA SPLENDENS*, Desvaux, *Prod.* 318; *PINONIA SPLENDENS*, Gaudichaud, *Ann. Sc. Nat.* iii. 507; *Id. Freycinet's, Voy.* 370, t. 21. (Fig. 67.)

Arborescent; fronds bipinnate, broadly ovate, scarcely subcoriaceous, glossy green on both surfaces, the rachis, costa and under-surface usually clothed with loose furfuraceous hair-scales; pinnæ ovate-lanceolate, the apex acuminate; pinnules linear-oblong with an acuminate crenato-serrate apex, pinnatifid almost to the rachis into blunt oblong subfalcate toothed lobes; veins slightly prominent, usually once forked; sori 3-4 on each margin of the lobes, situated near the sinus; involucre horny, the short inner valve roundish.

This also comes from the Sandwich Islands, whence it has been introduced by Mr. Bull. It has a moderately stout stem or trunk a foot or so in height in Mr. Bull's specimens, but according to Brackenridge attains from 4-6 feet high, the large spreading fronds issuing from a crown of tawny hair-like scales. The stipites and rachides are furnished with appressed cobwebby hair-scales, which are of a more or less deciduous character. The lower pinnæ are deflexed, and the apex of the frond but very little confluent. The larger pinnæ are oblong-lanceolate or ovate-lanceolate, 12-15 inches long, and abruptly narrowed at the apex. The pinnules are crowded, 3-4 inches long, nearly $\frac{3}{4}$ inch wide, all sessile, linear-oblong, divided two-thirds of their depth, or in fertile specimens nearly to the rachis into blunt oblong very slightly falcate lobes, which are toothed in the upper part and very much resemble those of some forms of *Lastrea Filix-mas*. The fronds are green throughout, and the under surface is hair-scaly. The fructifications are crowded near the base of the sinus, 3-6 occupying each margin, the number of sori decreasing towards the apex, which is acuminate and has the lobes represented by crenate teeth. In the specimens we have seen the texture is not coriaceous as described by Mr. Baker, nor even subcoriaceous as noted by Sir W. Hooker, but very much that of an ordinary stoutish herbaceous-fronded Fern. These variations are probably dependent on the climatal conditions under which the several specimens have been developed. *T. Moore.*

THE KNOWEFIELD NURSERIES, CARLISLE.

THE extensive and well-known nurseries of Messrs. Little & Ballantyne, situated within a mile of the beautiful border city and chief town of the picturesque county of Cumberland, are reached from Carlisle by King Street and Scotch Street from the London and North-Western and Midland Railway Stations. The visitor has to pass over the bridge which spans the Eden on the old road leading from Scotland to the South, and in close proximity to the romantic and historical village of Stanwix; and pursuing his course a little further, on the right hand side of the road is the entrance to the Knowefield Nurseries. The railway accommodation is so good (occupying, as it does, a central position in Great Britain, with lines of railway communicating with all parts of the country) that the facilities for carrying on either home or export trade are not surpassed by any other establishment of the kind in the kingdom.

The nurseries, which are something like 150 acres in extent, are favourably situated for the cultivation of all kinds of plants and trees, being on an elevated site, whereby the plants and trees are so hardy and well-rooted, on account of their exposed position and a careful process of planting and transplanting, which is carried out annually, that there is little chance of their suffering in transit to any part of the kingdom.

On entering the nursery gates the visitor is struck with a long well-kept walk (nearly a quarter of a mile in length), belted on either side by a choice selection of ornamental trees and shrubs, which for variety of character and general excellence cannot fail to attract attention. Indeed the arrangement here is so simple in itself as to suggest to intending planters new ideas from the present stereotyped modes of planting, or such modification of them as could, for instance, be effected by employing more frequently a greater number of such trees as form the background of the two highly ornamental borders which lead from the entrance gate of these nurseries to the plant-houses and packing sheds.



FIG. 66.—*CIBOTIUM GLAUCUM*



FIG. 67.—*CIBOTIUM CHAMISSOI*.

What can be done on a large scale, with endless material at command, can also be made applicable on a smaller scale even to the simple clump, with its centre of some choice Maple, Beech, or Oak; or in planting promiscuously by the sides of carriage drives or secluded walks. What a wealth of trees there are, as Mr. Gregg, the intelligent manager, remarked, that might be employed with marked effect in forming shrubby plantations of which the outside gardening world know but little.

Some of the trees in these borders that struck us as being most conspicuous, and which formed the back row on either side, are Weeping Ash and Elms, rare Poplars, the Snake-bark Maple, handsome Fern-leaved Hornbeam, and the evergreen Austrian Oak. Here also is the original plant of Black Oak, which resembles the Copper Beech in colour, but is somewhat darker.

The borders were sloped down from the back to the front by trees and plants varying in height, which were planted in rows, so as to present a chaste and unique effect; the object evidently being to introduce to the visitor as great a number as possible of the choicest trees and shrubs at the least possible trouble and inconvenience. There were fine forms of Hemlock Spruce, the Lucombe Oak, a choice assortment of Abies, Cedars, Cupressus, Cryptomerias (the Japan Cedar), Junipers, Piceas, Retinosporas, Thujas, &c., all tastefully arranged and intermixed with the utmost judgment and care.

At the end of the walk approaching the hothouses Mr. Watts' (the head of the firm) residence is snugly situated, and the pinetum is on the right. Another walk, running at right angles to this, takes the visitor through large squares or breaks of all kinds of forest trees, from the seedling to the half and full-grown specimen ready for sale.

At the corner of the pinetum I noticed a fine well-proportioned plant of *Abies Albertiana* (the Albert Spruce), and the pinetum itself is rich with a choice selection of Coniferous plants, of which the following are a few of the most notable:—*Pinus Balfouriana*, sent home by Jeffrey, and very scarce; *P. pyrenaica*, a handsome specimen of *Picea Lowii*; a nice plant of *Picea grandis*, sent home by Douglas; and a good plant of *Picea concolor violacea*, a new and perfectly hardy kind, of which great hopes are entertained of its being a valuable addition to existing kinds. I also observed some fine plants of *Abies Alcockiana*, silvery on underside of branches, and *Abies Engelmanni glauca*; a fine plant of *Taxus adpressa stricta* (a seedling from *adpressa*), and *Biota orientalis*, which is rather a superior form of Chinese *Arbor-vitæ*, and a nice plant of *Picea amabilis* (true) with a fine leader, a condition which is somewhat difficult to induce in this variety. The above are only a few samples of a choice and healthy collection.

Next in interest to the pinetum comes the stock of Roses, and the herbaceous and alpine garden. Of Roses (which are grown by the thousand to meet an ever-increasing demand) there are over twenty thousand worked annually on the Manetti, to say nothing of those grown on the Brier and on their own roots.

The herbaceous department is well stocked with a healthy and varied assortment of herbaceous and alpine perennials, including *Aubrietias*, *Anemones*, *Anthericums*, *Armerias*, *Campanulas*, *Delphiniums*, *Iris*, *Phloxes*, *Hepaticas*, *Lychnis*, *Iberis*, a fine stock of that invaluable hardy plant, *Primula cortusoides amoena*, *Ranunculus*, *Sedums*, *Saxifrages*, of which several varieties were in flower, including the lovely *oppositifolia* and *alba*.

The nurseries are of course intersected by large Beech hedges for the sake of protection, which divides the grounds into suitable allotments for growing the thousands of ornamental and forest trees which are planted and transplanted annually.

The cultivation of fruit trees, like that of Roses, is one of Messrs. Little & Ballantyne's specialities, there being a space of over thirty acres set apart to their culture, each section being kept in a break by itself, and legibly marked. The stock of Apples, Pears, Plums, &c., is carefully and judiciously selected, the latter being an important feature in the fruit grounds, such varieties as *Victoria* and *Magnum Bonum* being in grand condition.

In this part of the nursery there are also samples of *Ailantus glandulosa* (the Silkworm-tree), double Thorns and Limes, the Corstorphine Sycamore, and a Japanese Umbrella Vine, said to be the finest in the country.

Plantations of old stools of shrubs and fruit trees

are also kept in reserve, in case any particular variety should be sold out or become scarce, so that the stock can be readily increased by layers or cuttings.

Breaks of Rhododendrons, in all the best varieties both for forcing and general purposes, as well as those of a hardier type, down to the common Ponticum, are extensively grown; the choicer kinds being in fine condition, and swarming with flower-buds.

Before describing the contents of the plant-houses, we must notice, a fine specimen of *Thuja Lobbii* in the centre bed of a grass-plot immediately in the front of them, and also some large specimen *Wellingtonias*.

In a detached span-roofed house I noticed the propagating of all sorts of bedding plants and Grape Vines going on briskly, and two other houses were occupied with collections of new and rare Conifere, Tea Roses, and Clematis—the latter being trained on wires up the roof.

The young plants of Conifere appeared to be of the most select type, such as *Cupressus Lawsoniana lutea*, *Retinospora tetragona aurea*, *Cupressus nutkaensis variegata*, *Thuja occidentalis*, and young plants of the purple-leaved Birch.

We next come to three span-roofed plant-houses, No. 1 being a plant-stove filled with Palms and Ferns, comprising Dicksonias, Cyatheas, and a plant of *Phormium tenax variegatum* coming into flower; a nice plant of *Toxicophlea spectabilis*, also coming into flower; and a stock of Gardenias, Crotons, Dracenas, &c., of a suitable size for furnishing; with a highly coloured, if not altogether new form of *Imantophyllum miniatum splendens*.

No. 2 is another span-roofed house filled with a miscellaneous collection of plants, including select varieties of Camellias, Azaleas, Statice, Chorozemas, Primulas, Pelargoniums, and other plants suitable for general nursery stock.

No. 3 is filled with spring-flowering plants, with a nice sample of *Rhododendron Falconeri*, showing a dozen heads of flower; a nice selection of bulbous plants, including the new *Narcissus Empress and Emperor*, *Deutzias*, *Cytisus*, *Cyclamens*, *Azalea mollis*, a collection of Pearson's Zonal Pelargoniums, Lilies of the Valley, and some fine forms of scarlet *Epacris*, useful for cutting purposes, and very showy for conservatory decoration.

The next is a lean-to house in two compartments; the first contains a good collection of *Scolopendrium vulgare crispum*, a grand Fern for pots or vases in rooms; seedling Palms, *Epiphyllums*, &c.; and the second is filled with *Dracenas*, *Anthuriums*, *Campylobotrys refulgens*, *Redia glaucescens*, *Sarracenia alba* and *Drummondii*, and a variety of other nursery stock.

A large number of pits are filled with hardy nursery stock of all descriptions, and the houses are efficiently heated with a Climax boiler, which does its work in first-rate style, and is highly spoken of by Mr. Gregg, the manager.

The sheds and business offices are commodiously situated on the left of the plant-houses; and taken altogether the nurseries are in first-rate order, and the plants, both inside and out, are in admirable condition, considering the ordeal they have had to pass through during the late severe winter. *Visitor*.

EDUCATION OF GARDENERS.

(Continued from p. 464.)

SECONDLY, then, let us touch upon garden education. Most people think that any one can be a practical gardener. No doubt there is some truth in the remark. Any one with ordinary physique can dig, wheel a barrow, plant a few Cabbages, hoe Potatos, weed the ground, and even in some way or other handle a scythe. There is no denying it, that the gardening profession is not one of those where great mechanical ingenuity is requisite—in other words, it is not one of the high-skilled professions, like practical engineering, where each individual man must be skilled before he is qualified to do his part. It has this peculiarity about it, however, that it demands at the head of it men, if not of prescience, at least of clear perception, and knowledge of a great variety of plants in the vegetable kingdom—how and at what time of the year each can be sown or planted so as to reproduce the thing needful at the proper time. No matter whether it be plants, or fruits, or vegetables, what has to be aimed at in all garden education is the production of the thing or things needful at the proper time. That may seem very simple to the uninitiated in these matters, but to

gardeners in general and to young gardeners in particular it is far from being simple or simply acquired—it takes long years of study and intimate acquaintance with the things needed. Before a modicum of success is realised there are many hap-hazard ventures, indeed, unlike every other profession, there is scarcely any arbitrary rule that one would be safe to go by. If we take the vegetable or the fruit garden the climate of our island is so varied that what the apprentice learns as the right and proper thing to do in one garden he may have to unlearn, or at least to modify his calendar in another. If we go even to indoor fruits we find that one man will be exceedingly successful in one locality and, despite all his knowledge and all his attention to details, he may only be third-rate in another locality. There are so many elements operating unseen that baffle practical and even scientific research. It may be a matter of soil (and the general public would think that an impossibility), or it may be the germs of fungi floating about the atmosphere, but whatever it may be together they operate against the success of what has been known as a successful man. And so it is all through. Take flower gardening, or even take plant culture in pots—which is as much within the province and power of the gardener as any given thing in connection with the art—and there are certain localities more favourable for plant development and successful efflorescence than others. If you doubt my statement, why is it that one plant—take an Orchid for instance—will do better in one position of a house than another? Most people that are acquainted with this grotesque family know that if you happen to move say a *Phalenopsis* or a *Disa*, or a miffy-growing *Cattleya*, from one part of a house to another part of even the same house, it may, and does often give way. I do not for one moment assert that it is without our power to prevent this, if we knew exactly the conditions under which the plant lived; but learned as we may be, and attentive as most of us are, these are points which have proved too subtle for our comprehension and judgment, and consequently we cannot cater to avoid it. This is a nice field of study for an ardent and plodding young gardener, and he will be well employed if he occupies his spare time in endeavouring to unravel the somewhat tangled skein. All this goes to prove that gardening, to be learned well, must be learned from the foundation, and it points also to the necessity of change of position from time to time. There are exceptions to every rule we may propound, but we may take it for granted that gardeners, to be well informed in matters practical as well as matters mental, must, after they have been two or three years in one garden, endeavour to get a change—and all the better if a change of locality. This used to be a prime object with most gardeners in this country. The desire was to acquire a variety of knowledge, no matter what the terms of remuneration were. Unhappily, I think, we are drifting in a measure out of that groove, and, so far as I have been able to form an opinion of young men, their chief desire now is wages. I am not here to controvert what we all very well know, that gardeners, as a class, are insufficiently paid—what I have to do with in the meantime is their education after they have once entered upon duties as apprenticed gardeners.

It is no use grumbling at things that are not likely to be greatly altered, and my object is to point out the necessity of the young men in the garden setting themselves diligently and intelligently to the respective tasks in which they may be engaged. I leave entirely out of calculation the class of men that become dissatisfied and wish to get out of the trade—unstable as water, like the rolling stone they gather nothing good, if anything all. I speak of young men that take to the profession, and like it for itself. These are the hopes that we have of keeping it abreast of the times we live in. It is the duty as well as the interest of every young man to be able to do the rough as well as the fine work of the garden, if it were for nothing else than in after life to be able to teach others to do the same. There is very little use for kid-gloved fellows when work has to be done. The natural tendency of mankind is to aspire, and it is a right and proper feeling, but no young man, no foreman, no head gardener, ought to get above his calling; whenever he does so there is sure to be something uncomfortable turning up. Young men particularly ought to be kept to their practical duties. He proves the best disciplinarian of all who has had to rough it, and get some rough handling during the years he was learning his profession. Although young

men may feel the castigation they occasionally get, severe at the time, they have in after-life a very different opinion of Mr. So-and-So who administered it. Of course, some masters may reprimand too severely, but it is a fault in the right direction; because, while the youth's habits are being formed, he is the better for a little stimulus to exertion.

The principle adopted in most large gardens, of young men beginning in the kitchen garden, and afterwards moving into the flower garden, then to the plant, and lastly to the fruit and forcing-houses, is no doubt by far the best for giving a sound practical training. Where a field of that kind presents itself, and the practical student works and thinks, and thinks and works, by the time he has reached the last department he will be a most valuable help to the head gardener. There is so much that can be learned going through this garden curriculum during, say, the half-dozen years which it has taken to master it, that an active thinking fellow will be capacitated for moving to another extensive garden and taking the charge of men, and of leading and guiding them, under the head gardener's orders, to be even as valuable as his chief. It is a pride and pleasure for a head gardener to help on a fellow of this kind. He cannot avoid showing his abilities at everything he touches—he has begun at the A B C of practical gardening, dug and trenched the ground, prepared the soil for cropping in the many ways in which it has to be done where the demands from the cook and housekeeper are sometimes beyond the capacities of our capricious climate, and often beyond the temper of the head gardener who is expected to supply them; he has pruned the fruit trees, and attended generally to their wants; he has had to superintend the stoking of the houses, the keeping up of temperatures, the potting, striking and cleaning of plants; what little propagation has been required he has had a principal hand in; and consequently he is ready to suppose that he has acquired nearly all that may be expected or required of him. Alas! the exigencies of gardening situations demand very much more than all he has learned or is likely to learn for ten years afterwards. Valuable as he no doubt is, he will find out his deficiencies when called upon to enter on an appointment on his own account. That often tries some of our cleverest foremen: they may do excellently so long as they have a head man to fall back upon, and only turn out mediocre when left to themselves. However, as we know, all are not that way.

Again, in going through the practical curriculum some men have a greater taste for one department than another, and consequently their inclinations oscillate towards the furthering of that particular department. Many have an innate love for plants, and nothing could induce them to spend their time among fruit gardens and fruit houses. Their whole sympathies are wrapt up in plant cultivation. It would be quite wrong to send these men to places where fruit forms the chief staple of the gardening art—it would be like putting the round man in the square hole! Moreover, there is no necessity for it, because gardening has become so departmental in these days that men for plants, as well as men for fruit, have become an absolute necessity. If more care were exercised in the selection of men for particular departments—I mean in noblemen's and gentlemen's places—there would be greater general success. To see that exemplified thoroughly, the young man has only to go to a few of the great business establishments now cropping up all over the country, and he would be astonished at the way particular articles of commerce are "done," and the vast amount of stuff which passes through comparatively few hands. This is accomplished by men trained for a particular purpose, who pot plants, for instance, in very much the same style for smartness and dexterity that I have seen a Dutchman making bricks in his own country.

But beyond and above all, the greatest acquirement to be learned after mastering details is the capacity of employing subordinates to do the greatest amount of work at the proper time and in the proper way. No calendar of operations that you or I could write can be made available in the face of the seasons. It may guide and instruct the novice, but every gardener has to adapt his calendar to the particular locality in which he finds himself, else things will only be indifferently done, and the maximum amount of success cannot be realised. Even there is a proper time for doing work under glass, and very often that time is when it is inexpedient to proceed with outdoor labour. Every one must feel that there is many a good hour

and day frittered away in doing things at the wrong time. The young gardener ought to note this, and act upon the principle inculcated, for although he may be clever as a practical gardener, he may not use his men's time—that is to say, when he gets a charge for himself—to the best advantage. *James Anderson.*

(To be continued.)

POTATO PLANTING MACHINE.

At Bagshot Park, the new residence of the Duke of Connaught, the Potato planter invented and manufactured by Messrs. G. W. Murray & Co., Banff Foundry, Scotland, was recently put to work in the presence of a number of experienced gentlemen of the district, and did its work in a most satisfactory manner. One of the most important features in this machine is its simplicity. There is a round hopper placed upon two wheels, from the axle of which an endless chain formed of a series of cups passes up through the hopper, each cup taking a Potato as it passes through. The blanks and doubles were found not to exceed two in 100, and sometimes were as low as four in 300. The form of the cup in a great measure accounts for its success, particularly a peculiarly-formed joint in the bottom of every cup, whereby a tongue rises in the bottom of the cup at every turn, thereby emptying it of any dirt or clay which might tend to make a

it will be found covered with purely single blossoms, in which form it is singularly pleasing. A short time since we saw this in several Kentish cottage gardens, and though planted similarly with the double variety, it yet retained its single character. In all probability but one sport appeared in a locality, then it followed plants of it were begged as soon as it had increased, as country people are often ready to give; and in this manner it has become distributed about in the gardens of a particular district.

The white, lilac and yellow double Primroses are much grown round London (the former especially) for market purposes. They are planted out in beds between Currant and Gooseberry bushes, and underneath the boughs of tall standard Apple, Pear, and Plum trees. Here, during the heat of summer, the plants are cool and moist, and do not lose their leaves as when fully exposed to the sun. Hundreds of these plants are purchased every spring and planted out in an unskilful manner in improper soil, where they soon die. It is then said they are of delicate constitution, which is not true, the main reason of decay being they are not put into the kind of soil in which there is reasonable hope of success.

The double purple and the double rose or salmon are both strong growers, producing large full flowers of attractive hues of colour: but while the former is very free of bloom, the latter flowers very sparingly. The former are the most abundant, but they are not often seen in gardens. The double blush is an exceed-

very fine form, producing large full flowers, but it is of delicate habit and very scarce. It is running too great a risk to expose this in the open ground unless under peculiarly favourable circumstances. The fine double variety in the hands of Messrs. James Veitch & Sons promises to be a decided improvement in the matter of constitution, as well as being quite distinct.

Recently there has been introduced to English gardens from the Continent a pretty pale mauve-coloured double Primrose under the name of Arthur Dumoulin. This throws up blossoms on single stems and also on a scape; it is very bright and effective in appearance, and well worthy cultivation. It has a glaucous dark green foliage, quite distinct in character. A variety received under the name of platypetalum flore-pleno (if true to character) does not differ from the foregoing either in flower or foliage. A third, bearing the name of Mazarelle flore-pleno has pinkish-lilac flowers, not so full and of such good form as our ordinary double Primroses, but yet pretty and distinct. It also takes the Polyanthus form in flowering. A Continental variety, named Arthur de Smet, has a good reputation, but I have not yet succeeded in blooming it.

Any one desirous of finding pleasant occupation in plant growing would do well to turn his attention to the double Primroses, cultivating them in pots, and giving them when requisite the accommodation of a cold frame. I have at the present moment plants of the double purple, late yellow, crimson-purple, crimson, and others, flowering nicely, and bearing large and fully developed flowers in quite small pots, growing in a good vegetable compost. It would be risking such charming flowers too much during the prevalence of such wintry weather to expose them in the open air. They are growing in a cold frame where they are simply screened from stress of weather, while fully exposed when it is at all fine. In a compost made up of a fibry yellow loam, plenty of leaf-mould, and some powdered charcoal to keep it open, these Primroses do well, taking care not to over-pot them, and not to allow them to become over-dry at the roots. In the summer they are plunged in cocoa fibre in a shady moist place, and in October they are divided and potted up for the succeeding season's blooming. It is well not to be too hasty in dividing the roots (which is the means of increasing the stock) till the plants are well established and quite strong, and the offsets fairly well-rooted. *R. D.*

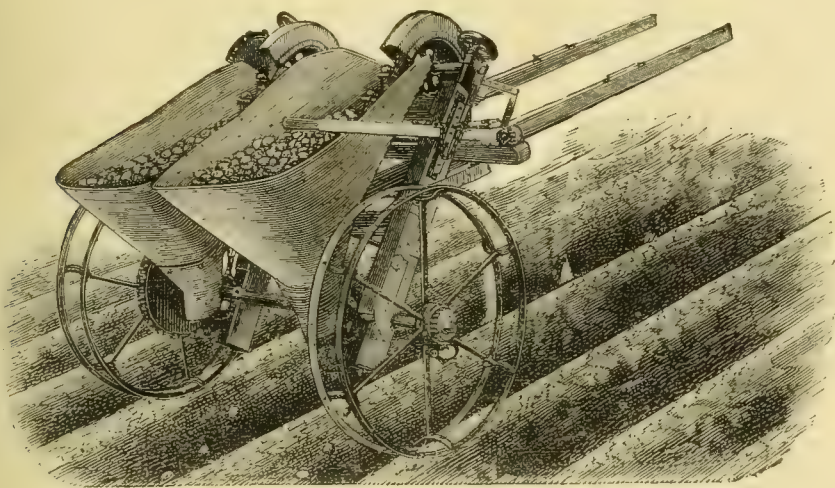


FIG. 68.—MESSRS. MURRAY AND FERGUSON'S PATENT POTATO PLANTER.

THE OMBU.

THIS is the name of a tree belonging to a genus better known to most of us by its herbaceous species. It is the *Phytolacca dioica*, or *Pircunia dioica*, a tree as remarkable in its way as the Baobab, because it is characteristic of a certain region. We are reminded of it by Dr. David Christison's "Notes on the Botany of Uruguay," reprinted from the *Transactions of the Botanical Society of Edinburgh*. Dr. Christison went to Uruguay, or Banda Oriental, as it is there called, to recruit his health, and having an opportunity of visiting the interior, he did what he could to investigate the flora, but being no botanist he was at some disadvantage. He, however, collected and dried plants, made notes, and so on, and has since had his specimens determined. The Ombu particularly attracted his attention on account of its size and other characters, in a country essentially treeless. He gives a view, showing the character of this tree both as to its mode of growth and its habitat. It does not attain a great height, but it forms an enormous stout, though short trunk, from the base of which huge buttresses proceed, which often run out several yards, standing 1 to 2 feet from the ground, and being flat-topped they might be used as seats. Above the buttresses the trunk is constricted, but soon again expands, where it divides into a number of branches, which form the spreading shady head. Dr. Christison measured one tree, which was 32 feet in girth around the smallest part of the trunk. The wood, like that of the Baobab, is exceedingly soft and spongy, and practically useless; hence, as Dr. Christison hints, this is a good tree to plant for shade in a country where trees are almost wanting, because there would be no temptation to cut it down for its timber. There has always been some doubt as to where this tree is really indigenous, arising from the fact that it has long been planted in warm countries, and is now found in the most distant parts of the world. It was believed to be a native of some

DOUBLE PRIMROSES.

IN many cottage and other gardens the double lilac, the double white, and the early flowering double sulphur Primroses are very pretty just now, blooming with great freedom in established clumps. The double lilac is perhaps the most hardy as also the most commonly grown, and it is greatly serviceable in that it supplies in spring a very pretty tint of lilac not common at that period of the year. In passing along country lanes with cottage gardens on either side, we have this season seen very fine clumps of the double lilac Primrose standing out from all other spring flowering plants because of the peculiarly pleasing tint they display. Sometimes the variety will throw single flowers. Here and there a plant of

ingly pretty variety, and though in all probability a sport from the double white, is yet in its true form of very delicate constitution, and requires to be cultivated with great care in pots. It should indeed be always cultivated in this way, having the advantage of a cold frame for protection from wet in winter and heat in summer.

The crimson-purple approaches the Polyanthus in character, inasmuch as the larger part of its flowers are thrown up as a truss on a scape, but with longer flower-stems than generally appear on the truss of a Polyanthus. It is a very free-flowering variety, and well suited for cultivation in pots or in the open borders. It is on the whole a good grower, and a useful decorative plant.

There yet remains the rich old double crimson, the king of the double Primroses, because of its large full flowers and rich ruby-crimson colour. It is not easy to cultivate in the open air, though in the North and Midland districts it will do well; the great danger is, that when planted out, the plants will rot off just below the leaves, resulting in loss. It is best to cultivate it in pots in a soil composed largely of loam and leaf-mould, and giving it accommodation in a cold frame. Probably it has no inherent defect in the way of weakness of constitution, but it has been propagated severely to obtain a stock of it, and this, as is well known, will cause weakness in plants. An assumed variety, known as Madame de Pompadour, does not appear to differ from the ordinary double crimson.

I have already alluded to the early sulphur-yellow double Primrose. The late, or Giant Yellow, is a

part of eastern subtropical South America. On this point Dr. Christison says: "Unlike Buenos Ayres, Uruguay can undoubtedly boast of possessing Ombus in the open country, but they are extremely rare." They are so rare, indeed, that he thinks they may have been planted. With regard to what he says of Buenos Ayres, Dr. Christison must be in error, if we can place any dependence on Tweedie's labels. Tweedie traversed Buenos Ayres, and collected upwards of a thousand species of plants, and we find three of his labels accompanying specimens of the Ombu in Kew herbarium. One runs thus, "The only large tree peculiar to Buenos Ayres;" a second, "The only large tree-peculiar to the plains of Buenos Ayres;" and a third, "This is the largest tree peculiar to Buenos Ayres, standing solitary all over the pampas, and there useful as landmarks for conducting travellers through the trackless plains, as also as shade or shelter for the Guachos' ranchos." From this it might reasonably be inferred that the Ombu was by no means rare in Buenos Ayres some forty years ago, when Tweedie was there, though it grew in solitary specimens, as observed by Dr. Christison in Uruguay. It might also almost be assumed that it was really indigenous. It is barely possible that the natives planted for shade, or for landmarks or both. At any rate it is not the only instance by a great many of trees growing singly, instead of gregariously. The Ombu was long ago introduced into south-western Europe by the Portuguese and Spaniards, and it is there called *Bellasombra*, in allusion to the grateful shade it affords. In Seville, it is stated, there are avenues of this tree [And at Nice. Eds.], and large specimens of it are met with here and there in the neighbourhood of Lisbon. It is also common in the gardens of Gibraltar. The leaves are very much like those of a Poplar, but in habit and foliage, Sir Joseph Hooker says, it approaches most closely to the Mango. This Ombu has been introduced into some of the Atlantic Islands, North Africa, East Indies, New Grenada, &c., from all of which countries there are specimens in Kew herbarium. It is curious that no figure of it exists except in L'Heritier's *Stirpes Novæ*, &c., especially as it has been in cultivation in this country. *W. B. Hemsley.*

Notices of Books.

Les Maladies des Plantes Cultivées. (The Diseases of Cultivated Plants.) By A. d'Arbois de Jubainville and Julien Vesque. Paris: Rothschild.

This is a small book written by a sub-inspector of forests and a botanist whose recent work has been of great promise. We therefore turned to it in the full expectation of finding a valuable treatise on the diseases of plants, but our expectations have hardly been realised, as the account of the several diseases is for the most part very meagre. Here, for instance, is all that is said about the dropping of flowers-buds:—"This accident, the source of such frequent regret to gardeners, is caused by a too great amount of dryness (of the soil), even momentarily. Camellias are very subject to it in winter time." The sections relating to Cryptogamic parasites are, it is true, treated with a little more fulness and with greater apparent knowledge, though even in the case of the Potato disease the matter is disposed of very briefly, and the relations of the fungus to the "curl," which we take to be the "Frisolée," or "Maladie frisée" of the volume, are not alluded to in any way. The peculiar excrescences on the leaves and roots of the Vine, caused by the Phylloxera, are wholly passed over; nor have we discovered any mention of the clubbing of Cabbages or the "finger-and-toe" of Turnips. The table of contents and index are very full, which is a great advantage. Some extracts from the former will show the nature of the book, and the manner in which it is compiled. The diseases to which plants are subject are arranged according as they are caused by unfavourable states of the soil, or of the atmosphere, by wounds, by parasites, and by various miscellaneous causes. This is no doubt a philosophical arrangement, proceeding from cause to effect; but for practical use and the instruction of students it is better to proceed inductively from effect to cause. Several illustrations are given, and some half-dozen coloured plates. The appearance of this little book does but make us the more regret that our excellent friend Mr. Berkeley did not recast the valuable articles on vegetable pathology with which he enriched our volumes for a space of two or three years. If these articles even now were recast and brought up to date, they would form a body of information on the diseases of plants which would be without rival amid similar publications.

Traité de Botanique Élémentaire. By Dr. Léon Soubeiran. Paris: Rothschild.

Another small treatise, compiled for the use of the student of pharmacy. The first portion comprises a summary of structural botany, while the latter portion is devoted to the natural orders, and to such genera especially as are of importance to the druggist. Physiological botany is entirely omitted, a rather serious defect, considering the class of persons for whom the book is specially intended.

Éléments de Matière Médicale. By Dr. J. Léon Soubeiran. Paris: Rothschild.

A condensed account of the plants yielding the principal medicinal substances and of the drugs themselves. The arrangement is according to the use to which the substance is put; thus we have, first, fibrous materials, then starches, sugars, gums, and substances containing them, fatty substances, resins, peppers, tonics, and so forth. A large number of woodcuts is given, and one excellent feature of the work is to be found in the elaborate table of contents and index. Original treatment is not to be expected in such a book, which is meant simply as a students' compendium, and as such it seems likely to be very serviceable.

Garden Operations.

FLOWER GARDEN, ETC.

All operations upon which the general keeping and finished appearance of the dressed grounds depend should now be prosecuted without delay. Mowing, of course, has commenced, and must now be carried on constantly; but mowing alone does not give the requisite appearance of finish, many other apparently minor operations must have an equal amount of attention, amongst which one of the most important is attention to the state of the edgings of walks, borders, and beds, which in their several varieties should be examined and put into a proper condition at once, whether they are composed of Box or grass or ornamental tiles, for even ornamental terra-cotta or composite edgings will be found to be dislodged and in some instances broken by the action of the frost. Box edgings may be repaired and blanks filled up with spare plants, or, if very much broken up, a better plan is to take all up and replant, for which it is not yet too late, but soon will be. It is, however, on the state of the grass edges generally that so much of a neat appearance depends, and these should all be now very carefully cut with a sharp half-moon, and all irregularities both on the surface and in the edges be put to rights. The gravel on the walks should also be regulated for the season, by turning over if it will bear it, if not by a loosening of the surface and the addition of fresh material. Look also to the gratings and pockets of the drains, and see that they are in proper working order, after which frequent rolling will keep all in condition. Those troublesome weeds, Daisies and the narrow-leaved Plantain, should now be eradicated from the lawns, and where there are bare places or a want of vigour in the grass a good dressing of compost should be applied: one consisting of thoroughly decayed manure, leaf-mould, and wood-ashes is very suitable. This should all be passed through a sieve or riddle with a mesh not larger than half an inch. After spreading it over the surface a fine-toothed rake will distribute it more equally. Fine lawn grass seed in which there is a large proportion of white Dutch Clover should then be scattered broadcast over the whole and the roll passed over it in two directions at least, and frequently afterwards, to keep the ground solid, as sparrows and chaffinches are very fond of picking it over and scratching the surface, for which frequent rolling is the most available remedy.

A fall of 7 inches of snow on the night preceding Easter Sunday will have contributed very much to retard the work of digging up the borders in the shrubbery, but the advance of the season and the pressure of other work warns us that there should be no delay in bringing all such work to a close as soon as possible. Fortunately the season is a late one, and we have been spared at least a fortnight's mowing owing to the late growth of the grass. The same conditions of weather will probably also have had an influence upon the sowing of hardy annuals, which, however, should be completed as soon as possible; the value of having sown early in pots so as to be ready to plant out will now be appreciated, as they will prevent there being a great blank in the early part of the flowering season. The sowings of tender annuals must be looked to, and plenty of air admitted as soon as they are above-ground, to prevent them from drawing up weakly. Beds with a gentle bottom-heat must be prepared at once on which to prick out such as require it, these may also be used for the later struck cuttings of Lobelias as well as for seedlings, and are also suitable for the strengthening of Verbena cuttings and for seedling Golden Pyrethrum. The different varieties of ornamental grasses, so useful for cutting purposes during the summer to mix with flowers, should be sown rather thinly in some retired place where they

are to stand. The beds of Calceolaria Golden Gem and aurea floribunda should now at once be planted, the beds being prepared as formerly recommended, by placing a layer of decomposed manure 6 inches from the surface, and after planting them, say 10 inches apart, row from row and plant from plant, the surface between the plants must be covered with well-rotted manure; a cool bottom is essential to guard against the effects of a powerful sun, and practice should be directed to its attainment without resorting to deluges of water on the surface. There is, however, another enemy to be guarded against, and that is a very common brown grub about an inch long which nestles among the roots and soon destroys the plant; these should be diligently searched for whenever the soil is moved about. Starlings and blackbirds are great enemies to them, and often commit desperate ravages on the beds of spring flowering plants in order to reach them. Gladioli of the different varieties should be planted at once; *G. brechenleyensis* should be largely distributed amongst the beds and mixed borders, *Lilium auratum* also should be freely planted in sheltered warm nooks open to the sun with a good background; these form a noble feature in the autumn, and the colours come finer than under glass. Reserves of Pansies, Pinks, Carnations, and Cloves should be planted at once. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

Another spell of wintry weather necessitates increased energy and watchfulness in the protection of fruit tree blossoms, and the maxim of "What is worth doing at all is worth doing well," was seldom more applicable to any subject than it is to this at the present season, for with severe frost at night, and cutting winds and blinding snowstorms at frequent intervals or continuously, ordinary covering is not sufficient. In these circumstances it will be well to be provided with an extra amount of covering material, so that an additional quantity can be used when the state of the weather warrants it, but in case of a sudden return to ordinary mild weather this extra covering had better be removed without delay or it may do more harm than good. Pear blossoms have now cast off the hard brown coat which shields them so well as long as it remains on, and thus have become more liable to damage from inclement weather. The buds, however, are so unusually numerous, that if only one in a hundred escapes there may be a crop of fruit in due time. Apricots are dropping their petals, and are looking strong and well. They should not be disbudded too freely until the fruit is pretty well sheltered by the young foliage, which will be in a few weeks hence. In the meantime it will be enough to rub off a few of the most awkwardly-placed buds, and to thin out the remainder by slow degrees. Peaches and Nectarines are in full bloom, and are also claiming attention in the way of disbudding. It is best to go over the trees several times, taking off those buds growing in front of and behind the branches first, and afterwards to so thin out and regulate the remainder as to secure an even growth. Guard against doing too much at once to any individual tree, but rather go over the lot frequently, doing a little at a time, as advised for Apricots, until the time comes for the final thinning. The dead leaves on Strawberry plants are a natural and therefore an excellent protection to both root and top, and should never be removed too soon for the mere sake of appearances. There should, however, be no danger in cutting them off now, after which the ground between the rows may be cleaned either with the hoe and rake or by shallow lligging. Many good cultivators object to digging among Strawberries, but in this weedy climate we find it necessary to shallow-dig or shovel over the surface to keep the weeds down, otherwise the latter soon form a close sward that defies the hoe and rake. The fruit-room being now pretty nearly cleared of fruit an early opportunity should be taken of removing all tainted paper and packing material, following up with a thorough cleaning of shelves, racks, and drawers, so as to put the place into sweet wholesome condition. Packing boxes, too, require similar attention, as they are not exempt from becoming tainted. *F. Harrison Knowlesley.*

FRUIT HOUSES.

VINES.—To keep the stock of late Grapes in good condition until new ones are ripe, the bunches will require looking over two or three times a week. Remove all bottles from which Grapes have been cut, have them thoroughly cleansed, refill with sweet soft water, to which a small piece of charcoal may be added, and transfer the remainder of the bunches to them before the old wood begins to make roots into the impure sediment. Keep the room dark, well ventilated, but not open to varying currents, and as cool as possible. When the Grapes in the early house show signs of colouring, a somewhat drier atmosphere with increased ventilation will favour the process, but floors, mulching, and all available spaces must be kept thoroughly moistened as a means of

keeping the foliage healthy, without which good Grapes cannot be expected. Where red-spider has been fostered by the hard forcing of the past season lose no time in applying the usual remedy, and see that the inside borders do not want for good supplies of generous tepid liquid manure. Let all watering be performed early in the day, and ventilate freely to allow surplus moisture to escape before the air is reduced in the afternoon. To colour and finish off a full crop of Grapes this season will severely tax the energies of the strongest Vines, we shall therefore do well to guard against trying to make them perform their work in too short a time, as undue haste is sure to end in want of colour—a defect that might often be avoided by giving liberal supplies of dry, warm air, combined with low night temperatures. Mid-season and late houses are now making rapid growth. Keep the daily routine well under hand, and on no account allow the tedious operation of thinning to fall into arrears. Supply all inside borders with tepid liquid in abundance, and a few degrees warmer than the house. Close with a brisk sun-heat, and dispense with fire-heat as much as possible. Where new borders have to be made for planting this spring they should be ready for the Vines by the end of this month. Plant inside if possible. Let the borders be 2 feet 6 inches deep and 3 feet wide to start with. Spread the roots well on the surface; cover with 6 inches of soil, and give a gentle watering with water at a temperature of 90°. Shift young Vines into fruiting-pots as they become ready, using a rough compost and plenty of clean crocks. Pot firmly, and endeavour to secure short-jointed wood by training near the glass. Shade slightly for a few days until the roots begin to move, when they may have full exposure to sun and light. *W. Coleman.*

PEACHES AND NECTARINES.—The weather of the past eight days having again assumed a most wintry character forcing is still kept in abeyance, as it is worse than useless trying to hurry Peaches that have been started and stoned under the most unfavourable conditions within my recollection. In the early house the completion of the stoning process will still render a low steady temperature necessary, the more so as we have to contend with a sunless sky combined with keen frosty north-east winds. Pay particular attention to the syringing of the trees, using clean soft water twice a day, and see that every part of the foliage and old wood is thoroughly washed; keep the roots well mulched and fed with stimulating liquid, as Peaches in a growing state on drained borders can hardly receive too much water. Regulate the even flow of sap by stopping all gross shoots before they have time to draw the supply from the weakest parts of the trees. Allow leading shoots, particularly in young trees, to run over uncovered parts of the trellis, and pinch out the points when the fruit begins to take the last swelling, at the same time turn or tie aside any leaves that are likely to shade or otherwise interfere with the colouring or ripening of the fruit. Attend to the trees in succession-houses and make more free with the thinning of the fruit before it becomes large, as clean healthy trees after this season seldom cast their fruit to any injurious extent. Wage incessant war with spider, which after the application of so much fire-heat may be expected to be very troublesome, and fumigate with tobacco-paper on the appearance of green or brown aphids: the first of these is easily exterminated, but the latter, which often follows the formation of new borders, becomes a very troublesome pest if allowed to get a firm hold of the trees. Of the many insecticides that will kill it there is perhaps nothing better than good tobacco-water, into which the points of the shoots should be dipped three or four times at intervals of a few days. *W. Coleman, Eastnor.*

MELONS.—The sudden inroad of another Canadian winter has again rendered sharp firing absolutely necessary in order to maintain a moderately high temperature; therefore a corresponding amount of atmospheric moisture must be thrown off in order to counteract the parching influence of the highly-heated hot-water pipes and to ensure a genial and growing atmosphere, to produce which the evaporating pans must be kept filled with water and the house damped as often as circumstances may require it; but, however, an over-humid atmosphere must be avoided. Where the winter-bearing Cucumber plants can be dispensed with, the house should be thoroughly cleansed—the brickwork well washed with hot lime, the glass with clean water, and the woodwork with soft-soap and warm water, and the whole made clean and sweet for the reception of Melons. The soil should consist of good turfy loam, if obtainable, with an admixture of lime rubble and road-scrappings; and should the loam be of a heavy and adhesive nature sufficient charcoal may be added to render the whole porous; this should be got into the house a few days previous to planting so that it may become warm. Add some more soil to the hillocks in successional houses, pits, and frames as they may require it, *i.e.*, when the roots begin to push through the soil,

Plants now in flower should be impregnated in the middle of the day, when the pollen is dry—all the expanded female blossoms should be done at the same time in order to secure an equal set, so that the fruit left, which should be regularly distributed over the principal shoots of each individual plant, may swell together, and thus produce a batch of fruit of uniform size. Let the stopping, tying, and thinning of the shoots, ventilation, and other cultural points be attended to as occasion may arise. *H. W. Ward.*

CUCUMBERS.—The time of year has now arrived when Cucumbers have become plentiful in most establishments in which they are grown. The chief object in this department will now be to maintain a good and regular supply of fruit throughout the season, which can be easily achieved by attending to the necessary stopping, thinning, and judicious cropping of the plants, with an occasional top-dressing during the season, and plenty of water to the roots when necessary. The plants and house should also be syringed twice a day on bright days, and air given freely on all favourable occasions, avoiding cutting winds, which will cause the plants to make a good sturdy and consolidated growth. As a matter of course, the plants must be kept free of insect life; and should the stems become at all affected with canker, which is sometimes the case, apply dry soot and lime to the parts so affected, which will be the means of arresting any further progress of the disease. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

The dull sunless weather we have had during the greater part of the present season, accompanied by a low degree of temperature necessitating the almost continual use of fires, has caused the leaves of stove plants to be of thinner texture than usual, and consequently less able to bear sudden atmospheric changes or outbursts of sun, which being the case, much watchfulness and care will be required to see that the shades are run down in time, and that the pathways, the parts under the stage, and other available surfaces are kept well damped down that the air may not lack the degree of moisture essential to enable the foliage to stand without flagging or showing the least signs of distress. Nothing brings this unsatisfactory state of things about so quickly as to have heat in the pipes during bright sunny days, as in order to keep the thermometer from running up to too great a height the ventilators are thrown open, and this at once brings about such a rapid motion that few plants can endure. After mid-day, when the houses are closed, a little artificial heat is a great help, as with a good syringing such an atmosphere may be formed as will be highly favourable to a healthy and rapid growth. April of all others appears the month when aphids and other insect pests come into existence and do the most damage if not stopped, and especially is this the case with the former, as they insinuate themselves amongst the points of the tender shoots and cripple the leaves without being observed. This applies more particularly to young stuff that is being grown on for winter flowering, such as *Sericographis*, *Thyracanthus*, *Euphorbias*, *Justicias*, *Eranthemum*, *Plumbago*, &c., which checked now are thrown back for sometime. Even if they are apparently clean, it is advisable to give a whiff of smoke occasionally, as where there are creepers on the roof they are often lurking there before they get on to the occupants beneath. The beautiful *Bougainvillea speciosa* is very liable to them, but in fumigating a house with this plant in, great caution is necessary, for if an overdose be given at this early stage it may cause it to throw off the whole of the leaf bracts and thus cut short its beauty at once. The safest way is to choose a still evening and give a little then, repeating the same in the morning, and so on again till the work is complete. Where *Gardenias* are required for early blooming, it is now high time to go over them and shorten the branches back a bit, that they make their growth betimes, as much of the success in getting these to flower freely depends on having the wood thoroughly mature by the autumn. I never saw these useful plants better managed than they were at Bowood some twenty-seven years ago, where, after being pruned in, repotted, and encouraged to make all the growth they could by being kept in a deep pit plunged in fermenting material, they were kept cold during August and September by having the lights withdrawn during the day, which gave them such a rest, and so hardened the fresh shoots as to cause them to bristle with buds, and the leaves to assume that dark rich shining hue which betokens good health.

GREENHOUSES.—Camellias will now be fast going out of flower, and although such hardy, enduring plants, none are more benefited by a little artificial heat at this season than they are. If placed in a close, moist atmosphere, and heavily syringed every afternoon, old cut-back stumps, if at all healthy at the root, break with a vigour that is truly surprising. Any one therefore having specimens getting too large need not hesitate to use the knife freely, for all they have to do

after is to stand them somewhere so that they can be kept well shaded, and enjoy the above-mentioned conditions. It should be borne in mind, however, that plants divested of so much of their head and foliage will not take anything like the quantity of water they need when they have their full leafage, as then there is much more evaporating surface to take it up and carry it off. So long as the soil is just moist that is quite sufficient, and the heavy syringings to which the plants ought to be subjected will maintain it in this condition till the growth gets more advanced. Cultivators of Camellias differ very much in opinion as to the proper time to repot, some being in favour of doing it now, and others after the buds are set; but as root and top always work together, I hold that the best time to do it is before the young shoots start, as then they are greatly assisted in their progress. Not only is this so, but later on there is a risk of causing the buds to shed through the disturbance the plants undergo, which is escaped by taking them in hand earlier. I would therefore recommend potting at once, in doing which as much of the old ball should be worked away as can fairly be done by means of a sharp-pointed stick without breaking or damaging the roots. Being such moisture-loving subjects, it is highly important that they have efficient drainage to carry off the water as it passes through, otherwise the soil soon becomes sour and inert. Fresh turfy loam, with plenty of fibre and no admixture whatever, is best for Camellias, and if this is chopped up and used somewhat rough, they will revel in it for years. *J. Sheppard.*

JOHN FROST.

(WEE MIMA'S PRATTLE.)

O, MITHER, John Frost cam' here yestreen,
And ower a' the garden he's been;

He's on the Kail-stocks,

And my twa printed frocks

That Mary left out i' the green yestreen,
John Frost faund them oot i' the green,

An' he's been on the trees, the auld loon!

And heaps o' broun leaves shaken doon;

He's been fleein' a' nicht,

Frae the dark tae the licht,

And he's missed nae a house i' the toon, the auld loon!

He's missed nae a house i' the toon.

And, mither, he's killed every flee—

No ane on the wa's you'll noo see;

On the windows there's nane,

For the last leevin' ane

Fell doon frae the rape in oor tea—

Jist drappit doon dee'd in oor tea.

And, mither, the paith's frosted a';

If ye gang the least fast ye'll jist fa'!

Oh ye ne'er saw sic fun—

I got ae' curran' bun,

And wee Annie Eadie got twa—

She jist slid the least and got twa.

And my granny hir e'en couldna close,

For she said hir auld bluid it jist froze:

He cam' in b'low the claes,

And he nipit her tae,

And's maist ta'en awa Johnny's nose:

Sure he couldna dae wantin' his nose!

And my uncle was chatterin' tae death,

And John Frost wouldna let him get breath;

And the fire wouldna heat

Uncle's twa starvin' feet

Till the soles o' his socks were birstled and broun,

And the reek comin' oot o' them baith.

But what brings John Frost here awa,

Wi' his frost an' his cranrach an' snaw?

It's a bonnie like thing—

He jist wauks his lang wind,

And a' oor wee flowers flee awa',

Roses and Dahlias an' a'.

And, mither, he gangs through the street,

Jist lookin' for weans wi' bare feet,

And he nips at their heels,

And the skin aff them peels,

And he thinks it fine fun when they greet—

He jist nips the mair when they greet.

Wi' his capers the folk shouldna thole:

Ay, ye ken he jist breathed through a hole

Whaur a wee lassie lay,

An' she dee'd the next day;

An' they laid her doon i' the kirk-hole—

They covered her i' the kirk-hole.

But guess what my auntie telt me!

She says that wee bairns, when they dee,

Flee awa' ower the moon,

And need nae claes or shoon—

Tae a place whaur John Frost daurna be—

Tae a place whaur John Frost I'll ne'er see!

J. Donovan.

THE

Gardeners' Chronicle.

SATURDAY, APRIL 19, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

| | | |
|------------|----------|---|
| SUNDAY, | April 20 | { Exhibition of the Royal Flora Society of Brussels (three days). |
| MONDAY, | April 21 | { Sale of Orchids and Lilies, at Stevens' Rooms. |
| TUESDAY, | April 22 | { Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; and Scientific Committee, at 1 P.M.; and National Aurocula Society's Show. |
| WEDNESDAY, | April 23 | { Royal Botanic Society's Spring Show. |
| THURSDAY, | April 24 | { Sale of Imported Orchids, at Stevens' Rooms. |
| SATURDAY, | April 26 | { Sale of Plants at Lewisham, by Stevens. |

THERE are few places of any extent but have SHRUBBERY BORDERS OR WOODLAND WALKS, or other semi-wild places, as portions of the grounds, which, though not affording much interest or enjoyment in their present unkempt shape, might be made to yield a considerable amount of both were only suitable plants freely introduced, and a little of the rubbish cleared away to make room for them. In such situations they grow in all their natural beauty and look far better than when under restraint with sticks and ties used for their support, as is generally done when under cultivation, in order to give a more tidy appearance. There are many plants, too, that would not be considered appropriate in dressed grounds but which, emerging from the grass in woodland glades, appear quite at home, as for instance, the Foxglove, some of which since they have been taken in hand are so much improved as to bear flowers in size and markings almost equal to Gloxinias. Started fairly, they are plants which, when once established, will take care of themselves, as they seed freely and will grow even in the poorest of soils, although like most things they succeed better and last in bloom longer when their roots are well fed. Raised now they will be fine and strong for planting out in the autumn, and as they then get well hold before winter, they send up towering spikes the year following that last a long time in perfection.

Next to these in point of merit are the Columbines, not exactly the newer forms of recent introduction, most of which are too tender or not sufficiently robust to cope with difficulties, but some of the old-fashioned sorts or seedlings with a dash of the fresh blood in them, as such as these seed about and become naturalised, and soon afford an immense variety of shapes and colours that are always pleasing to look at. Then again, there are the lovely Myosotes, all of which are favourites, especially *M. dissitiflora*, which always attracts notice, and commands such a large share of admiration wherever it may be growing. As it is fond of moisture, and is of a partially shade-loving nature, it does best near running water, where it can have a little shelter from spring frosts and cold cutting winds, it is therefore a plant particularly adapted for situations like either of those above adverted to. Where these suit, it seeds and comes up freely, forming fine masses that cover the ground and clothe it with beauty.

Such places would be very incomplete without Primroses, the plants *par excellence* for retreats of that kind, and since attention has been turned to these homely yet popular flowers we can have them in many varied shades of colour, which when seen growing in masses set the ground all aglow with their beauty. Polyanthus associate well with them, and are even more sturdy and tenacious of life, so that they will hold their own amongst grass or weeds on banks if they have only suitable soil containing a sufficiency of moisture. Primroses and Polyanthus are plants that delight in yellow loam, rather inclined to be heavy than otherwise, and if they can have

this with just the natural shade deciduous trees afford they flourish and bloom with great vigour. Their seeds germinate most readily immediately after being gathered, but plants raised by sowing at once will be much in advance of any obtained then, and more fit for planting out in the autumn. An ordinary garden frame or a handlight placed on the ground with a little freshly sifted soil placed in it and kept shut close and shaded for a week answers best to sow in, as there the earth keeps moist and uniform—conditions that are highly favourable for getting seed of this kind up. To nurse them on when large enough to prick out, a cool north border will be found the most suitable spot for them during the summer, where, if well watered and kept cleaned, they will make rapid progress. At planting time, in order to give these, Foxgloves, Columbines, and others of that class, a chance to become fairly and firmly established, the ground should be thoroughly broken up and the roots of all coarse weeds removed, that they may not in the spring overpower and smother those of more lowly growth before they get a fair start. Irregular shaped masses look best if strewn with a liberal hand, but in arranging them care should be taken to avoid formality, or any approach to it, the object in this kind of gardening being to get away from the artificial and to allow the effects of the hand of the cultivator to be seen as little as possible.

Besides the above named, there are Anemones of various kinds that never look more at home than in semi-wild places, and the strong growing habit of *A. japonica* and its white variety renders them specially adapted for such uses. These may now be divided to almost any extent, as every bit will grow that has a crown and a few leaves or dormant eyes that will start.

If there should be a wet spot formed by a tiny rivulet of water, open to the air and sun, there are the Irises and numerous other things of that character to furnish them with; or if shaded, then there are Ferns, such as *Osmundas*, *Struthiopteris pennsylvanica*, *Athyrium Filix-femina* and its numerous varieties, *Carex paniculata* and others, the beautiful *Equisetums*, *Gunnera scabra*, the Sweet Flag, *Spiræa Aruncus*, and others that, brought together and planted with judgment, will form one of the choicest bits of scenery it is possible to have. Drier and more open parts may be devoted to some of the hardier and more common kinds of herbaceous plants, such as the *Hemerocallis*, *Acanthus latifolius*, *Anthericum Liliago*, *Asphodelus albus* and *A. luteus*, *Bocconia cordata*, *Dictamnus Fraxinella*, the different kinds of *Eryngium*, *Ferula gigantea*, *Funkias* of sorts, *Galega officinalis*, the many varieties of *Geranium*, *Helianthemum multiflorum plenum*, *Hypericum ægyptiacum* and *balearicum*, *Monarda didyma*, *Pæonies*, *Phytolacca decandra*, *Polygonum Sieboldii* and *P. sachalinense*, *Rheum officinale* and *R. Emodi*, *Veratrum nigrum* and *V. album*, or any others of strong-growing habit. Most of these hardy perennials are all the better for being divided and replanted in fresh places, as they soon exhaust the ground, and any waste pieces so obtained in overhauling borders will go far to furnish a long stretch of woodland or shrubby walk or to dot about in parts now bare of such things.

Some of the free-growing Lilies, too, such as *L. tigrinum*, *L. candidum*, and a few others, are grand for such places, but these require an open situation and deep sandy soil, in which they soon spread and form fine clumps. These, where they have been long standing, crowd the ground with bulbs, and are much improved by being thinned and separated occasionally—an operation that may be done now, if care be taken not to injure the large fleshy roots. If there are naked stems of trees, or any half-dead or dying, they will come in capitally to clothe with Traveller's Joy or any of the free-growing

and less showy Clematis, that will support themselves by clinging to their branches, and festoon from one to the other. Such Roses as *Aimée Vibert*, or any of the common rampant climbers, answer the same purpose, and add much to the picturesqueness of the whole, as do also Vines and the Virginian Creeper, the foliage of which lends such a charm in the autumn.

Even better than some of the foregoing are the Honeysuckles, and in no way can these be made to look so natural as when twining about the tops of nearly leafless trees, on which they form not only a rich piece of garniture, but send forth their fragrance and fill the air with perfume. As to bulbs, such as those of Crocus, Daffodils, Snowdrops, Narcissus, Jonquils, Scillas, &c., they cannot be made too free use of, and the time to divide and replant is as soon as the foliage dies away. If this be done yearly, they will soon make a display.

— IRIS RETICULATA. — This charming hardy spring flowering Iris is a very old inhabitant of our gardens, but in spite of its great beauty it is not nearly so well known as it should be. It belongs to the bulbous section, having a true bulb, on which account it is placed by Mr. BAKER in the genus *Xiphion*, but for garden purposes it is a true Iris. The plant was fully described by Mr. BAKER in our volume for 1876, vol. v., p. 623. Its narrow four-sided rush-like leaves do not at first exceed the flower, but after flowering they increase rapidly. The flowers are of a deep violet-purple, the falls marked with a central yellow stripe, which probably serves as a guide to insects in their search for nectar. The plant is a native of the mountains of the Caucasus and of Asia Minor, flowering as the snow melts. The variety *Krelagei*, which is the one here figured (fig. 69), differs from the type in being destitute of perfume, in having a shorter flower-tube, and in the somewhat duller colour of the flower. Though perfectly hardy, and well suited for the open border, it is well suited for pot-work in a greenhouse and for forcing. A good loamy soil with a little sand suits the plant well. The specimen from which our figure was taken was obtained through the courtesy of the officials at Kew, but the plant can be obtained at any of the nurseries.

— INTERNATIONAL EXHIBITION IN AUSTRALIA. — Mr. CHARLES MOORE, Director of the Botanic Gardens, Sydney, writes, under date of February 18:—

"I am desirous of calling the attention of those of your readers who may be disposed to visit Australia to the fact, that an International Exhibition will be held here this year, which will open on the 1st day of September next. It will be the first of the kind in the southern hemisphere, and every effort to insure its success will be made by the Government and people of this colony. The main building for this purpose, now in the course of erection, covers an area of exactly 5 acres, and occupies a magnificent position, being on the crest of a hill close to the city, and overlooking the greater portion of the beautiful harbour of Port Jackson, and is only a few hundred yards from the Botanic Garden, the grounds of which will form a part, and not, I flatter myself, the least attractive part, of the Exhibition. Although we cannot expect to have at this great show the grand display of highly cultivated plants from the rich collections of the English and Continental gardens, which formed so prominent a feature at some of the European International Exhibitions, yet I will venture to indulge in the hope that horticulture will be represented from the old country in some form or other. We may not have plants, but we may reasonably expect a good display of vegetable substances, drawings of plants, plans of gardens and public parks, garden ornaments and architecture generally, as well as plant-houses suitable for this climate. I am convinced that if any enterprising builder would bring over prepared materials of wood or iron, and erect one or more fair-sized conservatories, that these would find a ready sale here, and at prices which would more than cover all expenses, besides the probability of obtaining orders for others of a similar kind. This Exhibition will be a splendid opportunity for all who have the means, and can afford the time to pay a visit to this part of the world, for while it is being held every available means will be adopted for giving strangers facilities for seeing the most interesting parts of the colony, and it will give me the greatest pleasure to

occasionally act as *cicerone* to such of my botanical and horticultural *confrères* in Europe and elsewhere as may favour us with their presence. *Charles Moore, Director, Botanic Gardens, Sydney, February 18.*"

— THE LATEST WINTER.—Gloomy weather may well be the cause of gloomy forebodings, seeing

an untimely season all might have been prosperous where now it is the reverse. British gardeners are not alone in their distresses consequent upon the bitter cold Easter through which we have just passed. A press telegram states that, resulting from three successive severe frosts in France, the blooms of the Plum, Apricot, and Peach are severely injured, and

ing of the 12th having sufficed to freeze through the tiny fruits that are just now in the most unprotected stage of their existence, the foliage of bushes not yet being materially developed. The long-continued lowness of temperature, allied to the excessive coldness of the soil superinduced by the recent heavy falls of snow, is telling disastrously upon seeds, which come



FIG. 69.—IRIS RETICULATA : PURPLE AND GOLD. (SEE P. 500.)

that it does undoubtedly exercise a depressing influence on the mind, but there remains the invariable comfort that with a few days of sunshine and genuine spring-like weather we soon forget our troubles and our past miserable experiences. It is, however, not so easy to forget the effects of a severe late frost when its impression is left upon our fruit crops, as the results that follow constantly remind us that but for the visitation of Jack Frost and bitter east winds at

it is but too probable that the damage is not so limited. Here, where the Plum is not yet sufficiently advanced to place its blooms in danger, Peaches and other early wall fruits must have greatly suffered, except where sheltered by some contrivance, such as the ingenuity of the gardener can devise. The humbler but doubtless far more serviceable Gooseberry, however, there is too much reason to fear is very much injured, the very sharp frost of the morn-

up thinly and slowly, the Pea crop especially showing remarkable tardiness, the gathering being thus prospectively delayed, so that early and late sown Peas will probably arrive at maturity with a unanimity that is at once embarrassing and a source of loss to the grower. In reference to our late visitation of winterly cold it is worthy of remark that the change from comparative spring weather back to the temperature of Christmas was exactly coincident with the break-up

of the ice in the Baltic. It is worthy inquiry whether to this same cause we have yearly to attribute those regular visitations of cold known locally as Black-thorn winter.

— **THE DISEASES OF POTATOS.** Potatoes seem doomed to multitudinous diseases. One form of disease has just been forwarded which is quite new within our limited experience. The leaves are strangely curled up, as if infested with numerous aphides, though there is not a trace of insect visible; they are full of holes, and are beset on the under-side with dark blotches projecting beyond the surface, calling to mind the wart-like excrescences which are so common on Vine leaves. On examination under the microscope, the tissues are found to be strangely swollen, and so disjoined from each other that the smallest pressure sets the greater part of them free. There is no trace of Fungi, and the only conclusion that we can arrive at is that it is essentially a case of hypertrophy closely resembling that of the Vine, except that the cells are ultimately discoloured. At first the walls of the cells become dingy, and then the protoplasm is collected into a thick dark mass. We have no information as to the treatment, which may possibly have induced such a condition. If the whole crop is similarly affected the produce must be greatly diminished. A partial attack, like that in the Vine, may not be seriously injurious. *M. J. B.*

— **THE BERKHAMPTSTED MUSCATS.**—The now famous Berkhamptsted Muscat Grapes promise to be fully equal this year to what they have been in former seasons, the "shows" being abundant and some of them magnificent. These Vines, which have now been about ten years planted, have borne very remarkable crops for some years in succession, and they present no signs of falling off, so that if all goes well we may expect to see next autumn more of those splendid amber-coloured clusters which the Messrs. LANE & SON usually stage for exhibition. It will be remembered that these Vines are planted on gently sloping ground close by a perpetual spring, and therefore have not the dry bottom which was once thought to be so essential, and yet no better finished Grapes than these are ever seen either in private establishments or public exhibitions. There has been in this case, moreover, no great fuss about border-preparation or border-renewal, but there they are, planted in natural Hertfordshire loam; nor has there been any attempt at border-protection during the present long and inclement winter.

— **PROLIFEROUS LACHENALIA.**—Mr. GREEN sends us from the gardens at Pendell Court a specimen of a *Lachenalia* with a small bulb seated on the very apex of the raceme. On cutting it through we found it to be composed of three scales, all three united at the base, so as to form a spiral tube around the termination of the stem. The outermost of the three scales was prolonged into a linear leaf.

— **THE IBERIS AS A FORCING PLANT.**—A New York correspondent writes:—"I judge from a note in a recent *Chronicle* that *Iberis semperflorens* is not generally forced with you. I used to force it long before I had a greenhouse. It is one of those things that can be done capitally in an ordinary window. But if you want something to go into ecstasies over, just try *I. gibraltarica*. The true species is not very common here, some other—*I. Tenoreana*, I think—is in most collections under that name."

— **AMARYLLIS.**—At the present time may be seen in the Victoria and Paradise Nurseries a fine collection of this popular class of plants in flower, amongst which may be found many unnamed seedlings and the two varieties Mr. WILLIAMS is now sending out—Mrs. Rawson and Dr. Masters. Mr. WILLIAMS has for many years been celebrated for his choice collection of *Amaryllis*, and we never remember having seen them in finer condition than they are just now. Lovers of this beautiful class of plants would do well to pay Mr. WILLIAMS a visit.

— **PLANTS IN FLOWER AT MR. WARE'S NURSERY.**—The following may be noted as a few of the best and most interesting plants in flower at the present time in the open ground in Mr. T. S. WARE's nursery at Tottenham:—*Iris agrostifolia*, *Scoliopis Bigelowi*, *Trillium grandiflorum*, *Fritillaria pudica*, *Primula rosea*, *P. cashmiriana*, *P. denticulata* in

endless variety, *P. nivalis*, *P. spectabilis*, very fine; *P. marginata*, *P. minima*, and *P. integrifolia*; *Sisyrinchium grandiflorum* and *S. album*, *Androsace Lageeri*, *A. ciliata*, and *A. vitellina*; *Puschkinia scilloides*, *Iris reticulata* and *I. persica*, many forms of *Saxifraga*, about twenty sorts of *Narcissus*, *Scilla bifolia* and *sibirica*, *Primroses*, *Polyanthuses*, &c.

— **THE EARLY POTATO CROP IN CORNWALL.**—The *Cornishman* reports that smart frost on Saturday and Sunday mornings, and sleet on Sunday and Monday, destroyed the leaves and stems of the early Potato crop in the neighbourhood of Penzance. Some hundreds of acres are either wholly destroyed or seriously checked, the damage being many thousands of pounds.

— **PUSCHKINIAS.**—These charming bulbous plants open their flowers just in time, as it were, to take the place of the early flowering Squills, and very becoming successors they are. *P. scilloides* is an old border favourite, though now rarely met with. It is similar in habit to *Scilla bifolia*, but is more lax in habit, and the flowers of a much paler hue. *P. libanotica* is a remarkably handsome species, growing about 6 inches high, with rather broad foliage and of erect habit. The flowers are larger than in the last, and are white, marked with lines of delicate blue. There is a variety called *compacta*, in which the flowers are arranged more densely on the raceme. Both species are natives of the Levant.

— **LADIES BOTANY CLASS.**—A course of twenty lectures on botany, specially adapted to the requirements of teachers, will, we learn, be delivered in May and June, the first to be given on Friday, May 2, at University College, London, by the Rev. GEORGE HENSLOW, M.A., F.L.S., &c. Further information may be had at the office, University College, Gower Street, W.C.

— **DAPHNE BLAGAYANA.**—The well-known *D. indica*, which is so much esteemed for greenhouse decoration on account of its delightful odour, has now a dangerous rival in this Styrian novelty, as it possesses the same powerful fragrance, and the flowers are of ivory whiteness, which are much enhanced by being subtended by rows of deep green leaves immediately below them. It is, moreover, of a much harder constitution than *D. indica*, as it has withstood the past winter with impunity, though quite unprotected. It resembles it very closely in point of habit and size.

— **JAPANESE PEARS.**—The *Bulletin d'Arboriculture* for March contains a coloured figure of some Pears which were grown in VON SIEBOLD's garden at Leyden, and which are remarkable for their oblong-obtuse form, russet-brown skin speckled with yellow spots, the stalk also is long and thick, the eye shallow. The fruits, for there are two, are said to have a peculiar flavour. The two varieties figured are named respectively Madame Von Siebold and Sieboldia. Our contemporary commends the Pears for hybridising purposes. Our attention was drawn to them from the great resemblance between them and the fruit of the Sand Pear, *Pyrus sinensis*, figured by us on October 9, 1875, p. 457. Can they be forms of the same species?

— **SOLDANELLAS.**—These diminutive alpine gems are among the most satisfactory and reliable plants for enlivening the rock garden during the spring, as they are not at all fastidious as to their treatment, merely requiring to be placed on a well-drained rockery with a good depth of ordinary soil and should be afforded a shady position. Treated thus, they will annually, without fail, throw up from amidst their tiny round leaves a profusion of drooping bell-like flowers which are beautifully fringed at the edges. They vary in colour from deep purplish-blue to pale violet, and there are also white flowered varieties of each species, though as yet these latter have not found their way into general cultivation. The best known species are *S. montana*, *Clusii*, *alpina*, and its var. *Wheeleri*, and *minima*.

— **PRIZES IN BOTANY FOR YOUNG WOMEN.**—Induced by the success of its attempt last year, the Society of Apothecaries has determined to institute this year also a competition for prizes in botany

among young women under twenty years of age. The prizes consist of a gold and of a silver medal or books. The examination will consist of questions written and oral on structural botany, physiology, descriptions of living plants, and systematic botany, so far as those subjects are contained in Sir JOSEPH HOOKER's *Primer of Botany*, and in Professor OLIVER's *Lessons in Elementary Botany*. Those who may think of entering should communicate with the beadle of the Society at the Apothecaries' Hall, Blackfriars.

— **SARMIENTA REPENS.**—For growing in a cool shady greenhouse in suspended baskets or pots, this beautiful trailing Chilean plant is perhaps without an equal among cultivated plants; but how seldom is it met with in gardens? Its slender creeping branches hang gracefully over the sides of the basket, and are clothed with small, roundish, opposite leaves, from the axils of which are produced the bright scarlet flowers, which are about 1 inch long, much inflated, and covered with a dense, short pubescence. As before observed, it requires a cool, shady house or frame, and should be grown in light soil, kept tolerably moist, for its successful treatment. For several weeks during spring it is a source of much attraction.

— **THE AWARDS OF THE FLORAL COMMITTEE.**—We have received further communications from the Chairman of the Floral Committee complaining of the course we have taken editorially, and also finding fault with us for our own individual shortcomings as members of the committee. In these columns we must decline to discuss the latter point. We cannot enter into what Mr. A. or Dr. B. said or did not say, did or did not do, at the committee. These are things of no interest to our readers, who are concerned in the principles, involved not in the personal matters connected with them. At the committee, however much we may regret the introduction of personal recriminations and *tu quoque* arguments, we are prepared to express our individual opinions as freely as we have done before. Editorially we disclaim anything that may be considered personally offensive to any one; and while willingly admitting the general value of the work done by the committee (which we have always been among the foremost to recognise), we cannot withdraw our statements that the present rules, good as they may be in certain cases, do not do justice to certain classes of plants, nor to certain classes of exhibitors, and certain workers in the field of horticulture, who have quite as good a claim to receive recognition at the Society's hands as those who now all but monopolise the awards that are made. We are not alone in our opinion that a reform is needed, and we trust this discussion may tend to that end.

— **BIRDS FROM NEW GUINEA.**—The whole of the collection of birds made by Mr. WILLIAMS' collector in New Guinea, and referred to by us some time since, is to be sold by auction, on Friday, the 25th inst., at Stevens' Rooms, Covent Garden. The collection has been named by Mr. SHARPE, of the British Museum, so that intending purchasers may rely upon their being correctly identified.

— **PRIMULA MARGINATA.**—It is seldom we see this pretty early-flowering species in such abundance as is now the case in the York Nurseries, where there are masses of it on the rockwork fully half a yard in diameter, covered with trusses of large bluish-lilac flowers. It is found in the southern Alps, where it grows on almost every ledge and in every fissure of the rocks. In cultivation it is one of the easiest to manage, as it will thrive either in sun or shade. The only thing it is impatient of is a shallow soil. Wherever it is planted the roots should be able to penetrate at least a yard in good loam; the plant may then be safely left alone.

— **CALYPSO BOREALIS.**—This rare and beautiful hardy Orchid is now flowering in the York Nurseries. The flowers are solitary on slender stems about 4 inches high, and are brilliant rosy-purple in colour; the lip is mottled with brownish-purple.

— **CUCUMBER GROWING ON A LARGE SCALE.**—We learn from a correspondent that Mr. BARNWELL, of Worthing, has lately erected a range of seven houses, 154 feet by 20 feet, with 12 feet rafters,

and glazed with 21 oz. glass, for the cultivation of Peaches, Grapes, Figs, and Tomatos. Four of the houses, writes our correspondent, were commenced early in 1878, and finished in March, when they were immediately planted with Cucumbers, from which 30,000 fruits were cut and forwarded to Covent Garden Market.

— *AQUILEGIA ARCTICA*.—This native of Western North America, better known in gardens as *A. formosa*, is probably the earliest and dwarfest of all the *Aquilegias*. It is just now in bloom in a cool house, is about 12 inches in height and flowering profusely; its prevailing hue is red with the limb of the petals yellow. It resembles a dwarf form of *A. californica*, to which it is doubtless allied, as it is also to *A. Skinneri*. From seed sown in a pan last summer plants are now blooming still in the seed pan, and because of its diminutive form it in this way is productive of the best effects. It is the floral *avant courier* of a most charming family of hardy garden plants.

— EXCRESCENCES FROM THE ROOTS OF CONIFERS.—Dr. HENRIQUEZ has been kind enough to forward us from Coimbra a beautiful pencil sketch of a growth from the root of *Pinus Pinaster* similar to those we have already figured in the case of *Taxodium sempervirens*, so that the occurrence would seem to be not infrequent, though we have as yet no information as to the cause of these singular growths.

— *FICUS PARCELLII*.—Mr. ELLAM sends us from the gardens at Bodorgan, Anglesea, fruits of this Fig. The foliage of this plant is beautifully marbled, and the fruits before us, which are something of the size and shape of a Cherry, are prettily striped with pink. We learn from Mr. A. HENDERSON that the fruiting of this plant is not an uncommon occurrence, but we do not remember to have seen it before. The small flowers within the Fig were female only, so that the plant is probably dioecious.

— *ADIANTUM FARLEYENSE* VAR. *ALCICORNE*.—We have received from Mr. R. SMITH, of Worcester, specimens of a very curious and interesting form of *Adiantum farleyense*, affected by what is usually called the *marginate* type of variation, in which a thickening and protrusion of the epidermis of the lower surface takes place. The effect of this in the present case is to split up the pinnules into broadish and unequal lobes, which are in many cases suggestive of the form of an elk's horn, whence we think it may very appropriately be designated by the name we have above adopted. We understand that plants are to be shown at the meeting at South Kensington on Tuesday next.

— HARDINESS OF *BOUSSINGAULTIA BASELLOIDES*.—Mr. BULLEN, writing from the Glasgow Botanic Gardens, remarks that this plant may now with safety be added to the list of hardy climbers. Our correspondent received two or three strong tubers from Madeira in the spring of 1876, which he planted in a well-prepared border against the wall of an intermediate house, but so determined was the new comer to take possession of the whole house that in the autumn of the same year he had it transferred to cooler quarters—i.e., against a south wall, outside, where it has survived ever since. Its annual growth is small, but the fact of its existing in the cold bleak Botanic Gardens, under such circumstances, is worth recording.

— *DAPHNE JAPONICA VARIEGATA*.—This is an evergreen sweet-scented flowering shrub, which ought to be more generally and extensively grown. It is hardy, or very nearly so, since we learn that a bush of it some 3 feet high and nearly as much across, stood out for many winters, until removed to make way for alterations, at the Great Berkhamsted Nurseries, where it used to scent the whole quarter on which it stood. It is a remarkably free bloomer, for we saw hundreds of young plants there in the cold pits in full blossom, and not more than 2 or 3 inches in height. It has, as is known, something of the aspect of *D. indica* or *D. odora*, but appears to be harder than these. The flowers, which are deliciously scented, are tinted with a flush of pale purple, and though perhaps scarcely to be called showy, are very pleasing in appearance, besides having the odoriferous character so strongly developed.

— PEACH PROSPECTS IN AMERICA.—A correspondent of the *New York Tribune*, writing under date of March 28, remarks that prominent Peach growers throughout Morris County, New Jersey, say the Peach trees have wintered much better than usual. The buds are in fine condition, and, unless extremely cold and foggy weather prevails during April, the ensuing crop will probably be the heaviest known for some time past. A low estimate places the amount of capital invested in Peach nurseries and orchards in this county, exclusive of land, at 1,000,000 dols.

— *HYMENOCALLIS MACROSTETHANA*.—We learn that we were in error in stating that this plant "was simply passed over" by the Floral Committee. An official document before us states that the committee requested to see the plant again. We are pleased to be able to make the necessary correction, and regret that our impressions of what took place with regard to that plant should have been incorrect.

— CARLISLE AND BORDER COUNTIES HORTICULTURAL SOCIETY.—We are informed that the promoters of the International Horticultural Exhibition held at Carlisle in the autumn of 1877 have established a new society, designated as above, which has received promises of support from a large and influential body of patrons. The first exhibition of the newly-formed society will be held on September 11 and 12, when prizes to the amount of £200 will be offered for competition. The Royal Agricultural Society's Show is to be held at Carlisle next year, and the committee wish to hold the show of this year as a precursor of a grand enlarged show to be held next year at the same time as the Royal Agricultural Show.

— THE GREAT YORKSHIRE FLORAL EXHIBITION.—This flourishing Society will be of age in June next, when its twenty-first anniversary will be celebrated by its annual exhibition in York, on June 18, 19, and 20. The Society's schedule has always been a very liberal one from the first, and there is no falling off this year, £353 being offered for plants, £64 for Roses in pots, about £65 for cut Roses and other flowers, and £62 for fruit. It is a characteristic of the York committee to pay their prizes promptly and in full. This has been one reason why the Society has always had good exhibitions, and this year it is hoped that exhibitors will do more than usual to assist the committee in rendering the twenty-first anniversary more than usually interesting.

— LEEDS HORTICULTURAL SOCIETY.—Notwithstanding the great depression in the manufacturing districts, the Leeds Horticultural Society have again issued a liberal prize schedule for their show on June 25, 26, and 27. There are few if any amongst the most important societies throughout the provinces that had for years such a continuous run of ill-luck through unpropitious weather, as the Leeds committee have had to contend with, entailing loss after loss, and which nothing but their determined disposition not to give in, and the way in which their efforts are appreciated by the local authorities and influential residents, could have enabled them to hold out against. We hope the tide of favourable conditions may henceforth flow in their favour.

— WANTAGE HORTICULTURAL SOCIETY.—It has been decided to hold the fourteenth annual exhibition of this Society on August 28.

— THE AYLESBURY FLORAL AND HORTICULTURAL SOCIETY.—We are requested to state that the committee of the Aylesbury Horticultural Society have determined to alter the date of their Summer Show from July 3 to June 26.

— GARDENING APPOINTMENTS.—Mr. GEORGE HARRIS, late foreman to Mr. WOODBRIDGE, at Syon House, Brentford, has been appointed gardener to H. W. TUGWELL, Esq., at Crow Hall, Bath; and Mr. R. D. LONG, formerly foreman to Mr. SAGE, at Ashridge Park, Herts, has been appointed gardener to C. G. M. GASKELL, Esq., Thornes House, Wakefield.

— THE WEATHER.—In the report issued by the Meteorological Office for the week ending April 14 it is stated that the weather was generally cloudy or

dull, but moderately fair on the 11th and early part of the 12th. Much snow, hail, and sleet fell over Scotland and England, and a good deal of rain in the extreme south-west of England. The temperature was considerably below the mean in all districts; the thermometer being highest on the 8th, when maxima ranging between 58° and 61° were registered over "Scotland, E.," and England; but afterwards falling quickly, and the remainder of the week was very cold. Day temperatures at end of week frequently below 40° at the inland stations, and as low as 34° at Strathfield Turgiss (England, S.) on the 12th. Owing to the great prevalence of cloud no very low minima are recorded excepting that at Shrewsbury on the 13th, when the sheltered thermometer is reported to have fallen as low as 19°. Rainfall more than the mean over the greater part of England, and also in "Scotland, E.," but less in "Scotland, W.," "England, N.W.," and "Ireland, S." At some of the English stations rain, snow, or hail fell every day, and at many others six rainy days were reported. Wind at first north-westerly to westerly in the South, and south-easterly to easterly in the North, but easterly or north-easterly breezes subsequently becoming general, and continuing until the close of the week. Wind frequently strong in force, and easterly gale reported in the north of Scotland on the 8th, in the south-east of England on the 11th, and in the south-west of England on the night of the 13th and during the 14th.—Mr. BLAIR, writing from Shrubland Park on Wednesday last, states that on the night of Friday, the 11th inst., the thermometer registered 10° of frost; on the following morning, the 12th, 6° of frost; and on Sunday morning, the 13th, there was 6 inches of snow, which almost disappeared before night. Apricots on the wall were in full bloom, and do not appear to have suffered. They are covered with a double net and a coping of wood about 1 foot wide. The Gooseberries are showing abundance of flower, and it is hoped they were not advanced enough to have received material damage. Pears and Apples are still safe, but will not be quite out of danger for the next six weeks.

Home Correspondence.

The Floral Committee's Awards.—Will you allow me to say a few more words on this subject? My reason for wishing to do so is, that from the remarks which have been made, the doings of the committee are placed in a most incorrect and unfavourable light before the public. It is necessary to bear in mind that the committee exists to represent horticulture pure and simple, and meets to assess the evidence afforded by the plants brought before them, as to their merits from a horticultural point of view, and to either give or withhold certificates according as they think them deserving, from the absolute condition the plants are in at the time they are seen. On this ground, and this alone, can the committee consistently award their certificates. Representations as to the better condition a plant has been in previous to the time of its being submitted to the committee, or what it is likely or possible to arrive at at some future time, or conjectures in any shape, are perfectly inadmissible to have any weight with the committee. It would hardly seem requisite to mention this latter, were it not that there appears a disposition in several quarters to imply that the committee should be favourably influenced towards the plants by such representations. No one doubts the honesty of the representations made, but a common-sense business view of the matter is sufficient to show any one that the committee can only act on the evidence of their eyesight, not of what they hear. And what is it that is proposed to be done? To subdivide the committee to adjudicate on different subjects, such as florists' flowers, plants of botanical interest, or the like. This is simply advising to adopt that which already exists. When florists' flowers or anything of an especial character comes before the committee, such members as are more intimately acquainted with them get together, examine, and discuss their merits, and the awards are made in accordance with the conclusions thus come to. As to the awarding of Botanical Certificates, the subjects are there to be seen and the Scientific Committee is at hand, and can deal with them as they think fit. So far from the committee referring such a thing as the *Hymenocallis* to the Scientific Committee, it is the very last thing in justice to the plant for garden purposes they would think of doing, although in this case it appears that the Scientific Committee awarded it a Botanical Certificate. If, as I think it will, it proves of real use from a horti-

cultural point of view, Mr. Woodbridge and his plant may well say save us from our friends, for in the estimation of nineteen twentieths of those connected with horticulture, the fact of a plant receiving a Botanical Certificate at once stamps it as worthless, excepting as a mere interesting subject [Precisely]. I say this with a full appreciation of the unsurpassing interest and value attached to an immense number of plants that are useless, from the gardening standpoint; but if the work done by the Floral Committee is to be of any use or guidance to the gardening community, it is absolutely necessary that the awards should be kept perfectly clear from those of the Scientific Committee. So far from the committee leaning towards what may be termed popular fashionable plants, such as garden seedlings, they are invariably immensely more exacting in the case of these than with introduced species, especially when the latter are hardy; but they are bound from the position they stand in relation to horticulture to weigh the merits of the plants brought before them from their apparent usefulness from a cultural point of view. The whole action of this committee is, and I maintain ever should be, to restrict the number of plants offered to the public to such as possess some useful or distinct property apart from others already in cultivation, rather than to multiply their numbers. This I feel certain is the steady object of nine-tenths of the committee, and meets with the approbation of a proportionately greater number of those connected with gardening throughout the kingdom, although there are a few of the committee who appear to think that every novelty, independent of its use or non-use for garden cultivation, should be certificated. The same views probably find a proportionate echo outside. The question is, which party is right? So far from there being any justice in the complaint that the class of plants alluded to are left in the cold by the committee, they receive certificates if at all distinct or appear to have any value appreciable by the gardening public. If there is one thing clearer than another connected with the doings of the Floral Committee it is that wherever their awards have been questioned by the gardening community of this country it has been from an impression that they have sometimes been too lax in giving certificates to plants that were not sufficiently distinct from others in cultivation, or have not turned out equal to what was expected. But if the committee are to follow the course which it is now sought to drive them to, the gardening world will very soon have so far reason to complain that the awards will be looked upon as absolutely useless. What Mr. G. F. Wilson says at p. 471 in reference to the *Chionodoxa* is simply a reiteration of the continued special pleading we get, that the committee should be influenced by verbal evidence. Once admit this where are you going to stop? Common sense dictates that the class of plants Mr. Wilson especially pleads for must be exhibited in accordance with the rules the committee have for their guidance. With a much greater show of reason could the growers of tender new Orchids and other stove subjects send up the flowers alone, under the plea that it was too cold to expose the plants. Mr. Wilson's advocacy for one particular class of plants is a tolerably clear evidence that there are those upon the committee as much circumscribed in their appreciation as those who are enamoured alone with the blazing *Pelargoniums* and similar things. In respect to what Mr. Wilson says about fears being expressed that there is danger of the Society becoming too much of a trade affair, may I remind him that there was never yet anything done which cost anything in doing for any purpose, no matter how laudable the object, but there are people who take so low a view of human nature as to be always ready to attribute the best acts and intentions to unworthy motives. Of what benefit to the leading nurserymen is it their exhibiting meeting after meeting, year after year, through the winter and early spring, immense banks of the most valuable plants, that cost a good deal in labour to move them backward and forward even the short distance they have to come, to say nothing of the injury they receive by cold, when there are frequently not fifty people to see them, and amongst those probably not half a dozen buyers? [We suspect the nurserymen would not show at all, under such conditions, but for the publicity, through the horticultural press, which they gain by so doing. Certainly the medals they get from the Society do not pay the expenses.] Mr. Noble's letter, which appears to have given rise to Mr. Wilson's allusions, is wrong when he says that the committee have refused, in more than one instance to give certificates to *Cinerarias* and *Cyclamens*, "because it was alleged that they could not be propagated with sufficient rapidity for trade distribution." This subject has been repeatedly discussed by the committee, but I never heard certificates refused on this ground, but for the very legitimate reason that these plants are rarely grown by any other method than from seed, and as they would not reproduce themselves true from seed, they could not consistently receive certificates individually, and when

certificates have been given it has been as a mark of approval of the strain, not of the individual plants. As to any danger of the Society becoming too much of a trade affair, my own impression is, speaking as an independent member of the committee, and from a tolerably lengthened experience, that, so far as the trade members are concerned, they are much more disposed to scrutinise unsparingly the productions brought before them than to favour each other in any way. "A." in his letter on Saturday says, it is unfortunate for the reputation of some of the members of the Floral Committee that they should have so innocently admitted their ignorance of the fact that the *Chionodoxa* was a hardy plant, from their inquiries as to whether the flower had been grown under glass. It is unfortunate for "A." in thus expressing himself, that he exhibits a want of knowledge of the subject collectively. The reason the question was put, and which will be evident to any one unbiassed and acquainted with the cultivation of early spring flowering plants, even if hardy, was, that such flowers when grown under the protection of cold frames, are often so much larger, brighter, and better looking collectively, that it was desirable to know whether the flowers in question had been grown under glass or in the open air. "A." is equally unable to see the matter clearly by what he says in reference to exhibitors of plants before the committee withdrawing whilst the merits of the plants are being discussed. If, to do justice to the plants, it were necessary for the exhibitor to be present and give verbal explanations, what is to become of the productions of those who reside at long distances and who cannot attend, and consequently are not present to answer questions? There is only one fair course—to serve all alike. The way hitherto pursued, and the only reasonable one, is for the exhibitor to send such written information accompanying the plant as he sees necessary for the committee. T. Baines.

—The discussion which arose through a misapprehension of the circumstances under which *Chionodoxa* was first brought forward, will lead, I hope to good results; and as I have explained the reason which induced me to bring the facts before the public in your columns rather than take advantage of my position as a member of Council to move for a change in the rules of the Floral Committee, I need say no more about it, since Mr. Cannell has publicly withdrawn the imputation made on my veracity in his letter. Our Council has been so often blamed for making changes without due consideration, that I think it is better to be very careful before proposing one, though the case of *Hymenocallis macrostaphana* is, as your leading article points out, another proof that the rules of the Floral Committee, as at present acted on, do not always do justice to the merits of plants not generally known. I was one of the members who through utter ignorance of the merits and even of the correct name of the plant in question, voted against it, as curiously enough no member of the committee seemed to have noticed Mr. Baker's description of it in last week's *Gardeners' Chronicle*, or to know anything about it. If, however, Mr. Woodbridge had been present or his letter had been before us for information, I have no doubt the result would have been different; and though the plant afterwards received a Botanical Certificate, I fear that is looked upon by many of our modern gardeners as a very doubtful recommendation. I look upon it as one of the most important duties of the Horticultural Society to encourage in every way possible the introduction and culture of plants which, though of no value from a mere florist's point of view, afford great interest, instruction, and pleasure to those who can appreciate them; and as there seems to be some danger that the increasing demand for more scientific and better educated gardeners will not be supplied, I think we should try as far as possible to prove by our awards, medals, and shows that culture is not the only merit to be encouraged in horticulture. H. J. Elwes, Preston, Cirencester.

—I must write a line to say how pleased I was to read your remarks in the *Gardeners' Chronicle* respecting the awards at the committees. I am quite sure that all of us who live in the country concur in the general tenor of your remarks. The committee indeed needs reform, and the Society will find out that unless a change takes place no one but a nurseryman will send plants to South Kensington, certainly only those who live within a short distance, as may be judged by looking through the list of certified plants and their owners for the last few years. A seedling *Pelargonium* which takes a few months to raise and flower is apt to receive more attention than a plant which it may be has taken a lifetime to perfect. Amateurs, collectors in foreign countries, especially those who have no pecuniary interest to serve, are at present hardly dealt with. Why are certificates granted to exhibitors only, and not also to raisers and introducers—the latter of whom often risk their lives to get plants, and yet receive no recognition from the Society? The nurseryman is, moreover, rewarded for

some good seedling, but not the raiser, who may have toiled for years to bring the plant to perfection. At cattle shows the breeder is always named as well as the exhibitor, and the breeder gets the cup—not the exhibitor. A Country Fellow.

Curious Scale on Cucumbers.—I enclose in a small box some scale picked off Cucumber plants grown by Mr. Osborne, of Bury St. Edmunds. It is new to me, or in a new state. I find on inquiry that the scale was first found on the Cucumbers, then on some grasses that grew out of the fresh loam in which the Cucumbers were planted. Mr. Osborne's attention was first called to the matter by seeing ants busily engaged carrying something, and taking their presence as a sign of the proximity of aphides he looked for these, and found the enclosed. The ants were busy lifting these great things from off the wet soil, and laying them up to dry on to the upstanding green leaves. The small pieces of Cucumber leaf sent bear traces of scale of the usual sort, but whether those appearances are caused by the scale I send seems to be doubtful, and is one of the points I should be glad if you would decide. Mr. Osborne further adds, that where these insects abound there are also the woolly threads like mealy-bug. It cannot be the Vine-louse surely? The house is a new one, the soil fresh, but the Cucumber plants with which it is planted have been received from several gardens in the neighbourhood—Hardwicke amongst others; but I am happy to be able to add that we have no insects, and so far no disease this year, and that, as already remarked, I have never seen the enclosed before that I am aware of. D. T. Fish. [The insects sent are female cocci or scale, not yet fixed. I. O. W.]

Deutzia gracilis in Small Pots.—The cuttings should be taken off with a heel in the spring of the year and stuck into a pot or pan, placed in a warm moist heat; they will be rooted in a few days, and ready to pot off singly into small pots, using a mixture of leaf-mould, loam, well decomposed dung, and sand. Grow on all the summer in a cold frame kept rather close. Syringe morning and afternoon, shutting up at the afternoon syringing. By the middle of August they should have made fine growth, when they should be taken out of the frame and placed in a position where they will get the sun the most of the day, in order to set their flower-buds and ripen their wood properly. They may be kept outside all winter and brought in to force as required; in fact, I believe the frost to be beneficial to them. With me they stood out the severest of the past winter, with only a few leaves about their pots to keep them from breaking. Grown on in this manner I have them now in 4-inch pots, with four or five shoots from 9 to 12 inches long covered with their beautiful flowers; they are useful for house decoration or the front line on the greenhouse stage, where they come in with good effect, their shoots being allowed to hang down, which helps to hide the pots of other things mixed with them in the same line. Archd. Mackie, Gardener, The Woodlands, Darlington, April 8.

Astilbe barbata.—My experience of imported clumps of this for early forcing is, that they are decidedly inferior to home-grown, as plants that have been brought on out of their natural course acquire an early habit, and therefore come on with less heat in a shorter space of time the year following than others that have not been subjected to artificial heat. That home-grown tufts may not be quite so strong I readily admit, but this depends in a great measure on the way they have been treated after flowering, for if cast aside then, and starved for want of water, it stands to reason that they have no chance to develop and ripen fine crowns. I have a number of pots of this most useful plant that were forced last season equal to any I ever saw, and yet they were not shifted or divided, but only kept well supplied with liquid manure and clear water, both overhead and at the root, till the tops died away. What weakens forced plants of this class so much is allowing the foliage to become injured through exposure by being turned out in the open while tender, and before frost and cold weather are over, which causes the loss of the main leaves at a time when they are of the greatest importance. We sometimes hear of difficulties in getting Lily of the Valley to start; but if established plants were kept in pots, and thoroughly well grown and ripened, there would be no trouble with them in that way. The fact is, there is not sufficient attention devoted to these hardy subjects, as, owing to the great press of work and want of glass in proportion to the demands most of us have to meet, such things when they have served their turn have to take care of themselves. J. S.

The Old Cloth of Gold Rose.—This is both a rarity and a beauty when in flower, and I do not know that one could be found to equal that now in bloom at Broomlands, Kelso, in perfection and excellence. It had, a week ago, above a hundred blooms on it, and numerous buds open and opening.

This Rose covers the roof of a large greenhouse forming the centre of a range of glass, and was planted about eleven years ago, under the stage, and in the middle of the house. The roots, no doubt, are in proximity to the boiler, and their ramifications must be endless, for doubtless they may be found in the viney borders right and left of them, and even under the very foundations of the range; for the soil and subsoil here is both healthy and deep, and, above all, free of any stagnant moisture. Mr. Oliver, the gardener, has been very painstaking and judicious in giving this fine Rose all the head-room possible for its requirements; for had he curbed it by pruning, in opposition to its propensity to freedom at the root, it would never have flowered as it has done. Freedom and liberality here assert themselves in opposition to curbing and pruning with such stubborn and shy bloomers as this Cloth of Gold Rose is—like the Bougainvilleas of old, once useless and flowerless. *Chevalier*.

The New Bamboo Shading.—We have received from the New Plant and Bulb Company, Colchester, an illustration which we annex, fig. 70, showing the mode of application of the new Bamboo shading introduced by this Company, and fully described in our number for January 25, p. 107, by Dr. Wallace. For convenience of illustration the roof of the house is divided into two compartments, A and B. At A the Bamboo mat is shown partially unrolled, with a box at the top for its protection. At B the box-cover has been removed to show the mat rolled up when not in use. C C are the bearers upon which the mat is supported, from 10 to 12 inches above the glass, and at D D are the screw pulleys round which the cords run to pull the mats up. The shading consists of light Bamboo rods, a little stouter and

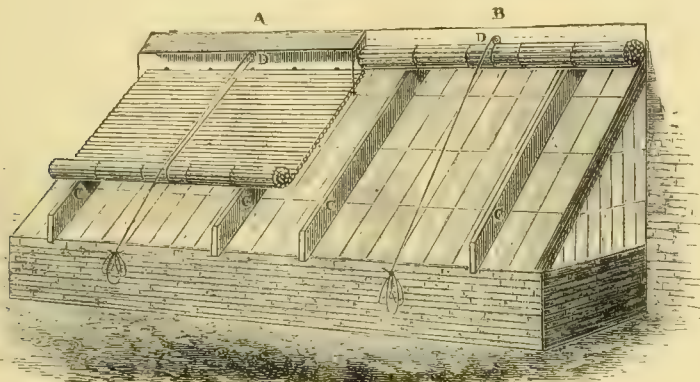


FIG. 70.—BAMBOO SHADING.

stronger than reeds, varying from $\frac{1}{8}$ to $\frac{3}{4}$ inch in diameter, the smaller size alternating with the larger size, while stouter rods, $\frac{1}{2}$ inch thick, are interspersed here and there to strengthen the whole, interlaced about every 9 inches apart with a coarse strong and durable twine made from the outer husk of the cocoa-nut, in widths of from 8 to 10 feet, and in lengths as ordered. The rods when put up run horizontally. The mat, being perfectly flexible and very light, can, when in use, be easily rolled up by a cord fastened above, passing downwards and beneath the mat, round the roller of the mat at its lower margin, then up again to the top, whence, passing over a screw pulley, the cord descends again to the bottom of the mat, where it is within reach of the manipulator.

Dendrobium Cambridgeanum.—I have always, hitherto, found this a very shy bloomer. I know not what the experience of others may be, but I have now a plant of this species—a small one, growing in a basket 7 inches square—which has forty-seven fine flowers expanded together, forty-five of which are produced by four pseudobulbs. *P. H. Gosse, Sandhurst, Torquay, April 14.*

A Second Winter.—With the wind once more glued in the East, from 7° to 10° of frost last night, according to locality, every expanded Apricot blossom not canvased or thatched over as black as one's hat and not more likely to produce a golden fruit than the latter, and a heavy snowstorm covering everything several inches deep on the evening of the 12th—it seems almost impossible not to grumble a little bit. With the Wheats still invisible in the middle of April, no greens, and the earth chilled to December coldness with East winds and snow, the prospects are black and dreary indeed. Even the grass fears or fails to grow. Never do I remember not mowing the lawn till now. We had arranged to begin on Easter

Monday, but the frost of last night and the snow of to-day will probably defer it another week. This morning (the 12th) the coloured Primroses—the others are not out excepting in sheltered nooks and corners—were lying in confused heaps on the frozen earth, the *Myosotis dissitiflora*, that had begun to look itself, is frozen red. Cabbages, Peas, and Spinach, that had begun to move on, are again arrested, and quite possibly the early Pears are injured as well as the Gooseberries. As for tender fruit on walls not a day should be lost in applying protection, or the chances are that, late as the blossoms are, they will all be cut off. I can endorse most of what Mr. Radclyffe says about the wood of Peaches and Nectarines. Seldom has it wintered better, and we have lost none by canker, blister, or other causes. But the spring killing-time has hardly yet come. As to cutting off the points of the leaves it is impracticable in most gardens, and surely must check, if it does not utterly arrest, the functions of the leaves. It would be better to thin off some of the leaves than to mutilate all. The brownness of Peach wood is also a good deal a matter of taste as well as of treatment. Assuredly the colour varies very widely even under the same treatment, and Peaches often thrive remarkably well where the nut-brown wood so much desiderated by some cultivators is mostly unknown. Peach and other fruit-bearing wood cannot be too ripe; but mere maturity of wood can do little or nothing to enable the expanded blossoms of Peach and other trees to withstand, say, 10° of frost. Mr. Radclyffe must be romancing a bit to want a hard fore-winter, an early and genial spring, and a West Indian summer, at p. 473. No doubt these would suit fruits and Wheats, but there is no prospect of our having either. From November till April we

sive planting of so grand a tree. It has surprised me to see it so little planted, and to find few or no specimens except the fine old trees which were brought over in the palmy days of importing American trees and shrubs into Britain through the exertions of Frazer, Lyon, and others in the early part of the present century. Even in America it is not a very common tree in cultivated gardens, as it is rather impatient of transplanting when of large size, and as Americans are proverbially in a hurry to get up shade trees, as they do a house, they neglect the Tulip-tree and Magnolia, and take the Elm, the Horse Chestnut, the Maple, and other trees. In a young state, 4 to 6 feet, they grow readily enough, but trees 12 to 15 feet high are difficult to remove only with large top. Mr. Dyer is, I think, in error as regards soil. I have had it growing in sandy, gravelly, clayey, and peaty soil, and have found but little difference in our climate. I have had trees twenty years old from 30 feet and upwards high, and have cut down dozens which were growing in nursery rows too large to remain and left without care till occupying too much room. I think so far as soil is concerned they will flourish quite as well as any trees, but whether the large blunt bright green glossy leaves will stand the smoke and soot of London, which makes the bark of all trees one smutty colour, I cannot, of course, say anything. *C. M. Horsey, London, April 11.*

— I beg to assure Mr. Colebrook that he need be under no misapprehension as to the suitability of the Tulip-tree for planting as a town tree. If he only knew the uncongenial nature of this climate for the development of tree life, the fact that it exists here in good health would alone satisfy him of its worth. Neither can it be very particular as to soil or situation, as the soil in which it is growing here is of a stiff adhesive nature, on a subsoil of clay, which would do admirably for making bricks, and which, moreover, has never been drained. Of two trees which were growing within about 30 yards of each other, considerably the largest was unavoidably cut down some three years since; this tree was fully exposed to the influences of sun and air, while the other is very much shaded by other trees, and is much smaller, though from their location I believe both were planted at the same time. The common Birch is also much undervalued as a town tree. *Robert Bullen, Glasgow.*

— There is a very fine specimen of this tree growing in the grounds of G. Brightwen, Esq., The Grove, Stanmore. The tree is an isolated specimen, growing on the lawn. Its lower branches bend down and sweep the ground all round, forming a beautiful arbour throughout the summer months. The soil in which it is growing is a rather damp gravelly clay on a clay subsoil. In 1877 it bore a great quantity of flowers, which were very pretty. Last year it did not flower at all, but with the favourable autumn we had last year we may reasonably expect to see it flower well this summer. The dimensions of the tree are as follows:—Height, 77 feet; girth of stem at 6 feet from the ground, $9\frac{1}{2}$ feet; diameter of spread of branches, 60 feet. *A. W.*

— The *Liriodendron tulipifera* is one of the very latest trees coming into leaf, which, with its very early fall of the leaf, is the reason probably why it is so little cultivated now-a-days. It loses its leaves earlier than any ornamental hardy trees, and its branches are so comparatively few that the tree has a very naked appearance in a garden. *East Somerset.*

Sporting Camellias.—These are not at all uncommon, especially among the pink and white strains. The double white is, as a rule, as constant as can be. So much is this the case that I never remember seeing a flower of any white Camellia with a single red petal, or even a streak of colour. But with mixed colours the case is quite different. There is an old small semi-double white and pink Camellia, small and admirable for buttonholes, that I have long grown, and I never remember a season in which it has not shown several self pink flowers. I might also affirm so much of Perzio, of which we have a large plant planted out. This season we have had several pure pink or lovely rose flowers, never, however, of quite so deep a red as the *rubra-plena*. Nor does it seem that the flowers referred to by your correspondent, "E. P.," at p. 441 were like the double red. While far, therefore, from denying that the stock of Camellias may affect the flowers at times, there is no proof whatever that it has done so in this instance, for it is one of the characteristics of Camellia Perzio to sport into fine self-coloured flowers; and so persistently does it do this, and this is such a fine, bold, free-growing variety, that I always wonder a pink or self-coloured Perzio is not in the trade. On the whole it is wonderfully fortunate that the influence of the stock on the scion is so slight as it is, for were it more potent our finest Roses would often be smothered beneath a flourishing crown of Dog-Roses, and our best Camellias freely intermixed with single reds—charming in a half-opened state for buttonholes, but

The Tulip Tree.—I am glad to see the discussion upon the merits of one of our most noble trees of America, rivalling, if not quite equal to the Magnolia, and I hope it will lead to the more exten-

scarcely desirable among the full and beautifully cupped Camellias of the florist. *D. T. Fish.*

The Proposed International Horticultural Exhibition.—I have no desire to enter into a controversy on the above subject, but there are one or two points in Mr. Wills' letter in last week's *Gardeners' Chronicle* which seem to call for a reply from me: and in the first place I have to say that the fact of "sheltering myself under a *nom de plume*" has nothing whatever to do with the subject. It may answer Mr. Wills' purpose to "sign his name in full when writing to the public press," and it may answer my purpose to withhold my name: besides which, some are so modest that they shrink from seeing their name in print. Then again Mr. Wills has misquoted a remark I made in my short note: I said that "Enthusiasm was often a dangerous element when not tempered with soberness of judgment." Mr. Wills says that I accuse him of wanting soberness and judgment: I am sure that the difference will be apparent to all, but I certainly did think after reading the letter signed by Mr. Wills, that he was "inebriated with the exuberance of his own verbosity," and that it would have been better if he had put a certain restraint upon his zeal—inasmuch as it is a very proper rule that the minority should bow to the decision of the majority; besides which I think that if a committee decide upon a certain course of action there should be loyalty on the part of all. There is one remark I must protest against with all the energy of which I am capable: I am told that I am trying to "write down a great national undertaking." I do nothing of the kind. I simply endorse the action of the committee in deferring action in the matter for a time, because I think the present time inopportune. The committee who arrived at this (in my opinion) wise decision are composed of gentlemen quite as competent as Mr. Wills, and in accusing me of being narrow in my views he includes of course his fellow-committeemen. Your correspondent is quite right—I know nothing about "filling the pages of future history with bright and glowing scenes." This is beyond my ken; but what is more to the point, I think I can say, without being accused of egotism, that I have done my best to fill a page of past history with "bright and glowing scenes." [We can vouch for this. *EDS.*] It will be impossible to carry out this great undertaking unless there be union amongst horticulturists throughout the country, and inasmuch as a representative meeting in London has decided to suspend action for the present, it seems to me very much like the "chatter of irresponsible frivolity" for any single individual to say that the exhibition shall be held. *Alpha.*

National Auricula Society, Southern Section.—Will you permit me to announce to your readers that the third annual exhibition of this Society will be held in the conservatory of the Royal Horticultural Society, at South Kensington, on Tuesday next, the 22d inst., when a very interesting display of these unique spring flowers and Polyanthus, in addition to the usual fortnightly exhibits of the Society, will be made. The admission charge will, I believe, remain as usual, and all persons interested in the work of the florist, and desirous of determining for themselves the amount of development it has been given, in the majority of cases, to workers in a very humble sphere of life to attain, may be sure of reaping a rich harvest of satisfaction. *E. S. Dodwell, Hon. Sec., Larkhall Rise, Clapham, S.W.*

Maund's "Botanic Garden."—I notice in your issue of the 12th inst. an enquiry made by "G. H. II." with reference to the new edition of Maund's *Botanic Garden*. As Editor of that publication, I beg to say that it was issued about a year ago, in six volumes, by Messrs. Bell & Sons, York Street, Covent Garden. So far as the editorial work is concerned it is not for me to speak, but as regards the plates, which are all hand-coloured, I am bound to say they are infinitely superior to the original. Why the publishers have not duly announced the work I cannot say, the more so as the style in which it is presented to the public is altogether so superior to the original that they have no reason to be ashamed of the work they have taken in hand. No doubt the enquiry of "G. H. II." will jog their memory that they have a book on their shelves which somebody wants to buy but does not know where to find it, and which I presume they are equally wishful to sell, as I know full well the cost of the reissue has been considerable. *J. C. Niven, Hull Botanic Gardens.* [We were quite unaware that the new edition had been issued. *EDS.*]

Cinerarias from Seed.—Wherever there is a display of flowers to be kept up, the Cineraria is *par excellence* the popular flower of the day. Description of the beautiful hues and combinations of colour to be found in a rich collection is almost impossible, so great is the variety and so charming and striking is the effect. I was pleased to read the remarks in the *Gardeners' Chronicle* of April 12, at p. 468, regarding Mr. James' celebrated strain of Cinerarias; it is

pleasant as well as useful to know that there is such a strain in existence, and with the coloured plate of new Cinerarias, which is to appear with the number of the *Gardeners' Chronicle* for April 26, I trust there will be a revival of interest in the "improvement" of this favourite greenhouse flower. I have, however, to take exception to the remark that propagation of the Cineraria is unnecessary, so long as private gardeners are not supplied with the genuine article as exhibited by seedsmen. It would be a real boon to gardeners (who have irons enough in the fire already) if they were supplied—even at an increased rate—with such an article as that described in the *Gardeners' Chronicle* last week. I have been in the habit of marking all the best kinds for some time back and propagating from them because I have not been able to rely upon seeds being supplied to me of a first-class strain. This class of trade is more carried on by small provincial houses than it is by large firms. There can be no doubt whatever but that inferior seeds, which cost comparatively little, are mixed with a few good seeds, and distributed amongst customers. Another reprehensible practice is that of small houses purchasing a few seeds of "select strains" from firms who make such trade a "speciality," and supplying a few customers with them for the purpose of extracting testimonials from them as to the supposed superiority of their seeds, when in substance and in fact such testimonials are little short of a fraud being perpetrated upon the public. Good seeds and firms who supply them deserve generous support, but those who resort to the practices above-named deserve the cold shoulder from all practical men who have the ability to discriminate for themselves. *W. Hinds.*

Double Cinerarias.—We have sent for your opinion three double Cineraria blooms, which we have had in our nursery for three years. The habit is all that can be desired, dwarf and compact, and the foliage good. *W. & J. Brown, Stamford.* [They are very good, measuring over 1 inch in diameter, very full double, and of a rich rosy-purple colour. *EDS.*]

Bedding Plants.—Just at this season most people who have gardens and beds to provide for are greatly "put to" for want of room to stand pots to nurse on the many plants required, but if these earthen vessels for holding soil are dispensed with a great saving of time, space, and money may be effected, and the stock of bedding-out be got not only considerably larger but more healthy. I never now think of potting anything except Pelargoniums and a few others, the bulk of our plants being pricked out into frames or beds prepared for the purpose, and covered with any old spare lights or shutters, according to the tenderness or otherwise of those we have to protect. Managed in this way it is astonishing how fast things grow in comparison to what they do with their roots cramped and confined to such a limited area as a pot affords, and not only is their progress more marked now, but having no check through becoming dry or bound, they get to work quickly when turned out and soon cover the ground. For the more tender subjects, such as Alternanthera, Coleus, Iresine, and such-like, it is necessary to make up a gentle hotbed to give them a start, that is, if pricked out thus early, but if deferred till the first week in May they will do without that assistance, provided they are kept tolerably close during the day, and are shut up early while the sun is full on the glass. A light soil, consisting principally of sifted leaf-mould, answers best for putting the plants in, as they lay hold of it freely, and lift with large balls, containing a mass of fibre that keeps the whole well together while being removed. Calceolarias like something more than loam, and in preparing for these it is always advisable to use such soil as Melons have been grown in the year previous, for when a little inclined to be stiff the growth they make in it is generally more sturdy and short-jointed, besides which, they are always then freer from disease, a scourge that of late years has affected them much. The temporary frames we are using for the last-named bedding plants, and such things as Verbenas, Lobelias, Ageratums, Heliotropes, and all others of that class, are made with thick boards or rough planks with a stake or two on each side to keep them in position, and being about a foot wide they admit of several inches of light mould being laid on the natural ground to place the plants in, and as the bottom is hard they keep pretty much to this and soon form quite a mat of feeders in it. Not only are the various kinds of bedding plants enumerated above better in every respect treated in the manner named, and kept out of pots, but Pelargoniums also do remarkably well with just a handful of soil bound round with moss, and tied up with a piece of matting, and then plunged in leafy stuff till the time arrives for transferring them to their summer quarters. I have seen beds made up from such as these that were a mass of flower, the reason for which is, the growth being checked by the moss preventing gross roots getting away through, the shoots are materially firmer and more woody, and

it is always such as these that carry the most bloom. To induce this habit, when I have any in pots I generally make a practice of plunging them as they are, instead of turning them out, which answers the same purpose as the moss, and by cutting the plants back at the time of lifting and wintering them, they come in admirably the year following for vases or other purposes of that kind. *J. S.*

Adiantum gracillimum.—There is a remarkable lot of young plants of this most graceful Fern at Stanmore Park. The treatment which Mr. Davidson gives them seems to bring out the merits of this variety to great perfection, and which for usefulness rivals if it does not exceed *A. cuneatum*. The plants are a useful size for decoration, and the young fronds are a beautiful pink colour, which adds considerably to the effect. I have never seen the pink tint so bright in this variety before, resembling, as it does, that of *A. tintum*, or as it is sometimes seen in *A. farleyense*. *A. W.*

The Payment of Judges at Horticultural Exhibitions.—The time is now fast approaching for the usual campaign of flower shows. Lately it is the practice at many exhibitions to delay paying the judges their usual fee until some time after the exhibition has been held. It is a practice to be condemned, and one which is neither complimentary to the judges nor to the Society. It is so simple and small a matter that the secretary or treasurer should be requested by the committee to hand it to the judges before leaving the ground. To send it perhaps three months after by post-office order is an unnecessary expense, and in some cases it is never sent at all. Whilst on the subject of judges at exhibitions I may mention that it is the practice at many country exhibitions to appoint three judges to do the work together. This is in my opinion an error, and experience has shown me that two work better than three. It would be far better to divide the work by having four judges, two for plants and flowers, and two for fruit and vegetables. *D. W.*

Epacris.—These have for the last fortnight made our Erica-house gay with colour. Fine things they are for cutting, as to keep the plants in trim order they require almost to be sheared over every year. With us the old *E. impressa* is a useful and showy variety. Several plants we have—one 3 feet by 3 feet and over, now a mass of rosy-red. *E. hyacinthiflora candidissima* is the best white we have for a strong bold spike of white flowers. Mrs. Pim is another very good white, less bold than the latter, but more graceful perhaps than it. *E. hyacinthiflora* is also a fine one of the rosy-red coloured kinds. These are some of the best we have. I should be glad if any correspondent would give a list of kinds and colours—so much good is attained by growing only what is worth growing. *R. M.*

Hardiness of Broccoli.—Mr. James Gould, p. 441, notices that the end plants and the outside rows of his Broccoli were uninjured, while the breadth of the mass was killed to the alarming rate of from 70 to 80 per cent., and pertinently asks whether thinner planting would ensure greater safety from cold? There is very little doubt of it. The two evils of overfeeding and overplanting render Broccoli and other plants abnormally tender. No sooner does severe frost come upon such plants than they give way as a matter of course. This has long been known to observant horticulturists, but it is not so easy to remedy the evil as it might seem. The demands on most gardens have become so excessive that it is almost impossible to avoid the evil of thick planting. We have also been favoured with a series of mild winters, that have enabled the Broccoli to pass safely through them; and so thicker planting and fewer checks from inlaying have been the rule. No doubt this winter, by its general clearance of Broccoli and other greens, will direct more attention to the hardening effects of thin planting and inlaying. Next to the desire for quantity has been the rage for size in culinary vegetables. The introduction of such fine Cauliflowers as Veitch's Autumn Giant has a good deal to answer for in the stimulation of mere size in Broccoli, though the circumstances are widely different between summer Cauliflowers and winter Broccoli. As long as the last continues crisp, sweet, and white it matters little how large it is. But the forcing of Broccoli into size also makes them tender, and converts them into food for frost instead of welcome additions to the dinner-table. That the tenderness of Broccoli is very much a matter of feeding has been illustrated on a large scale in this neighbourhood this winter. *J. C. Porteus Oakes, Esq., of Nowton,* has made a new kitchen garden. Mr. Carmichael carefully trenched up the ground and planted a large part of it with Broccoli of sorts. The ground was fair farm soil, and had no manure added to it. The garden is near to Hardwicke, the soil being similar, the site and position a

little more open, but of about the same elevation. The difference in the results is most marked. Here our Broccoli losses quite average 80 per cent.; at Nowton they barely exceed five; and there can hardly be a doubt that the major portion of the widely varying death rate has arisen from the richness of the old garden soil in the one case and the poverty of the new in the other. It is possible, too, that the comparative immunity of the outside plants and outside rows, as noticed by Mr. J. Gould, arises from the air moving more freely on the outer edge of breaks of Broccoli or other plants. During severe frosts the stillness of the air adds intensely to the radiation of heat from the plants into the insatiable capacity of the open sky. Whatever moves the air weakens to some extent the energy of radiation, and so perhaps conserves some of the warmth, and this combined with the more solid and less watery growth of the external plants ensures their greater safety. Thinner planting and less gross feeding seem the most important lessons taught by the almost total wreck of our Broccoli crops this winter. *D. T. Fish.*

Your correspondent, Mr. J. Gould, is quite right in the inference he draws as to the outer rows of Broccoli being harder than those less exposed, the reason for which is that the growth they make by getting more air becomes consolidated, a condition that enables the stems to endure a much greater amount of frost than they otherwise could do. I have a striking instance of this before me now in some that were planted at the usual distance, part of which run by two large Cedars of Lebanon, and the roots from these robbed them to such a degree as to check their progress materially during the summer, but this fortunately has saved their lives, as those out of reach of the influence of the trees and in richer ground are nearly all destroyed, and the few alive are so injured that it is impossible for any to turn-in to do us any good. No doubt if Broccoli were planted in hard undug land with less manure than is generally given, they would escape the effects of winter better, and although the heads could not be expected quite so large it is a great point gained to secure a crop under such adverse conditions of weather as prevailed during the past season. Broccoli are, as a rule, sown too soon and thick, and stand about in the beds, where they become drawn, instead of which, if pricked out or allowed plenty of room from the first, they grow close in texture and maintain a sturdy character throughout. A good way of managing them is to plant 4 feet apart between rows of Potatoes; the latter being then cleared off early allow full play for sun and air to get at them all through the autumn, and thus bring about a thorough hardening of the stems. Not only do the Broccoli derive considerable benefit from being so treated, but Potatoes escape disease better, as it is a well-known fact that the more soft and succulent the foliage of these is, the more susceptible is it to the attacks of this scourge. *J. S.*

Dendrobium nobile.—This fine old Orchid is now with me in perfection—at its best—without any forcing, just flowering where grown last summer. The secret of growing, or rather flowering these well is to get a good growth on them, get this growth matured, and then after that to ripen them well, then they are sure to flower, and they will flower on last year's wood as well as that of the previous one. Of course, if they flower on last year's growth now they cannot be expected to flower so well every year, but will do so every alternate one. On one of the larger plants now in flower I counted the other day near 500 flowers and buds, half-a-dozen other specimens have now more or less than that number on them, as they are all in fair form for their size. The drying process is not much good in causing these plants to flower unless there has been a growth and some "bone" in it before they are kept dry, for though the wood is shrivelled in the process nothing will come out of it. But get a good growth, leave the plants under the influence of the sun to ripen, dry off for a time, then make a start and risk the result. *R. M.*

Effects of the Late Frost.—Mr. W. H. Rogers gives his experience on this matter at p. 471. Farther up in the North-west of England I could tell him a very different tale about trees and shrubs. First I will name the Wellingtonia. We have two very fine plants, about 20 feet high or over, which were in good health, but seem to grow more brown every day, and it appears to me that the effects of the past winter has settled the career of this fine tree for many parts of England. It is a great sacrifice to care for trees, even such as this, for say a dozen years, and then to have them taken away. I believe both our plants will have to be cut down. After the Wellingtonia I will name the Deodar. This is the next that has suffered much, if not more than the latter. Only one tree that has been in a sheltered place seems now untarnished. We have now taken out three single specimens, 20 feet high or so, and about a dozen more will have to come, as they will, I fear, never wake up. The severe frost of 1860-61

sealed in a measure the fate of this tree, but the Wellingtonia then was newer and was not proved. This last winter has not, of course, killed nearly so many as that of 1860-61 did; and as regards the past winter I think it was the cold winds more than the severity of the frost that did the damage, for where exposed the hardest of plants have succumbed. Ivy has had all its leaves browned, the common Yew the same. The common Gorse is killed down, all the Laurustinus are nearly killed, evergreen Oaks are killed down. Laurels also stand rather badly a severe winter, the Portugal being more susceptible of injury than the common Laurel. In Roses we have not had many deaths, but of Ericas planted out nearly all are without a leaf, in fact killed, excepting *E. mediterranea*, which is now very pretty and should be more generally used to advantage for effect in spring. *R. M., Cheshire.*

Magnolia grandiflora ferruginea.—I can bear testimony in confirmation of your views and those of Mr. Roberts, of Gunnersbury, to the greater hardness of this variety over the green-leaved sort. The ferrugineous variety is also by far the freest flowerer. I noticed some Magnolias on the walls of outbuildings around a large mansion this summer, and was told they never flowered. I found they were a plain-leaved variety of *grandiflora*, with larger leaves than any I had ever seen. It almost seems as if there might be three varieties of this magnificent plant, which is not nearly so much grown as it deserves to be. No one who has ever seen the Magnolias at Whiteknights, near Reading, will ever forget the size and grandeur of the *grandifloras*. *Maréchal Niel* and other Roses are all very well, but what miserable wrecks they are after this winter! The *Magnolia grandiflora ferruginea* has, however, passed through the two months' frost unscathed, and will doubtless flower all the better for its severe treatment. Such at least seems to have been the effect of other sharp winters, since the foliage alone is worth growing the plants for. Few plants cover tall houses or walls sooner, or look so rich and beautiful in leaf and flower, the latter continuing in succession for months. *D. T. Fish.*

Small Birds and the Gooseberry Crops.—I have for the last fortnight been hearing sad complaints of the small birds who are said to have picked off all the fruit-buds from the Gooseberry bushes in this neighbourhood, so I want to ask you if this fruit crop never fails from any other cause? I have not seen a bird "up to mischief" in the bushes which are within sight of the windows, and yet they are as destitute of blossom as the other trees, but it is perfectly useless my trying to defend my feathered friends. I am told that our Vicar says the birds have destroyed his fruit—wicked, irreverent little animals—and that he upholds their destruction wholesale. Eggs, young and old offenders are sacrificed to the fruit trees and the preserving pan. I know I ought to feel satisfied that this is right, but I do not think it follows as a matter of course that theological and natural history lore are inseparable. So I ask for information from other sources. How are the Gooseberry crop prospects in other counties this spring? And when small birds attack the buds are they not rather seeking for some small grub or egg which would develop into a grub injurious to the crop if allowed to remain? *Helen Watney.*

Drying Fruit and Vegetables for Winter.—Seeing dried vegetables spoken of in your number for March 8 perhaps a few words on the mode adopted here may be of use. I have been in Germany seven years, and have had some little experience. In autumn, when the runner and French Beans are plentiful, gather them on a dry day, then prepare them by cutting the ends off and string, as is done in the ordinary way, then place them in a basket, and drop them into a copper of boiling water. Let them boil five or ten minutes; lay them out on something to dry. When dry we have an ordinary brick oven, such as used for bread-baking, which is heated with wood (not too hot). The Beans are laid out again thinly on a sieve-like frame made of wood, like a hurdle. They must be looked after to see the oven is not too hot. If so the door must be left a little open. The slower the process the better the colour remains. It may be required to heat the oven a second time, but by patience and practice any one may prepare them, even with an ordinary house oven. In very severe winters like this they will not be despised. When well done they will keep good for years placed in a sack and hung in an airy room. The sort of runner Beans used by us is called Princess. It has small pods, and the seed is very small and white. Still I have used other sorts, and some are cut into small pieces. The Butter Bean and the Mont d'Or are very good. By-the-by, these little seed Beans are much eaten here in winter, cooked like Peas, and served up with gravy or butter. Pears, Apples, and Plums are also dried by us. All gardeners know that in the season there are many fruits blown down, and also in the gathering

many are bruised. These can be turned to good account by being peeled and dried like the Beans, but not cooked. They can be done whole or cut in pieces, and I can assure all who try them they will repay the trouble, and to many large fruit growers this might be a boon. The produce would sell well when once known, as the fruit is very delicious, and the better the quality the better the result. Plums are dried in the same way, but the fruit must be ripe. The sort we use is called Zwetschen, something like the Mussel Plum. The fruit, when required, is cooked in a small quantity of water. The Beans must be well cooked for two hours. *H. Barnard, Anholt a. Rhein, Prussia.*

Effects of the Frost on Herbaceous Plants in the Royal Botanic Gardens, Manchester.

The past severe winter will be long remembered as marking the disappearance of many a rarity perhaps never to be replaced, and proving other plants to be much harder than was anticipated. Here a very fair trial has been made with tender plants, and it is very satisfactory to find that not a few subjects hitherto considered tender in this part have proved themselves quite hardy, so that the following remarks may be of interest for comparison with other localities. Beginning with the plants of the Mediterranean region and Southern Europe generally, these seem to have suffered quite as much as those inhabiting the region of the south temperate zone. *Erodium Reichardi*, from the Balearic Isles and Corsica, is killed both on the rockwork and in the frames. *E. Manescavi*, Pyrenees; *E. macradenium*, Spanish Pyrenees; and *E. petraeum*, from Southern Europe, all stationed on the rockwork, are untouched. *Hypericum empetrifolium*, Asia Minor (so long known by most of us under the name of *H. Coris*), and *H. ægyptiacum*, Egypt and Syria, both of which stand our ordinary winters in the frame, are dead. Plants of *Lavandula Stæchas*, from Southern Europe and N. Africa, are all killed in the frames. The *Santolinas* from Southern Europe have been severely pinched. *S. viridis* and *S. rosmarinifolia* have succumbed in the open ground. *S. alpina*, so well adapted for rockwork, has sustained a severe shock, but promises to recover. *S. Chamæcyparissus* and its ally, *S. incana*, seem to have stood best. *Erinus alpinus*, Pyrenees, is killed on the rockwork, and has but narrowly escaped in the frames. This plant seems well adapted to the moist, humid atmosphere of Manchester, luxuriating in our less severe winters and flowering and maturing its seeds in summer, notwithstanding the deleterious influences of noxious gases brought by the wind from the easterly end. *Sinapis arvensis*, a perennial species, native of Algeria, is unhurt, though in a very exposed situation. *Viola gracilis*, Greece and Mount Olympus, is equally hardy, not being in the least affected. *Achillæa ægyptiaca*, Asia Minor, is unhurt, as also the woody *A. umbellata*, Greece, growing on the rockwork. *Ferula neapolitana* (*Thapsia garganica*), from South Europe, is killed. We are afraid it will have gone badly with the entire genus, stately plants as they are. *Salvia canariensis* is killed in the frame, though in our more open winters it is often allowed to remain outdoors in the South of England without the least effects on its constitution. *S. candidissima*, a tall silvery leaved species, native of Armenia and Cyprus, is unhurt. *Greenovia dodrantalis* (*Semprevivum dodrantale*), from Teneriffe, stands a fair amount of frost, and in our milder winters may be treated as a frame plant, succumbed to the first severe frost. Plants from Northern India have, on the whole, as might be expected, stood well. The low woody *Polygonum vacciniifolium*, Himalayas, is quite untouched, and was one of the prettiest objects on the rockwork during the latter part of last summer. The rare *Dipsacus inermis*, from the same region, proves to be quite hardy, growing as it does in a very cold part of the garden. *Dolomiaea macrocephala*, from Himalayas, a very interesting Composite, is killed on the rockwork. It was received here under the name of *D. lucida*, and is to be found in many good collections as such, but I am not aware that any other species of the genus is known to exist? It is identical with *D. macrophylla* in different herbaria. *Antennaria triplinervis*, *Anaphalis triplinervis* of some, which grows at high altitudes in the Himalayas, is doing well on the rockwork, and was a pretty sight last summer. Another very interesting Himalayan production, *Morina longifolia*, is not in the least injured either on the rockwork or in the bed along with the other members of its order. *Sedum asiaticum* (*S. Wallichianum*), an inhabitant also of the Himalayas, is in vigorous health on the rockwork. *Panicum indicum*, though only a grass, is none the less interesting, and has stood the test unhurt. Plants from the region including China and Japan have, as a rule, stood well. *Sedum Sieboldii* and *S. spectabile* (the latter better known by the name *Fabaria*, which is incorrect), both still claim a place amongst hardy herbaceous plants, being as they are not in the least affected. *Acorus gramineus*, both the typical and the variegated form, are unhurt. The minute *A. pusillus*, from Japan, is not

in the least affected in the frame: has this been known to flower in Britain? *Rheum officinale*, Tibet, appears to be quite as hardy as the rest of its congeners. *Eulalia japonica variegata*, a beautiful grass from Japan, is now beginning to grow, having sustained no injury beyond its leaves being cut back, which is not very detrimental, as it occurred so the previous winter. *Saxifraga sarmentosa*, China, which has been grown for the last two winters in a selected spot sheltered from the direct easterly winds, has done surprisingly well, some eight plants being alive and in good condition. Cape plants seem to have suffered most. *Kniphofia MacOwani* (*Tritoma MacOwani*) is killed in the frame, as also is *Helichrysum maritimum*, which has hitherto done remarkably well. *Plagiag ageratifolius*, grown as a frame plant, soon gave way to the hoary visitor, as did the colony *Helichrysum serpyllifolium*. *Crinum capense*, a sub-aquatic species grown in a frame, stood well, but succumbed before the collapse of the severe weather. *Gunnera prepense* [?] is also killed in the frame. *Mesembryanthemum uncinellum*, grown on the rockwork, proved itself hardy for a time, but succumbed in the end. The following are the results of the Australian plants:—*Helichrysum rutidolepis*, a perennial species, is unhurt in the open ground. *Sellieria radicans*, Cav., a subaquatic, which survives the milder winters in the South, is here killed in the frame. *Lagenophora Billardieri* is also killed. *Tillex recurva*, Hook. fil., an interesting Australian crassulaceous plant, has suffered much, but having grown so luxuriantly on the rockwork, sufficient life still exists to guarantee its not being lost. *Cassinia fulvida*, a New Zealand shrub, has stood unhurt in the frame, and I do not hesitate in saying that it would have weathered the winter had it been allowed to remain in its place on the rockwork. *Libertia ixioides*, New Zealand, is unhurt beyond its leaves being a little shattered. It did well during the last favourable summer, flowering and fruiting. *Chrysobactron* (*Anthericum*) *Hookeri*, Colenso, New Zealand, is coming up strong. *Mazus Pumilio*, Tasmania, is killed in and out of frame. *Veronica pinguifolia*, a shrubby species from New Zealand, is killed in the rockwork, and many of the young plants in the frames also. A plant only 5 inches high of the Huon Pine (*Dacrydium Franklinii*), a plant so rapidly becoming extinct in its native home, Tasmania, has stood in the frame unhurt. Being placed at the lower part of the frame, near the brickwork, it may have received a little extra protection. New World Plants:—*Deweya arguta* (*Arracacha arguta*), a Californian umbellifer, is untouched in all situations; *Horkelia capitata* and *H. californica* are also unhurt. *Sedum obtusatum*, California, is now beginning to grow on the rockwork, having had no other protection than a slight scattering of hay to keep it dry. *Francoa appendiculata*, *ramosa*, and *sonchifolia*, from Chili, are killed, or appear to be so. *Margyricarpus setosus*, Peru, &c., is killed on the rockwork. *Gunnera scabra*, Peru and Chili, grown in the open ground, is, from what can be ascertained at present, unhurt, and has had but little protection, the chief thing being to keep it dry. An equally good plant grown in the frame along with subaquatics is killed; nevertheless, in milder winters this class of treatment suits it rather than otherwise for plants grown in the frame. We have known seedling *Gunneras* to grow rapidly during the milder intervals of the winter months when the pots have been stood in saucers of water. A *Primula*, distributed over the country a generation ago under the name of *P. nivalis*, &c., is doing well by the side of its congeners in the bed. What is its correct name? I have known it to be referred to *P. villosa* and *P. viscosa*, which I much doubt its belonging to. It is known also as *P. nivea*, which it may be. *T. Entwistle*, April 8.

Crotons for Winter Use.—Grand as these are during the summer months for exhibition and other purposes, they are doubly valuable when flowering plants are so scarce, their magnificently coloured leaves rendering them conspicuous objects in any house, and of great value for table decoration. For the latter purpose indeed I know of nothing to equal them, except perhaps it may be some of the newest and best kinds of *Dracenas*, which show up so well under artificial light; but even these lack the gracefulness and beauty of many of the *Crotons*, the forms of some of which render them particularly striking. Take those of *C. volutus*, for instance, and what can be more curious than the peculiar curl the leaves assume; or again in the spiral twist of *C. spiralis*, or the more odd freak of *C. interruptus*, with the gaps in its leaf-blade that occur regularly on each side, leaving only the midrib, as if Nature had made a mistake. But these are not the only instances of singularity of form, as in *C. Disraeli*, Lord Derby, and others—the shapes of their leaves are equally fantastic. The last-named is a new variety, splendidly coloured even in quite a young small state, which is rather unusual among this class of plants, and therefore adds considerably to its value. As soon as this variety becomes better known by being brought before the public at exhibitions, it will, I

have no doubt, be much sought after for show purposes, as in a collection it would be sure to have great weight with the adjudicators. Among the older kinds my favourite is *C. Weismanni*, which has narrow leaves varying from a foot to 18 inches long, with the midribs and veins of a bright gold colour, showing up in the most pleasing contrast with the shining green ground. The habit of this, too, is all that can be desired, and when used for table decoration, or in rooms with the light playing through its foliage, is always greatly admired. The beauty of *Crotons* is that they may be grown in very small pots, and kept to a limited size by annual pruning, which not only makes them more bushy, but, by renewing the foliage oftener than would otherwise be done, adds much to their beauty. This pruning back should be done about the middle of February, and for a time after the plants kept rather dry at the roots till they break, when they will be ready for shaking out, or having the old ball reduced in such a way as to admit of being potted in much smaller pots, so that they may be shifted on again in due course. As *Crotons* take and require plenty of water, the drainage is an important matter towards their successful cultivation, for if it is not open and efficient the roots soon suffer, and as a natural consequence the health of the plants is quickly deranged. In order, therefore, to keep the interstices between the crocks clear, some sphagnum moss, or the rougher part of the potting soil, should be scattered over them, and the rest of the work completed with the remainder just as it comes. About equal parts of fibry peat and loam, with a little sharp sand, forms the best compost, and if this is used moderately lumpy the large roots are able to ramify amongst it with more freedom, and the percolation of water go on with greater regularity than it otherwise would. The potting complete, the best place to stand them is where they can get a bottom-heat of about 80°, just to give them a start, after which they will succeed anywhere in an ordinary stove temperature where they can get plenty of light. A good way of securing this for them is to stand them on inverted pots, so as to raise their heads nearer the glass than those of the general occupants of the house they may be in; for without this it is almost impossible to develop those remarkably fine leaf-colours for which they are so highly prized. Where light ridge shelves are not available for plants of smaller size, such as are required in most places for dinner-table decoration, and which on that account it is desired to have as perfect as possible, the difficulty may be got over by suspending a few pans from the rafters in which to stand the pots; and if these are surrounded by moss or cocoa-fibre, it will then keep the balls they contain from drying too quickly. Instead of a disfigurement to a house, an arrangement of this kind helps to furnish it, and is rather ornamental than otherwise, as they may be used for various other purposes, such as holding choice plants of a drooping habit when they are in bloom, so as to show them off better. As regards small *Crotons* for the above kind of work, most of the varieties adapted for the purpose look best on single stems without any side branches; and to get such as these with fine healthy foliage right down to the pot, it is necessary to be propagating frequently, so as to have fresh young stock. The half-ripened wood of all *Crotons* roots readily if taken off about 4 inches or 5 inches long and inserted in sharp sandy soil, under a bell-glass, on the shelf of a stove where they can get a good strong heat, or be struck in a bed of fermenting material in the ordinary way. The great thing in doing it is to preserve the leaves fresh, that the bottoms of the miniature plants may be well furnished by having a proper foundation to start with. Such sorts as *C. angustifolius*, *C. spiralis*, *C. interruptus*, and others of that class, may be kept in a small serviceable state for a long time by simply rubbing out any buds that appear likely to break up the main stem, and this throws all the strength into the old foliage, which then comes larger and finer. To keep *Crotons* clean, they must have a moist atmosphere, and be freely syringed, especially during the dry summer months, otherwise red-spider and thrips are sure to attack them, either of which insects soon disfigure the plants to such a degree as to quite spoil their beauty. The best and quickest remedy for thrips is to dip the leaves in strong tobacco-water, as this may be used with safety, and will not only destroy the pests named, but their eggs likewise. *J. S.*

The Partridge Berry (*Mitchella repens*?).—This name is given in America to a small evergreen herb, a sort of trailing plant, very common in New England, as it is in fact in most shaded woods throughout most of the Northern States, and I am told by a correspondent of mine that it would grow well in this country; if so, it would be a great ornament to our wild gardens and shrubberies. It is partial to tall trees, consequently would be likely to thrive in our plantations. The flowers are white, and very sweet-scented; the leaves, too, are most attractive, for they are variegated, having white lines on a green surface, and it bears fruit—bright scarlet taste-

less berries—which last the entire winter. It is by no means uncommon to find the berries of one year on at the time when the flowers of the succeeding season are in full beauty. The general name for these berries is “Cat’s-eyes,” because the two calyces marking the two ovaries appear on the same fruit, which is the joint produce of two flowers. These “Cat’s-eyes” would be a very charming addition to our garden for winter decorative purposes, as would its fragrant blossoms and pretty leaves to our bouquets. Why this plant is called “the Partridge-berry” I do not know. There is another “Partridge-berry” in America—the Winter Green, a creeping plant with red berries, which birds over there are very partial to; and this last-mentioned “Partridge-berry” has a variety of local names; some call it “Tea-berry,” others “the Chequer-berry,” or “Deer-berry,” and I believe its leaves are occasionally used to flavour tea with. *Helen E. Watney.*

Foreign Correspondence.

THE OLD BOTANIC GARDEN, BATH, JAMAICA.—Bath is distant from Kingston about 44 miles in an easterly direction, and is reached by a road which skirts the sea shore for many miles, the most noticeable features through which it passes being the large number of sugar estates, many of which, however, show evident signs of a decline in the production, from the quantity of land which is now thrown out of cultivation in their neighbourhood, and which doubtless was formerly under crop. The lagoons for some miles along the road were exhaling anything but a pleasant perfume, and we were glad to get free from them. They are sometimes called the Salt Ponds, and form a home for alligators and other reptiles. Noticeable growing at the edges, and generally through them, was the large *Chrysodium aureum*. Groves of *Cocos nucifera* are planted round the residences of the planters, and form a pretty feature, and the nuts forming a packing for the hogsheads of sugar, likewise realise considerable profit, the price realised being about £3 per 1000 delivered on the beach. One tree examined during our trip produced at one picking 114 ripe nuts. Considering that there would be about five times that number of unripe ones on the tree, it seems really wonderful how so small a stem supports such an enormous weight, especially as it is one of the habits of the tree never to grow in a perpendicular direction, but at an angle of about 20°—fully proving the enormous strength of the tissue composing it.

The Morant Bay River was in partial flood and very difficult to cross; however, assisted by a body of natives, who are always on the look-out for travellers, we forded it in safety, but not without a considerable wetting, the water rising over our carriage seats. After crossing this and several other rivers of more or less difficult character, we reached Morant Bay, a rather pleasant-looking little village. The quietness of the place at present must form a striking contrast to those who witnessed the scenes of murder and brutality which occurred here only a few years ago. The Court House, built upon the same spot as the one burnt by the rioters, and where their excesses commenced, the large Cotton-tree (*Eriodendron anfractuosum*) on which many of them were executed, are still shown to visitors. The latter has, however, been denuded of those branches which served as a gallows, and which are now lying rotting beneath it. Again following the sea shore from the bay the country presents much the same appearance until arriving at Port Morant, when the character of the scene changes in a great degree—the vegetation of this region being superior in elegance to that already passed, as the first is composed of open savannah, and the second of an arboreal type. Several vessels loading with sugar were lying at their anchorage, under shelter of the high land on the eastern side of the port. Leaving this our road led us in a northern direction, and presented about the same character until arriving at Potosi, a large tobacco estate. Here the country resembles those “intervals” in British North America, so highly prized there by the agriculturist from having a fine friable soil, protected on all sides by higher ground, and watered by a stream running through their centre. Plantain Garden River runs by this estate, and at times inundates it, doing considerable damage to the crops. After crossing this river, which was rather difficult, we pushed ahead for Bath, which was about a mile in advance of us.

On approaching this village the first object which strikes a visitor is the noble avenue of *Jambosa malac-*

censis, or Otaheite Apple, some of them according to their natural habit being beautiful pyramids 35 feet high, and others, having suffered under repeated hacking of the brutal cutlass of the negro, presenting an uncouth appearance. Midway in this avenue was our inn, where we were received with civility and attention. The next morning after "coffee" (the Jamaica morning snap) we entered the garden. At the gate we noticed plants of *Bauhinia reticulata*, *Areca Catechu*, *Zamia integrifolia*, in apparent health, and growing freely. Turning to the left, a noble plant, a giant among the Palms, was *Attalea Cohune*, or the Oil-Palm of Honduras, growing in the axils of the leaves of which were quantities of *Nephrolepis* and other Ferns, supported on the accumulations of decaying vegetable matter collected therein. On our right was an immense plant of *Barringtonia speciosa*, the fruit of which covered the ground, and young plants innumerable were springing from it in all directions. Following the walk on each side of us were specimens of *Caryota Cumingii*, while climbing a plant of *Guazuma*; or Bastard Cedar, was *Hoya mollis*, flowering freely; *Allamandas* growing wild, some of them 30 feet in height; a large tree, *Couropita* sp., or Cannon-ball tree, 50 feet high, and seeding freely. *Berrya Ammonilla*, or Trincomalee wood, used in Madras for the construction of the massowla boats, and several specimens of *Oreodoxa oleracea*, or Cabbage Palm, next claimed our attention, the latter by the remarkable straightness of the stems to a height of 75 feet, only one exception to this being observed, and that had an inclination of about 20° out of the perpendicular. In the next corner arrived at, among other things, was growing *Carludovica palmata*, from which the material is obtained of which the celebrated "Panama" hats are made. A fine specimen of the Gamboge was also before us (*Garcinea Cambogia*), or bastard Mangosteen, the seeds of which, of a yellow colour, were growing and forming an undergrowth of about a foot in height of the darkest green. A large clump of *Bactris minor*, of which we collected several heads of seed, was growing admirably. *Caryota urens*, in fruit and dying, was a noble Palm of 70 feet high, near to which stood *Antiaris saccidora*, the most notoriously deadly poisonous tree of the Javanese (the deadly *Upas* tree), about which so many exaggerated statements have been made. It was clasped by my companion to measure its size, and found to be 7 feet in circumference—how deadly the tree may be judged from this fact. *Spathodea cornuta* was in bloom, near which *Thrinax parviflora* had reached 27 feet in height, with a very pretty head. Two varieties of *Dendrobium* were growing on one of the trees, doubtless introduced by the former Curator, Mr. Wilson. Examining a plant with numerous spines it was found to be a *Calamus*, or Rattan Palm, used for chair-seats, &c. Plants of *Stephanotis*, *Smilax*, *Sarsaparilla*, *Vanilla aromatica*, were hanging in festoons from many of the trees.

Brownea coccinea, a noble tree, not in flower, was in excellent condition. The ivory-nut Palm (*Phytalephas macrocarpa*) and the Macaw Fat Palm, or *Elais guineensis*, were represented by many specimens of fine size. Two clumps, with several stems each, of two different *Astrocaryums* were next noticed; one clump had fruit in two large bunches, which could not be reached on account of the prickly nature of the stems. *Pterocarpus indica* was a noble tree, 60 feet in height, near by which was growing a large Fern, supposed to be an *Angiopteris*, with fertile fronds. The gem of the garden, undoubtedly, is the magnificent specimen of *Amherstia nobilis*, in flower and seeding. This tree is over 30 feet in height and in excellent health; many young plants have been raised from the seed, which have been distributed to different parts of the island. *Rajania ornata* and *Fagraea obovata* are next noted.

One of the most striking features connected with the garden is the growth made by the different varieties of *Pandanus*. Among these are some reaching as high as 30 feet from the ground, while aerial roots produced at heights varying from 10 to 20 feet, and reaching the ground at a considerable angle, in a circular manner around the plant, form at once a support and an abatis for the protection of the stem. Mention should also be made of *Laurus Cassia*, two fine trees producing the Cassia bark of commerce. Before leaving the garden, situated in a corner, and supposed to be one of the finest in the island, is a Nutmeg-tree (*Myristica Moschata*), the circumference

of whose branches measures 32 feet, and height 24 feet; many others are also planted in adjoining ground. They are in excellent health, and producing, yearly, quantities of excellent fruit. It may be unknown to some of your readers that a fine preserve is made from the pericarp of the fruit, which partakes in flavour of a mixture of the two spices which it contains, mace and nutmeg. On leaving the garden our attention was called to two trees of large size, which were found to be *Ficus elastica* and *Ficus indica*. The former presented a peculiar feature in the formation of its roots, the diameter of a circle including all the roots partially above-ground was equal to the spread of its branches, and measured over 100 feet, the roots rising in ridges and ramifying in a serpentine manner in all directions. The height of the ridges varies from 3 to 24 inches in height, and from 2 to 6 inches in thickness. This tree had been bled for the purpose of obtaining rubber, and was circled by two enormous cicatrices all round the trunk—the tree itself not appearing to be injured in the least. The *Ficus indica* or Banyan Fig is growing rapidly, and covers a large extent of ground. Both trees are covered with quantities of parasites and epiphytes.

This garden was abandoned some years since for what was considered a more suitable site at Castleton, but a small amount is allowed for its sustenance, and its chief value now consists in supplying seeds of the many varieties of trees and plants which have proved suitable to the climate and have also undergone the harsh trial of abandoned cultivation for several years, which of course greatly enhances their value, as showing that they can undergo a fair amount of neglect, and that with a minimum of attention cannot fail to thrive if placed in similar conditions to those in which they are situated. Many of those products of economic value introduced by Mr. Wilson and catalogued by him are not now to be found, but, on the other hand, a large quantity of trees of quite equal value in a commercial sense show undoubted signs that their cultivation can be carried on profitably by their favourable progress since being left to themselves, and that, as duplicates of most of them are now again on trial in another place, the abandonment of the garden has proved in the end a wise measure, as proving by experience what trees will do if left uncultivated and not seen under the treacherous conditions of high cultivation. *J. H., King's House, Kingston, Jamaica, March, 1879.*

Reports of Societies.

Newcastle-upon-Tyne Botanical and Horticultural: April 9 and 10.—The spring show of this old-established and prosperous society was held on the above days in the Town Hall and Corn Exchange of Newcastle. During the last few years the committee have been working energetically together to make the flower shows worthy of the great northern city, and to encourage the love for gardening amongst all classes of society, and they have been singularly successful in doing this. There are classes provided in the schedule for the owners of the largest gardens, whilst the owners of gardens attached to villa residences, the artisan and cottager, each have an opportunity to exhibit the produce of their skill and industry.

Orchids, stove and greenhouse plants should be noticed first, and as good prizes are provided the exhibitors do their best to produce specimens worthy of the occasion. The best group came from the gardens of J. Hedley, Esq., West Chirton House (William Charlton, gr.), who had some well-grown plants, and a particularly well-grown specimen of *Imantophyllum miniatum* with ten trusses. The 2d position in this class was obtained by Mr. H. Wright, gr. to Grosvenor Talbot, Esq., of Southfield, Burly, Leeds, who was but little behind the other; he had a very healthy specimen of *Camellia Mathotiana alba*, with large pure white imbricated flowers, and a superb variety of *Imantophyllum miniatum*, with six trusses of perfect form. There were numerous exhibitors in this section, all of them showing fairly well-grown healthy plants. Orchids were not exhibited separately, but as stove plants. Of *Azalea indica* there were six exhibitors, the plants, as a rule, being fairly well-grown and bloomed, although few of them were well trained: the best specimens came from Mr. H. Wright, the second best from Mr. A. Methven, gr. to T. Lange, Esq. Hardy Rhododendrons made a good display; the pots being placed on the ground were shown off to the best advantage. Indeed, nearly all the large plants stood on the ground, including stove and greenhouse specimens. *Epacris*, *Acacias*, *Genistas*, and hardy shrubs, had classes provided for them, but nothing calling for

any special remark was exhibited. In a class for six *Spiræas* there were twelve collections shown, many of them being very meritorious. Mr. W. J. Watson, nurseryman, Fenham, was 1st; Mr. Wm. Anderson, Rye Hill, 2d; and Mr. Wm. Alexander, jun., Hexham, 3d. There was a goodly collection of *Cinerarias*, but the specimens were not trained out with the care necessary to produce the best results. The best came from the gardens of W. Snowball, Esq. (Mr. J. Forsyth, gr.), while the plants from the gardens of E. Joicey, Esq., were but little inferior. The *Primula sinensis* formed an excellent class, the plants being marked by skilful culture. *Cyclamens* were not so well grown, good varieties being the exception rather than the rule. *Hyacinths*, *Tulips*, and *Polyanthus Narcissi* formed a very large division, and, taken in the mass, they were not so well shown as last year as regards the quality of the flowers, although there were some groups of decided merit. The collection of twenty-four pots from Mr. John Thompson, nurseryman, Ravenside, Fenham, was well set up, and contained very fine spikes; the 2d, from H. Dewar & Co., seedsmen and florists, of Grey Street, was also well set up, and the spikes fresh and good. Messrs. Nairn & Son, Pilgrim Street, gained the 3d place, the 4th prize being awarded to a nice collection from the gardens of H. Pease, Esq., Pierremont (Wm. Yule, gr.). It would be tedious to enumerate all the exhibitors in this section as they were very numerous, no less than 864 pots being staged. Many of the exhibitors in this and also some of the other classes had not the least notion of staging plants for effect, and the slovenly way in which some of the pots were mossed on the surface quite spoiled the appearance of the groups. Some exhibitors thought it best to place their largest plants in front and the smaller sizes behind, leading to the belief that they had been put on the stage just as they came to hand; others did not take the trouble to pick the straw and loose matting from the leaves and moss. These remarks are made in no carping spirit, but the effect of a splendid exhibition ought not to have been endangered by such slovenliness and want of taste.

Passing from these to the hardy border plants, comprising *Dielytras*, *Hepaticas*, *Lily of the Valley*, *Myosotis*, &c., grown in pots, we found a most interesting part of the exhibition. *Dielytra spectabilis* was shown very fine indeed. Mr. W. J. Watson had six remarkably fine examples, and a long row of them from other exhibitors was quite a feature of the show. The *Hepaticas* comprised the blue and the double red varieties; if they would add to them the single white and the beautiful *H. angulosa*, a much better effect would be produced. *Lily of the Valley* was certainly well shown, the foliage clean and healthy and the spikes of flowers good. Are there no hardy Primroses about Newcastle? In a class provided for them one exhibitor brought six small pots of *Primula amœna*, to which a 2d prize was awarded. Pots of *Scilla* were very pretty because well-grown and flowered.

Auriculas and *Polyanthus* were much better shown than they were last year, and numerous exhibitors came to claim the prizes provided for them. Surely no exhibitor south of the Tyne can complain of a show of *Auriculas* being held in the third week of April, when the canny Newcastle folk can show such *Auriculas* as Richard Headley, Geo. Lightbody, Smiling Beauty, Lancashire Hero, and other late sorts on the 9th day of April. The principal exhibitors of *Auriculas* were Mr. E. Adams of Smallwell, and Mr. Thos. E. Hay, Killingworth, and considering the very early date at which the show was held, their plants were very creditable indeed. Mr. Hay had a superb example of *Blackbird* (Spalding), *Glory* (Taylor), and other fine sorts. Mr. Adams gained the 1st prize for any edged *Auricula* with Col. Champneys (Turner), and also in the class for the best self with Charles J. Perry (Turner). The best *Polyanthus* were sent from the gardens of Colonel Cowen, Blaydon Burn (Mr. W. Henderson, gr.), and by Mr. E. Adams. The best varieties shown were *George IV.* (Buck), *William IV.* (Sanderson), and a variety named *Black and Gold*. Spurious border flowers were shown under the names of *Alexander* (Pearson) and *Kingfisher*. The vases of cut flowers, bouquets, buttonhole flowers, and cut flowers in stands, were very fine indeed, and were in many instances arranged with considerable taste. There were a few exceptions, notably those who tried to cram three times as many fine flowers into a bouquet or vase as were required; these of course were sure to be on the losing side, as, besides the vulgarity of the thing, the waste of fine flowers ought not to be tolerated. The whole of the vases were what is called "March" stands; a few were of that pattern with glass trumpets springing from the centre stem. By far the best came from Mr. M. D. Thompson, gr. to Lindsay Wood, Esq., of South Hill. It had a single spike of *Phajus* in the centre, with sprays of *Spiræa* and fronds of *Lygodium scandens* depending from it; the middle glass had drooping spikes of *Cleodendron* and a few *Clematis* flowers; the base was made up of the pretty pale blue *Plumbago capensis*,

Eucharis amazonica, and spikes of *Oncidium sphacelatum*. Mr. G. Rymer, The Barnes, Sunderland, was 2d; Mr. H. Wright 3d; a 4th prize being awarded to Mr. E. Oliver, Benton. There were fifteen competitors in this class. Twenty-five bouquets were exhibited, those obtaining prizes being very good. Separate classes were provided for ladies, and although their exhibits were not so numerous as those of the professionals, they were not much inferior in quality. Cut Camellias, Azaleas, Roses, and Rhododendrons made a very good display down one side of the room; these were a great improvement on previous years' exhibits. A meed of praise is certainly due to the managers of this show: everything was well arranged, and printed lists of the awards were to be had in the exhibition in an hour or two after the judging was over.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in 5, St. Andrew's Square, Edinburgh, on Tuesday 1st inst. There was a large attendance of members from the country, owing to the spring show of the Royal Caledonian Horticultural Society taking place the following day. The President, Mr. Dunn, Dalkeith Park Gardens, occupied the chair. Twelve persons were nominated as new members. The President delivered his inaugural address, and took occasion to refer to the gradual increase in the number of members seeking admission into the Association. He stated that in the syllabus for the ensuing year useful and highly practical papers were the principal feature, the half of which were to be given by members who had not formerly contributed. He explained the proposed cultural certificates to be awarded for the high culture of articles exhibited at the different meetings. The examination and testing of productions would still engage the attention of the Association, while the same time as heretofore would be devoted to the reading of papers. He stated that the year 1878 was on the whole a favourable one for horticulture, although it had been a failure as regards great exhibitions. He then animadverted upon some of the features in the trying winter we had just come through, coal forming a heavy item in the gardener's expenditure, particularly in those places where forcing was largely practised. The establishment of a reading-room and library for gardeners would be an important adjunct to the Association, because, if the gardening profession was to advance, and higher remuneration to be obtained, the best way to attain this desirable result would be for gardeners to give themselves a greater name and hold in the country by more skilled practice and a higher knowledge of their profession.

Mr. James Anderson, nurseryman, Meadowbank, next read a paper on "The Education of Young Gardeners," a portion of which has appeared in our columns at pp. 463 and 496.

The President reported that the New Fruits Committee had agreed to give a certificate to the new seedling Apple, Beauty of Moray, raised by Mr. John Webster, Gordon Castle Gardens, and which had been several times before the monthly meetings, as well as the Adjudicating Committee.

The New Flowers Committee met on the following day in the Waverley Market, and awarded the following certificates, viz., to Mr. Robertson Munro, Abercorn Nursery, for *Primula denticulata* alba; to Thomas Methven & Sons, Edinburgh, for a new seedling *Pelargonium*, raised from Annie and Bridal Bouquet, named Countess of Rosebery. Its points are, dwarfer in habit than its parents, a purer white, and greater florescence. To Mr. James Anderson, nurseryman, Meadowbank, for three *Amaryllis*, named Isaac Anderson-Henry, A. B. Stewart, and Angus McLeod. They are effective plants, orange-scarlet in colour, and distinctly banded. To Downie & Laird, for a superior form of *Imantophyllum miniatum*. To Dicksons & Co., Edinburgh, for *Rhododendron* Duchess of Connaught, with a touch of Edgworthi in it; a pure white flower, with pale lemon in centre. The following plants were exhibited:—An *Auricula*, by Mr. Geo. McClure, Trinity Gardens; seedling *Cinerarias* of great size from Mr. Alex. McMillan, Broadmeadow, Berwickshire; *Primulas*, from Messrs. Dicksons & Co.; and *Pilea muscosa minima*, from Messrs. Ballantyne & Sons, nurserymen, Dalkeith.

The Weather.

LONDON: Barometer.—During the week ending Saturday, April 12, in the vicinity of London the readings of the barometer at the level of the sea decreased from 29.70 inches at the beginning of the week to 28.97 inches by the morning of the 7th, increased to 30.14 inches by the afternoon of the 11th, and decreased to 29.69 inches by the end of the week. The mean reading for the week at sea level was 29.56 inches, being 0.14 inch below that of the preceding week, and 0.36 inch below the average.

The mean daily readings were below their averages on every day in the week (except Friday, on which day the reading was 0.19 inch above the average); on the 8th the mean reading was no less than 0.92 inch in defect.

Temperature.—The highest temperatures of the air observed by day varied from 60½° on the 7th, and 58½° on the 8th to 40½° on the 12th; the mean of the seven highest readings was 50½°. The lowest temperatures of the air observed by night varied from 28° on the 12th, and 32° on the 11th, to 44° on the 7th; the mean value for the week was 37½°. The mean daily range of temperature in the week was 12½°, the greatest range in the day being 16½°, on the 7th, and the least 8½°, on the 6th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—6th, 45°·5, + 0°·5; 7th, 50°·4, + 5°·2; 8th, 48°·8, + 3°·4; 9th, 45°·7, + 0°·1; 10th, 38°·6, — 7°·1; 11th, 35°·9, — 9°·9; 12th, 32°·6, — 13°·3. The mean temperature of the air for the week was 42°·5, being 3° below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 122° on the 7th, 111½° on the 11th, and 105° on the 8th; on the 10th the reading did not rise above 46°, and on the 12th not above 47°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 25½° on the 12th, 28° on the 11th, and 31° on the 10th; the mean of the seven lowest readings was 34°.

Wind.—The direction of the wind was variable, and its strength strong.

The weather until Thursday was fine and mild, but on the last three days of the week very cold weather prevailed. Frequent snow fell, and the sky was generally overcast.

Rain or snow fell on five days during the week, the amount measured was 1.03 inch.

ENGLAND: Temperature.—During the week ending Saturday, April 12, the highest temperatures of the air observed by day were 61½° at Cambridge, 61° at Leicester, and 60½° at both Blackheath and Nottingham; the highest temperature of the air at Sunderland was 51°, and at Wolverhampton was 54½°; the mean value from all stations was 57°. The lowest temperatures of the air observed by night were 24° at Truro, 26½° at Brighton, 27½° at Nottingham, and 28° at both Blackheath and Cambridge; the lowest temperature of the air at Sunderland was 34°; the general mean from all places was 29½°. The extreme range of temperature in the week was the greatest at Cambridge and Nottingham, both 33½°; and the least at Sunderland, 17°; the mean range of temperature from all stations was 27½°.

The mean of the seven high day temperatures was the highest at Truro, 51½°, Plymouth 51½°, Brighton 50½°, and Nottingham 50½°; and the lowest at Sunderland, 45½°; the mean from all places was 49°. The mean of the seven low night temperatures was the lowest at Wolverhampton and Sheffield, both 35½°, Nottingham 36½°, and Truro, Liverpool, and Hull, all 37°; and the highest at Norwich, 39½°, and Bristol, 39°; the mean value from all stations was 37½°. The mean daily range of temperature during the week was the least at Sunderland, 7½°, and the greatest at Truro, 14½°; the mean daily range from all places was 11½°.

The mean temperature of the air for the week from all stations was 41½°, being 4½° lower than the value for the corresponding week in 1878. The mean temperature of the week was the highest at Plymouth, 43½°, and Truro and Brighton, both 43°, and the lowest at Wolverhampton, 40°, and Sunderland, 40½°.

Rain.—The amounts of rain measured were the heaviest at Nottingham, 1.47 inch, Brighton and Sheffield, both 1.19 inch, Leicester, 1.05 inch, and Blackheath, 1.03; and the least at Truro, 0.58 inch, and Bradford, 0.60 inch; the average fall over the country was 0.90 inch.

The weather during the first four days of the week was generally fine and mild, but on the remaining three days it was very cold and dull, with frequent snow and sleet. On the 12th very heavy falls of snow occurred at places.

SCOTLAND: Temperature.—During the week ending Saturday, April 12, the highest temperatures of the air observed by day varied from 53° at Leith and 52½° at Greenock to 46½° at Aberdeen; the mean value from all stations was 50½°. The lowest temperatures of the air observed by night varied from 30° at Dundee and Edinburgh to 35° at Glasgow; the mean from all places was 32½°. The mean range of temperature in the week from all places was 17½°.

The mean temperature of the air for the week from all stations was 42°, being 2½° lower than the value for the corresponding week in 1878. The highest was 43° at Glasgow, Greenock, and Paisley; and the lowest was 40½° at Dundee and Aberdeen.

Rain.—The falls of rain or snow were the heaviest at Dundee, 1.95 inch; and Aberdeen, 1.79 inch;

and the least at Glasgow, 0.66 inch; Greenock, 0.67 inch; and Paisley, 0.68 inch. The average fall over the country was 1.14 inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, APRIL 16, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|------------|------------------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | |
| April 10 | In. 29.65 | — 0.09 | 45.5 | 34.2 | 11.3 | 38.6 | — 7.1 | 36.5 | 93 { NNW: In. 0.50 N.N.E. |
| 11 | 29.03 | + 0.19 | 42.5 | 31.9 | 10.6 | 35.9 | — 9.9 | 30.6 | 81 { E 0.09 E |
| 12 | 29.63 | — 0.11 | 40.3 | 28.1 | 12.2 | 32.6 | — 13.3 | 29.6 | 88 { N 0.18 N |
| 13 | 29.47 | — 0.27 | 43.8 | 31.7 | 12.1 | 36.9 | — 9.2 | 32.3 | 84 { E: 0.08 E.S.E. |
| 14 | 29.36 | — 0.38 | 42.8 | 30.4 | 12.4 | 36.0 | — 10.3 | 32.0 | 86 { S.E.: 0.09 S.E. |
| 15 | 29.32 | — 0.42 | 58.3 | 31.7 | 26.6 | 43.2 | — 3.3 | 36.2 | 77 { WNW: 0.05 S.S.W. |
| 16 | 29.38 | — 0.37 | 43.1 | 33.5 | 9.6 | 36.7 | — 9.9 | 35.1 | 94 { N.N.E.: 0.34 N. |
| Mean | 29.53 | — 0.21 | 45.2 | 31.6 | 13.6 | 37.1 | — 9.0 | 33.2 | 86 { variable sum 1.24 |

April 10.—Overcast and dull throughout. Heavy rain fell in early morning, and frequently after 11 A.M. Little sleet fell in evening.
— 11.—Dull till 11 A.M.; fine, though cloudy after. Occasional flakes of snow. Raw cold. Gale at times.
— 12.—Overcast, dull day, bitterly cold. Heavy snow and rain. A very wintry day.
— 13.—Fine, but very cloudy. Cold. Overcast at night. Snow-storm 6 to 7 A.M.
— 14.—Fine till 10 A.M., overcast afterwards. Raw cold. Rain fell after 1 P.M.; sleet fell at night.
— 15.—Dull and showery till 9.30 A.M.; fine and bright after. Very cloudy at times. Thin rain began to fall at 11 A.M.
— 16.—Overcast and dull throughout. Very cold. Heavy rain in early morning, and thin rain fell frequently throughout the day.

N.B.—The weather during this week has been exceptionally cold and severe, with frequent snow and sleet.

The mean reading of the barometer for the thirty days (March 18—April 16) ending to-day (April 16), was 29.56 inches, being 0.27 inch below the average. The mean daily reading was in excess of the average on one day only during this period, viz., April 11.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

BOOKS: A. B. C. Perhaps Burbidge's *The Art of Botanical Drawing*, published at the cost of a few shillings by Messrs. Winsor & Newton, 38, Rathbone Place, Oxford Street, W., will meet your requirements.

CONSERVATORY: M. R. You do not say for what the house is intended, and this would greatly influence our advice. We will assume you intend to grow the ordinary greenhouse plants, large and small, in pots. 1. The hipped-span would be best, as the smaller plants in front would be nearer the glass. 2. Clear glass decidedly. 3. Coloured glass, if required for effect, might be sparingly introduced round the margins of the sashes, but not elsewhere. 4. The height of the front should not exceed 8 feet; that of the back slope at D might be 11 feet if required. You need not fear having too much light, and if the sun is at all inconvenient use a tiffany blind at the south end. Camellias planted out should do well in such a house as you have sketched with the ridge-and-furrow roof, and with hardy Palms and Tree Ferns, and Tea Roses trained over the roof, would be more picturesque than the other.

CYCLAMENS: Subscriber. Place the pots in a pit where the plants can have plenty of air and light, and keep them regularly, but not excessively watered. They should not be dried off, as was once commonly done.

DEUTZIA GRACILIS: K. A. B. This plant belongs to the natural order Saxifragaceae.

DOUBLE SPATHED ARUM: W. D. F. Such specimens are not uncommon, as we pointed out in our number for February 23, 1878, when we also published an illustration of a much finer specimen of this kind of malformation.

FUNGUS: S., Southampton. The name of the fungus on Cypress is *Podisoma juniperi*. We do not know of any cure.

HEATING: Constant Subscriber. If you cannot get the bent earthenware pipes for the ends you may get over the difficulty by building the ends of the two series of pipes into a hollow brick pier, just high enough to receive the pipes. The brickwork, like the pipes, would have to be set in cement, and cemented inside so as to make it watertight. If you intend to use the piping as a smoke flue sound mortar-work would do for the piers.

LARCH SEEDS: F. M. D. N. Z. Sow in spring, and cover the seed-beds with a thin layer of twiggly boughs, which serve both as a shade and shelter for the young seedlings.

NAMES OF PLANTS: *S. M. & A.* *Primula verticillata*, var. *simensis*, the Abyssinian Primrose.—*J. W. B.* *Fuchsia splendens*.—*J. Goodger*, *Habrothamnus fasciculatus*.—*M. H. F.* 1, *Psoralea pinnata*; 2, *Selaginella Martensii*; 3, *Begonia* seems to be a garden hybrid, which we cannot name; 4, *Begonia incarnata*.—*Hortus*. 1, *Eupatorium riparium*; 2, *Hibbertia stricta*.—*Andrew*. 1, *Grevillea Thelemanniana*; 2, impossible to name.—*T. Turner*. We might identify your Orchid if you send a carefully packed specimen (not in cotton wool). The specimen sent was smashed beyond recognition.—*C. F.* 1, *Juniperus virginiana*; 2, *Biota orientalis*.—*Subscriber*, *Manchester*. *Calceolaria violacea*.—*R. W. D.* Indeterminable from such miserable scraps.—*J. J. C.*, *Cheltenham*. *Dendrobium crystallinum*.

SHADING: *W. W. R.* The Bamboo shading referred to at p. 505 of our present issue will perhaps meet your requirements; or you can use tiffany, tacking it on the outside of the sashes, and allowing it to remain during the hot months.

SELAGINELLA: *W. C. L.* Your seedling is much like *S. delicatissima*, but we will examine it again more closely.

SETTING THE CANON HALL MUSCAT: *E. A. H.*, who has never any trouble in setting the Muscat of Alexandria, while he finds a great difficulty in setting the Canon Hall Muscat growing in the same house, will find on examining the flowers of the latter variety that they have six, and in some cases seven stamens, which are so crowded together that they prevent the pistil from being properly fertilised. Our correspondent should try the plan of setting them with the aid of a syringe with a fine spray-distributing rose, as is successfully done by some growers.

SOLUBLE PHENYLE: *Insecticide*. The manufacturers are Messrs. Morris, Little & Son, Doncaster, but it can also be obtained from Messrs. Maw, Son & Thompson, Aldersgate Street, E.C., and Messrs. Bowker & King, 34, Lime Street, E.C.

TOUGHENED GLASS: *Mercer*. Write to Messrs. Dick Radclyffe & Co., 129, High Holborn, W.C.

WATSON'S LAWN SAND: *R. M.* Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WOUND IN AN OAK TREE: *T. C.* Select a fine day to dry the wound, and apply a good dressing of painters' knotting, repeating the dressing two or three times at intervals of a day or so, and when you have stopped the bleeding, fill up the hole with cement, to exclude wet.

CATALOGUES RECEIVED:—*M. Briant* (Boulevard Saint Cyprien, Poitiers), Priced List, Supplementary Catalogue of Novelties, &c.—Messrs. Dickinsons & Co. (1, Waterloo Place, Edinburgh), Descriptive Catalogue of Florists' Flowers.—*L. Spaeth* (Köpnickerstrasse, 154, Berlin), Catalogue of Shrubs, Plants, Fruit Trees, &c.

COMMUNICATIONS RECEIVED:—East Somerset (many thanks for the hint).—*J. G. B.*—*W. H.* (thanks; photograph received).—*T. R. C. R.*—*W. B.* (best thanks).—*R. H. G.*—*J. I. L.*—*B. S. W.*—*J. H.*—*H. E. W.*—*Herm. Wendland*.—*R. P.*—*H. H. B.*—*J. D.*—*J. B.*—*N. J.*—*E.*—*T. T. B.*—*Max Leichtlin*.—*T. S.* (not uncommon).—*J. F. R.*—*W. P.* (yes; so far as we can tell from a withered flower without a leaf).

Markets.

COVENT GARDEN, April 17.

Some fair samples of New Grapes have reached us, but sales have been bad, good specimens of last year's fruit entirely ruling the market. Strawberries are more than equal to the demand. The holidays not improving business. *James Webber, Wholesale Apple Market.*

CUT FLOWERS.

| <i>s. d. s. d.</i> | <i>s. d. s. d.</i> |
|---------------------------------|---|
| Abutilon, 12 blooms .. 0 6-1 0 | Narcissus, paper- |
| Arum Lilies, 12 blms. 3 0-9 0 | white, 12 sprays .. 1 0-2 0 |
| Azaleas, 12 sprays .. 0 6-1 6 | Pelargoniums, 12 spr. 1 0-2 0 |
| Bouvardias, per bun. 1 0-4 0 | — zonal, 12 sprays 0 6-1 6 |
| Camellias, per dozen 1 0-6 0 | Primroses, single yellow, 12 bunches .. 0 9-1 6 |
| Carnations, per dozen 1 6-4 0 | — double white, 12 bunches .. 2 0-4 0 |
| Cineraria, 12 bunches 6 0-12 0 | Primula, double, per bunch .. 0 9-1 6 |
| Cyclamen, 12 blooms 0 3-1 0 | Roses (indoor), doz. 1 6-9 0 |
| Daffodil, 12 bunches 3 0-9 0 | Stephanotis, 12 sprs. 6 0-12 0 |
| Deutzia, 12 bunches 6 0-12 0 | Tropæolum, 12 bun. 2 0-6 0 |
| Eucharis, per doz. .. 6 0-18 0 | Tuberose, per dozen 3 0-6 0 |
| Euphorbia, 12 sprays 3 0-6 0 | Tulips, 12 blooms .. 1 0-2 0 |
| Gardenias, 12 blms. 2 0-12 0 | Violets, 12 bunches 0 6-2 0 |
| Heliotropes, 12 sp. .. 0 6-1 0 | |
| Hyacinths, 12 bnch. 4 0-12 0 | |
| Lily of Val., 12 sprays 1 0-3 0 | |
| Mignonette, 12 bun. 6 0-12 0 | |

PLANTS IN POTS.

| <i>s. d. s. d.</i> | <i>s. d. s. d.</i> |
|---|--|
| Arum Lily, or Rich- ardia æthiops, doz. 9 0-18 0 | Fuchsias, per dozen 9 0-18 0 |
| Azaleas, per dozen .. 18 0-60 0 | Genista, per dozen .. 9 0-24 0 |
| Begonias, per doz. .. 9 0-18 0 | Hyacinths, per doz. 6 0-18 0 |
| Bouvardias, per doz. 18 0-24 0 | Mignonette, per doz. 6 0-9 0 |
| Cinerarias, per doz. 6 0-18 0 | Myrtles, per doz. .. 6 0-12 0 |
| Cyclamens, per doz. 0 30-0 30 | Palms in variety, each .. 2 6-21 0 |
| Cyperus, per dozen 6 0-12 0 | Pelargoniums, per dozen .. 12 0-24 0 |
| Dielytra, per dozen 0 18-0 18 | — scarlets, zonal, p. dozen .. 6 0-12 0 |
| Dracena terminalis, 30 0-60 0 | Primulas, per dozen 4 0-12 0 |
| — viridis, per doz. .. 18 0-24 0 | Roses, per dozen .. 12 0-42 0 |
| Erica hyemalis, doz. 9 0-30 0 | Spiræa, per dozen .. 6 0-24 0 |
| Euonymus, var. doz. 6 0-18 0 | — palmata, per doz. 18 0-48 0 |
| Ferns, in var., p. doz. 4 0-18 0 | Tulips, per dozen .. 8 0-12 0 |
| Ficus elastica, each 2 6-15 0 | |
| Foliage Plants, vari- ous, each .. 2 0-10 6 | |

FRUIT.

| <i>s. d. s. d.</i> | <i>s. d. s. d.</i> |
|--------------------------------|--------------------------------|
| Apples, ½ basket .. 1 6-5 0 | Oranges, per 100 .. 6 0-12 0 |
| Cobs and Filberts, lb. 0 9-1 0 | Pears, per doz. .. 4 0-8 0 |
| Grapes, per lb. .. 6 0-15 0 | Pine-apples, per lb. 2 0-4 0 |
| Lemons, per 100 .. 3 0-10 0 | Strawberries, per lb. 4 0-10 0 |

VEGETABLES.

| <i>s. d. s. d.</i> | <i>s. d. s. d.</i> |
|---|--|
| Artichokes, English Globe, doz. .. 2 0-4 0 | Herbs, per bunch .. 0 2-0 4 |
| — Jerusalem, bush. 6 0-.. | Horse Radish, p. bun. 4 0-.. |
| Asparagus, Fr. sprue, per bundle .. 1 6-.. | Lettuces, Cabbage, per doz. .. 1 6-.. |
| — Eng., per bundle 7 0-.. | Mint, green, bunch .. 1 6-.. |
| — Fr. giant, p. bun. 30 0-.. | Onions, per bushel .. 6 0-7 0 |
| — Toulouse, bun. .. 4 0-5 0 | — young, per bun. 0 4-0 6 |
| Beans, French, p. 100 2 0-.. | Parsley, per lb. .. 2 0-3 0 |
| — broad, per lb. .. 1 0-.. | Peas, per quart .. 5 0-.. |
| Beet, per doz. .. 1 0-2 0 | Potatoes, new, per lb. 0 6-0 9 |
| Cabbages, per doz. .. 1 0-2 0 | Radishes, Fr., bunch 0 6-.. |
| Carrots, per bunch .. 0 4-0 6 | — New Jersey, doz. 2 0-.. |
| — New Fr., p. bun. 2 0-.. | Rhubarb, doz. .. 6 0-8 0 |
| Cauliflowers, per doz. 2 0-5 0 | Shallots, per lb. .. 0 6-.. |
| Celery, per bundle .. 1 6-2 0 | Seakale, per punnet 2 6-.. |
| Chilis, per 100 .. 2 0-.. | Spinach, per bushel 3 6-.. |
| Cucumbers, each .. 0 9-1 6 | Sweet Potatoes, per lb. 0 6-.. |
| Endive, Batav. dozen 1 6-.. | Tomatoes, per dozen 2 6-3 0 |
| Garlic, per lb. .. 0 6-.. | Turnips, p. 12 bunch. 3 0-6 0 |
| | — New Fr., bunch 1 0-3 0 |

Potatoes:—Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

SEEDS.

LONDON: April 16.—Owing to the recent holidays and the consequent loss of two markets, there was a larger attendance than usual on Mark Lane to-day, and notwithstanding the unfavourable weather there was a fair trade doing. Values of Clover and all the other leading varieties continue most moderate; indeed, a noteworthy feature of the present season is the narrowness of the margin dividing consumptive from speculative prices, quotations throughout having kept at so low a level that holders have manifested indifference whether they sold out or not. For grass seeds there is a brisk sale at full rates; Lucerne, too, meets with an improved demand. Timothy, on account of its scarcity, is dearer. There is rather more enquiry for Mustard and Rape seed, but no transactions can be noted. Turnip seeds have recently been in better request; country holders could now place some of their surplus stock on Mark Lane at advantageous rates. In neither Hemp nor Canary seeds is there any quotable variation. Millet seed is 1s. to 2s. per quarter dearer. For feeding Linseed the sale is slow. Blue Peas and Haricot Beans find buyers on former terms. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Monday being a Bank Holiday no business was done at Mark Lane. On Wednesday trade was very quiet, and no important feature presented itself. Good English Wheat was scarce and pretty well held, but all inferior produce might be obtained on easier terms. Foreign Wheat was in fair supply, and, as in the case of English, only the better qualities fully supported the rates of last week. Malting Barley was steady. Grinding and distilling kinds were cheaper to sell. Oats and Maize were dull, especially the latter, and rather a heavy market prevailed for other classes of produce.—Average prices of corn for the week ending April 12:—Wheat, 41s.; Barley, 32s. 3d.; Oats, 20s. 8d. For the corresponding period last year:—Wheat, 51s. 5d.; Barley, 41s. 9d.; Oats, 24s. 10d.

CATTLE.

At Copenhagen Fields on Tuesday the number of beasts on sale was small, although as large as expected for a holiday. The demand, however, showed improvement, owing to a better trade at the dead market and the favourable weather. Prices advanced for all kinds, and a good clearance was effected. The supply of sheep was very short, the trade brisk at our advanced quotations, and an early clearance was effected. Choice calves and lambs were very dear. Quotations:—Beasts, 4s. 4d. to 4s. 8d., and 4s. 10d. to 5s. 4d.; calves, 5s. 8d. to 6s. 10d.; sheep, 4s. 8d. to 5s., and 5s. 4d. to 6s.; lambs, 8s. 4d. to 9s. 4d.—Trade on Thursday was quiet. The supply of beasts and sheep was about the average for a Thursday. Prime breeds were steady, otherwise the demand ruled quiet. Lambs were quieter, and less firm; calves and pigs sold at about late rates.

HAY.

The report from Whitechapel for Tuesday states that there was a short supply of hay and straw on sale. The trade was very dull, and prices unaltered. Prime Clover, 100s. to 108s.; inferior, 85s. to 95s.; prime meadow hay, 80s. to 85s.; inferior, 40s. to 75s.; and straw, 30s. to 37s. per load.—The supply on Thursday was very short, and trade was firm without alteration in prices.—Cumberland Market quotations:—Superior meadow hay, 84s. to 90s.; inferior, 65s. to 74s.; superior Clover, 108s. to 115s.; inferior, 70s. to 90s.; and straw, 36s. to 40s. per load.

COALS.

There has been an active demand for house coals, owing to the continued strike of the men at Durham. On Wednesday the top price was quoted 21s. 6d. per ton. Quotations:—East Wylam, 18s.; Hastings Hartley, 13s. 6d.; Walls End—Haswell, 21s. 6d.; Hawthorns, 19s. 9d.; Lambton, 21s. 6d.; Original Hartlepool, 21s. 6d.; South Hetton, 21s. 6d.; Chilton Tees, 20s. 3d.; Caradoc, 21s. 6d.; South Hartlepool, 20s.; Thornley, 20s. 6d.

Government Stock.—On Tuesday, Wednesday, and Thursday, Consols were 97½ to 98 for both delivery and the account.



WEBBS' POPULAR COLLECTIONS OF CHOICE FLOWER SEEDS

| No. 1. | No. 2. | No. 3. | No. 4. | No. 5. | No. 6. |
|--------|----------|--------|--------|----------|--------|
| 5s. | 10s. 6d. | 15s. | 21s. | 31s. 6d. | 42s. |

Other Collections at 2s. 6d., 7s. 6d. and 63s. each.

| | Per Packet—s. d. | s. d. |
|---|------------------|-------|
| WEBBS' New Petunia .. | 1 6 | 2 6 |
| WEBBS' Superb Calceolaria | 1 6 | 2 6 |
| WEBBS' Choice Primula .. | 1 6 | 2 6 |
| WEBBS' Superb Cineraria .. | 1 6 | 2 6 |
| WEBBS' Selected Cyclamen | 1 6 | 2 6 |
| WEBBS' Camellia-flowered } Balsam } | 1 0 | 2 0 |
| WEBBS' Miniature Aster .. | 1 0 | 2 0 |
| WEBBS' Choice Auricula .. | 1 0 | 2 6 |
| WEBBS' Show Pansy .. | 1 6 | 2 6 |
| WEBBS' Choice Verbena .. | 1 0 | 2 0 |
| WEBBS' Perfection Aster .. | 0 6 | 1 0 |
| Large-flowered German } Ten-week Stock } | 0 6 | 1 0 |

All Flower Seeds Free by Post or Rail.

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Seeds of 20s. value carriage free. 5 per cent. discount for cash.

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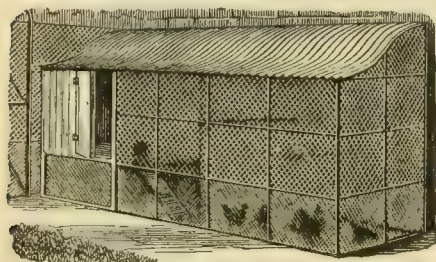
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Prices—Carriage paid to any railway station in England:

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| 1st size, No 7, with run complete, 12 feet long, 4 feet wide | £7 5 0 |
| 2d size, No 8, with run complete, 12 feet long, 5 feet wide | 8 10 0 |
| 3d size, No 9, with run complete, 16 feet long, 6 feet wide | 12 0 0 |

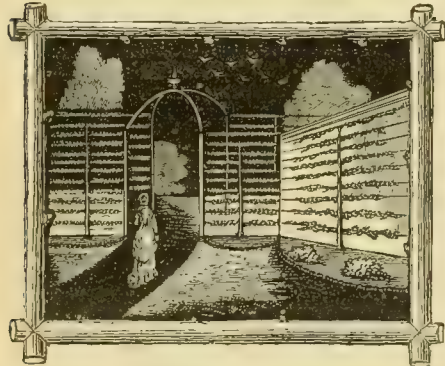
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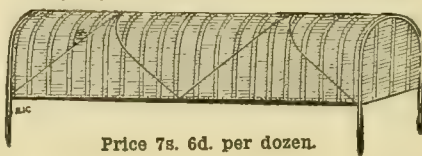
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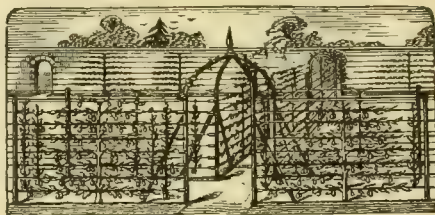
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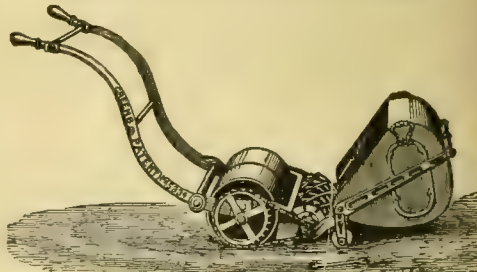
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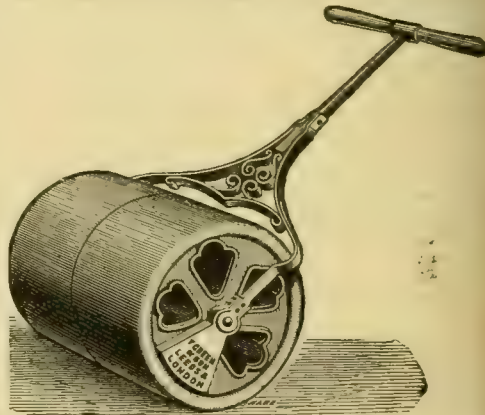
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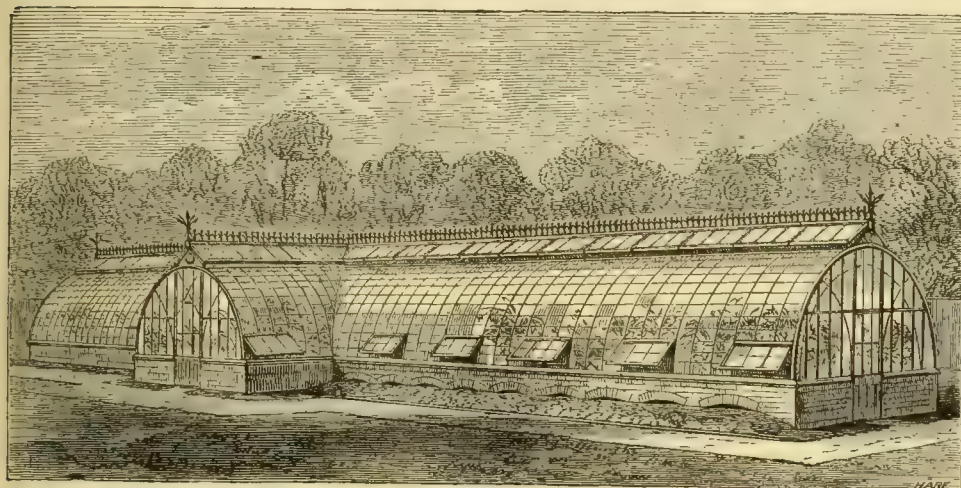


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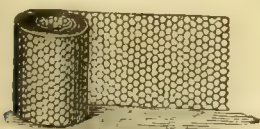
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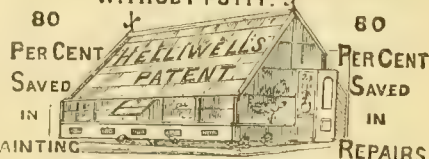
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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 278.—VOL. XI. { NEW SERIES. }

SATURDAY, APRIL 26, 1879.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

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VOLUME for JULY to DECEMBER, 1878.

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ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER.

FLORAL MEETING in the Town Hall, Manchester, on TUESDAY, the 29th inst. The National Auricula Society's Show will be held in connection with this Meeting. Open from 12 till 4.

BRUCE FINDLAY.

FARNINGHAM ROSE SOCIETY.—The FIRST SHOW, under the Patronage of the County Members (open to Members only), will be held at Farningham, on WEDNESDAY, June 25. A Military Band will be engaged for the occasion. Schedules are now ready, and may be had on application to F. BURNSIDE, Esq., Hon. Sec. Farningham, Kent.

THE CARLISLE and BORDER COUNTIES HORTICULTURAL SOCIETY'S EXHIBITION will be held in the Drill Hall, Carlisle, on THURSDAY and FRIDAY, September 11 and 12, 1879. Schedule of Prizes, now ready, may be had on application to G. E. EDMONDSON, Sec. Victoria Buildings, Carlisle.

Horticultural Shows, Season 1879.

Before making their final arrangements, Secretaries should send for particulars of the Music and Entertainments of **THE ROYAL HANDBELL RINGERS** and **GLEE SINGERS** (Poland Street, London), by which the cost of an extensive Band may be saved, and a handsome profit for Societies' funds may be realised. References to Secretaries of Coventry and Warwickshire, Oundle, Buckingham, and other Local Societies. Full particulars from the Conductor,

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To the Trade.

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MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, at Water's Nursery as above, on WEDNESDAY, May 7, at 12 o'clock precisely, 5000 PELARGONIUMS, remarkably well-grown, including the favourite market varieties; 3000 scented and double GERANIUMS; 10,000 PYRETHRUMS in boxes; FUCHSIAS, STOCKS, FERNS, and numerous other GREENHOUSE and BEDDING PLANTS.

View one week prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 28, at half-past 12 o'clock precisely, a collection of Specimen and other Established ORCHIDS, together with STOVE PLANTS in fine healthy condition; an importation of *Aerides japonicum*; importation of Orchids from Borneo; importation of *Phalaenopsis grandiflora*, just arrived in Wardian cases; masses of *Dendrobium nobile*, also *D. Devonianum*, *D. sulcatum*, *D. Cambridgeanum*, *D. densiflorum*, fine plants of *Saccolabium guttatum*, &c.; *Sarracenia* and *Dionaea* from New Jersey; choice *Gladioli* and *Liliums*, Rustic Fern and Orchid Baskets, large-size Mowing Machine, &c.

On view morning of Sale, and Catalogues had.

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On view mornings of Sale, and Catalogues had.

Highly Important Plant Sale, at the Nurseries, Cross-my-Loof, near Glasgow, on TUESDAY and WEDNESDAY, May 6 and 7, 1879.

MR. DAVID MITCHELL, HORTICULTURAL AUCTIONEER AND VALUATOR, has been instructed by Messrs. Mackenzie & Moncur, Hothouse Builders, Edinburgh and Glasgow, to dispose of by PUBLIC AUCTION, on the Premises, at the Nursery, Cross-my-Loof, near Glasgow, on TUESDAY and WEDNESDAY, May 6 and 7, at 11 o'clock each day prompt, the whole of the Bankrupt Stock of Mark Walker, consisting of magnificent specimen *CAMELLIAS*, *AZALEAS*, *PALMS*, *EUPHARIAS*, *DRACENAS*, *ROSES*, *PELAGONIUMS*, &c., with the whole of the PLANT-HOUSES, SHEDS, PITTS, and FRAMES (if not previously disposed of by private bargain), VANS, &c.

Catalogues may be had from the Auctioneer, 6, Comely Bank, Edinburgh; Messrs. MACKENZIE AND MONCUR, Hothouse Builders, Upper Grove Place, Edinburgh, and St. Andrew's Cross, Glasgow.

6, Comely Bank, Edinburgh, April 25.

The Gardens, Hall Place Mansion, Bexley, Kent.

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May be viewed the day previous and morning of Sale. Catalogues had of Mr. HICKFORD, New City Chambers, 121, Bishopsgate Street, City; of the Gardener on the Premises; and of the Auctioneer and Land Agent, Bexley, Kent.

Highly Important Sale of Stove and Greenhouse PLANTS, FERNS, &c., grown at Darnley, Kent.—In consequence of the Messrs. Fraser having resolved not to exhibit or compete, they have instructed

MR. MASSON, AUCTIONEER, to SELL, in the Music Hall Buildings, during the SECOND WEEK OF JUNE, their well-known Collection. Catalogues and further particulars, with cards to view, may be obtained from Messrs. FRASER; or the Auctioneer, 115, Union Street, Aberdeen.

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VANDA SUAVIS, Glasnevin variety, 4½ feet high, five breaks, with three flower-spikes.

VANDA SUAVIS, Veitch's variety, above 4 feet high, with two breaks and two flower-spikes.

VANDA SUAVIS, Rollinson's variety, above 3 feet high, with three breaks and one flower-spoke.

VANDA INSIGNIS, good plant.

AERIDES ODORATUM, variety *purpurascens*, above 3 feet high, with three breaks and showing seven flower-spikes.

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ODONTOGLOSSUM BICTONIANSE, large plant.

MILTONIA SPECTABILIS, several varieties in large pot.

The plants are in splendid health, and can be seen any day at Fernfield.—April 22.

Important to Nurserymen, Florists, Seedsmen and OTHERS.

MESSRS. PROTHEROE AND MORRIS beg to announce that several new Businesses have recently been placed on their books, printed particulars of which will be forwarded gratis on application.

Horticultural Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

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—Magnificent specimens of this remarkably distinct and handsome New Plant have just been received by Mr. William Bull, in the best possible condition, from South Africa. Sizes and prices on application, or an inspection is invited.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

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just brought over, comprising *Pennantia corymbosa*, *Cordylus australis*, *Phormium tenax* (mixed), *Cassia fulvida*, &c. each packet.

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PINUS AUSTRIACA.—Good furnished

plants, 5 to 7 feet, will lift well.

Cash prices:—Per dozen, 18s.; per 100, 135s.

WILLIAM BRYANT, Rugby Nurseries, Rugby.

A RAUCARIA EXCELSA.—A Lady wishes

to dispose of a perfect specimen of the above, 7 feet high, for cash, which has grown too tall for the situation it is planted in. No reasonable offer refused.—Apply in the first instance to Mr. R. MAY, The Nurseries, Leyburn, Bedale, Yorkshire.

PRIMROSES, Double White, coming into

bloom, 12s. per 100, cash.

W. AND J. BROWN, Stamford.

RICHARD WALKER has no more

CABBAGE PLANTS to offer at present. He can supply the following ROOTS:—LEMON THYME and PENNYROYAL, 8s. per 100; SAGE and BLACK THYME, 5s. per 100; SWEET WILLIAMS, best in England, 1s. 6d. per dozen, or 10s. per 100; Seedlings of all best named PICOTEES, 1s. 6d. per dozen, or 10s. per 100; splendid double white ROCKETS, 2s. per dozen; HOLLYHOCKS, best named sorts, 2s. per dozen; DELPHINIUMS, 1s. per dozen; and all sorts of HERB ROOTS. Cash with orders.

Market Gardens, Biggleswade, Beds.

FERNS.—Twenty-five choice hardy sorts, named, 12s. per 100, fifty 6s. 6d., put on rail: fifteen sorts, small, named, post-free, 2s. 6d.

R. CANDY, Gardener, Portishead, Somerset.

NEW CATALOGUE for 1879.—The most comprehensive Catalogue issued of reasonably-priced Plants and Seeds of the best quality, and suitable for all who love a Garden or Greenhouse. See last week's large advertisement, and write for a Catalogue.

WM. CLIHAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire.

PRESIDENT STRAWBERRY.—Splendid plants, with good balls, taken up last autumn and planted out for my own use. Ground now required for another purpose. Many will bring fine fruit this season. No reasonable offer refused for a few thousands.

WILLIAM FIELD, Tarvin Road Nursery, Chester.

CALCEOLARIA, Golden Gem, strong autumn-struck, clean and good, 5s. per 100, 4s. per 1000. *VERBENA*, Purple King, the only really good bedder, 5s. per 100, 50s. per 1000. *LOBELIA*, Bluestone, strong, 4s. per 100. Package free for cash.

WILLIAM FIELD, Tarvin Road Nursery, Chester.

To the Trade.

ROSES, Tea-scented, mostly on Brier, in pots, quite hardy, having been out-of-doors all the winter. Cash price, 50s. per 100, in not less than twenty varieties. Extra-size plants, indoors, full of buds, 18s. to 30s. per dozen.

EDWIN HILLIER, Nurseries, Winchester.

To the Seed Trade.

MALDEN AND SON have to dispose of from Two to Three Tons of their Champion Yellow Globe MANGEL SEED, and One Ton of Berkshire Prize ditto also a few bushels of Thousand-headed CABBAGE SEED, first-class stock; and a few cwt. of their Prize Green-top KOHL RAB. All nett seed grown harvest 1878.

MALDEN AND SON, Seed Growers, Biggleswade, Beds.

FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including JACKMANNI, &c., at 12s. to 30s. per dozen. Selection left to ourselves.

Descriptive CATALOGUES free on application to WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

VERBENAS, VERBENAS, VERBENAS.

—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100; 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s.

HELIOTROPES, strong, healthy, well-rooted cuttings, of light and dark named varieties, 6s. per 100.

IRENE LINDENI, *HERSTII* and *ACUMINATA*, strong young plants, from stores, 5s. per 100.

FUCHSIAS, 100 plants in 12 splendid varieties, from store pots, for 8s.

Terms cash.

H. BLANDFORD, The Dorset Nurseries, Blandford.

Rhododendron Ponticum.

J. J. MARRIOTT has a fine stock of the above, and begs to offer 4-yr. seedlings, 2-yr. bedded, at 24s. per 100; 4 to 6 inches, transplanted, bushy, 7s. per 100, 60s. per 1000; 6 to 9 inches, 9s. per 100, 80s. per 1000. Also 2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000.

The Trade supplied.

Highfield Nurseries, Matlock, Derbyshire.

CENTAUREA CANDIDISSIMA or

RAGUSINA.—Fine Plants, thoroughly established in single pots, 16s. per 100, 150s. per 1000. Package free.

HERBACEOUS CALCEOLARIAS.—Fine Plants of a splendid strain, established in 5-inch pots, 8s. per dozen.

PELAGONIUMS.—Splendid free-blooming (large collection) varieties, in 5-inch pots, 8s., 12s., and 18s. per dozen.

VERBENAS.—In variety, from stores, 4s. per 100; Fine Plants, established in single pots, 14s. per 100. Package free.

PLANT CATALOGUE free on application.

WOOD AND INGRAM, The Nurseries, Huntingdon.

Hardy Florists' Flowers.

THOMAS S. WARE'S SPRING CATALOGUE of the above for the present year is now ready, containing a good list of Novelties, and including selections of choicest varieties of Carnations and Picotees, Chrysanthemums, Delphiniums, Pansies, Phloxes, Pyrethrums, and other families. Free on application.

Hale Farm Nurseries, Tottenham, London.

COCOA-NUT FIBRE REFUSE.—

Reduced Price:—In 4 bushel bags, bags included, at 1s. or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

SEEDLING S, &c.—

HOLLIES, Green, 1-yr., fine, 5s. per 1000.

twice transplanted, 6 to 12 inches, 80s. per 1000.

MAHONIA AQUIFOLIA, 1-yr., 3s. 6d. per 1000.

transplanted, 6 to 12 inches, 8s. per 1000.

LAURELS, Common, 1-yr. rooted cuttings, fine, 12s. per 1000.

Apply to THOMAS PERKINS AND SONS, 34, Drapery, Northampton.

NEW DOUBLE GERANIUMS

(see Price List of best varieties), 12 for 6s., 24 for 10s.

WHITE VESUVIUS, 6s. to 8s. per dozen; 12 choicest named

Zonals, including the above, for 3s.

CRYSTAL PALACE GEM (best Gold-leaf), Silver-edged and

best Whites, 1s. 6d. per dozen, 10s. per 100; *Vesuvius*, 8s.;

AGERATUM Lady Jane, Countess of Stair, 6s. per 100.

FUCHSIAS (finest selection), see List prices; choice, 1s. 6d. per dozen.

LOBELIAS (from cuttings).—Martin's Blue, bronze foliage (new), 5s. 6d.; Brighton, pumila magnifica, 2s. 6d.; Ebor (dark blue), Omen (rose), Nevie (white), pumila grandiflora (rich blue), 4s. per 100; double white and double blue, 1s. 6d. per dozen.

CENTAUREA CANDIDISSIMA, 2s. per dozen, 12s. p. 100.

ALTERNANTHERAS, three best varieties, 8s.; *MENTHA*, 5s.;

STELLARIA GRAMINEA AUREA, 2s. 6d.;

GOLDEN PYRETHRUM (strong), 2s. per 100.

CUCUMBER, Telegraph, 9s.; *Kelway's* Parasol, 18s. p. doz.

Parcels by post free over 5s. Cash with order to GEO. GUMMOW, 124, Loughborough Road, Brixton, S.W.

New Coleus.

THE TWO FOLLOWING are very distinct new types; both have been introduced from the Islands of the South Pacific, and are totally different to anything before in cultivation:—

COLEUS DISTINCTION, deeply crenated leaves of a bronzy green colour shaded with violet-crimson, the centre of the leaf prettily feathered with creamy yellow, the midrib and veins rosy purple. 7s. 6d.

COLEUS SURPRISE, leaves bright green, centrally banded and feathered with primrose-yellow, the variegation becoming white as the leaves mature; extremely attractive. 7s. 6d.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THE CHAMPION POTATO.—

Fine samples, for Seed, of this and other leading kinds. Prices on application to
The LAWSON SEED AND NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

Roses, Roses, Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

WM. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £3 per 100. Price to the Trade on application.

EXTENSIVE STOCK of young **PALMS**, in the best condition possible and at really moderate prices. *Areca monostachya*, 12s. per 100, 15s. per 1000; *Corypha australis*, 14s. per 100, 130s. per 1000; *Sealorthis elegans*, 12s. per 100, 100s. per 1000; *Lantana borbonica*, *Chamaerops Fortunei* and *Humilis*, 10s. per 100, 85s. per 1000; *Phoenix reclinata* and *tenuis*, 12s. per 100, 100s. per 1000; *Dracaena indivisa* and *Veitchii*, 6s. per 100, 50s. per 1000.

See also Special List for Spring, 1879, free on application.
J. VAN DER SWAELMEN, Lily Nursery, Ghent, Belgium.

Now Ready,

TWENTY THOUSAND DAHLIAS, in 400 varieties.

Price and CATALOGUE on application to
KELWAY AND SON, The Royal Nurseries, Langport, Somerset.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879.

Extra Strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

Verbenas.

FIFTY THOUSAND now ready for Sale. All good, strong, spring-struck plants, perfectly free from all disease, of Purple King, Scarlet, White, and Pink, 6s. per 100. Twenty other good exhibition varieties, true to name, 8s. per 100. Package free for cash. Also strong healthy Cuttings of the above at half-price: free by post.

S. BIDE, Alma Nursery, Farnham, Surrey.

DUKE OF EDINBURGH STRAWBERRY (Moffat).—The best Main Crop and Market variety; commands a higher price than any other in Edinburgh Market. Strong, well-rooted runners, 5s. per 100, 1s. 3d. per dozen, post-free. Trade price on application.

TODD AND CO., Seedsman, Maitland Street, Edinburgh.

STRAWBERRY PLANTS.—Strong and good sorts, 10s. per 1000 for cash. Apply at once to
JOSEPH GREEN AND SON, Nurseries, Garforth, near Leeds.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE have still in stock most of the best varieties of SEED POTATOS, and are prepared to take reduced prices to clear out. Special offers on application.

Seed Growing Establishment, Wisbech.

NEW CATALOGUE.—For everything that is new, beautiful and rare, in the tree and shrub way, and for all those things that cannot be procured elsewhere, see above. Free on application.

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

Remarkable Cover Plant.

RODGER, McCLELLAND AND CO. beg to offer **ELYMUS GLAUCA** at the following low prices. It is nearly blue in colour, grows 3 to 4 feet high, and spreading in all directions, forming so close a tangled mass that no person can walk through it. 5s. to 10s. per 100.

64, Hill Street, Newry.

Cabbage Plants—Cabbage Plants.

W. VIRGO, Womersley Nurseries, can still supply **RED PICKLING PLANTS** at 7s. 6d. per 1000 for cash, all good strong healthy plants.

To the Trade.

SCARLET RUNNERS and CANADIAN WONDER BEANS.

H. AND F. SHARPE can offer the above, of English growth, and very fine samples, at moderate prices.

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NORTH AMERICAN PLANTS—including Hardy Bulbs, Orchids, Ferns, and Hardy Herbaceous Perennials generally; also Climbers and Small Shrubs, from both sides of the continent, the Rocky and other Mountain ranges, &c. Our new Descriptive CATALOGUE, Wholesale and Retail, is now ready, and will be sent free by post. By far the largest collection in the country. Many rare species never before offered for sale, and some entirely new.

WOOLSON AND CO., Passaic, N.J., United States, America.
Illustrated Catalogue of Hardy Perennials.
THOMAS S. WARE has pleasure in announcing the issue of the above for the present year, containing New, Rare, and Select Hardy Perennials, with which is combined extensive Lists of Aquatics, Bog Plants, Hardy Terrestrial Orchids, Bamboos, and Ornamental Grasses. Gratis and post-free on application.
Hale Farm Nurseries, Tottenham, London.

ROOTED CUTTINGS.

(Choice Varieties with Names.)

FREE AND SAFE BY POST.  FREE AND SAFE BY POST.

We have much pleasure in offering the following in well-rooted healthy Cuttings, which, by our improved system of packing, can now be sent by post with perfect safety to any part of the British Isles. The selection of varieties must in all instances be left to us:—

| | Per Doz. | s. d. |
|--|-------------------|-------|
| BEGONIA FUCHSIODES , a pretty pot plant for the greenhouse | each, 4d. | 3 0 |
| CHRYSANTHEMUMS , large-flowered, new and choice sorts | per 100, 10s. 6d. | 2 6 |
| „ good standard varieties | per 100, 12s. 6d. | 1 6 |
| „ Pompon, a first-class selection | per 100, 12s. 6d. | 1 6 |
| COLEUS , from our splendid collection of nearly 100 newest and choicest varieties, extra choice sorts | per 100, 12s. 6d. | 3 0 |
| „ handsome varieties | per 100, 12s. 6d. | 2 0 |
| DAHLIAS , all the newest and best in cultivation. Show varieties, new and choice | per 100, 12s. 6d. | 3 6 |
| „ fancy varieties, new and choice | per 100, 12s. 6d. | 3 6 |
| „ fancy varieties, good popular sorts, per 100, 12s. 6d. | per 100, 12s. 6d. | 2 0 |
| FUCHSIAS , a splendid collection of all the newest and finest single and double-flowered varieties | per 100, 12s. 6d. | 2 6 |
| „ finest single, good popular varieties, per 100, 12s. 6d. | per 100, 12s. 6d. | 1 6 |
| „ 6 new varieties of 1879 | per 100, 12s. 6d. | 5 0 |
| FUCHSIA SPLENDENS , a rare and beautiful species | each, 4d. | 3 0 |
| GERANIUMS (Pelargoniums) | | |
| „ ZONAL and NOSEGAY , upwards of 250 of the newest and most splendid varieties in commerce, extra choice sorts | per 100, 12s. 6d. | 4 0 |
| „ choice sorts, fine exhibition varieties | per 100, 12s. 6d. | 2 6 |
| „ choice sorts, twelve new varieties of 1878, including White Vesuvius, Salmon Vesuvius, &c. | per 100, 12s. 6d. | 9 0 |
| „ double-flowered Zonals, choice varieties | per 100, 12s. 6d. | 4 0 |
| „ very good sorts | per 100, 12s. 6d. | 2 6 |
| „ silver variegated, Daybreak, &c., per 100, 12s. 6d. | per 100, 12s. 6d. | 1 6 |
| „ Ivy-leaved, a beautiful class for hanging baskets, vases, &c. | per 100, 12s. 6d. | 1 6 |
| „ sweet-scented varieties | each, 4d. | 3 0 |
| IRIS , Herbistii and Lindeni | per 100, 12s. 6d. | 1 0 |
| MIMULUS , Daniels' superb large-flowered, very fine, per 100, 12s. 6d. | per 100, 12s. 6d. | 1 6 |
| MUSK , Harrison's Giant | per 100, 12s. 6d. | 1 0 |
| PHLOX , Perennial or Herbaceous, all the best varieties, per 100, 12s. 6d. | per 100, 12s. 6d. | 2 0 |
| PENTSTEMONS , in beautiful variety | per 100, 12s. 6d. | 1 6 |
| TROPEOLUMS , double-flowered and beautiful varieties of Lobbianum, fine for pots, hanging baskets, vases, &c. | per 100, 12s. 6d. | 2 0 |
| VERBENAS , in choice variety | per 100, 12s. 6d. | 1 6 |
| VERBENA , lemon-scented | each, 4d. | 3 0 |

Not less than 50 will be supplied at the rate per 100, or six at the rate per dozen.

From R. J. HAMILTON, Esq., Tonbridge, November 11, 1878.

"Enclosed please find P.O.O. in payment of account for Rooted Cuttings, all of which have turned out splendidly, especially the Chrysanthemums, which are very fine."

From Mr. W. D. PENNY, Nairn, N.B., November 5, 1878.

"I am very glad to say that the Rooted Cuttings I had of you in the spring turned out very well indeed, not a single failure in the lot."

Cheques or Post-office Orders to

DANIELS BROTHERS,
TOWN CLOSE NURSERIES, NORWICH.

NEW DOUBLE-FLOWERED INDIAN AZALEA, EMPRESS OF INDIA

(A. Van Geert).

This Finest of all New Indian Azaleas

Won the First Prize at the International Show in Ghent, in April, 1878, and received a First-class Certificate from the Royal Horticultural Society, London, on March 11 last. Its merits are so exceptional that we have not hesitated to place it under the high protection of the title of the Most Gracious Sovereign of its original home.

It will be sent out on and after Sept. 1, at 12s., 20s., and 40s., according to size.

Orders, which are now being booked, are solicited at once, and will be executed in strict rotation.

A more Descriptive and Special Priced LIST, &c., will be sent on application to **A. VAN GEERT**, Continental Nurseries, Ghent, Belgium; or to his Agents, Messrs. **R. SILBERRAD AND SON**, 15, Harp Lane, Great Tower Street, London, E.C.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of **VINES** is this year unusually fine, and comprises all the leading kinds, including "Alwrick Seedling." For descriptions and prices, see **B. S. W.'S BULB CATALOGUE** for this year.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.

No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.
No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.
A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

PINUS INSIGNIS.

—Very fine, well-rooted, and quite safe plants of this beautiful Pine can be supplied in large quantity, of sizes as under. Now is the best time to plant. s. d.
12 to 18 inches 40 0 per 100.
18 to 21 inches 50 0 "
21 to 26 inches 75 0 "
30 to 48 inches 18s. to 24 0 per dozen.

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1873 harvest of above, at very low prices to the trade.
SANDER AND CO., Seed Growers, St. Albans.

Special Cheap Offer.

To **SEEDSMEN, MARKET GARDENERS, and OTHERS**
PEA, Jeyes' or Payne's Conqueror. About 20 quarters. Handpicked, 15s. per bushel; 112s. per quarter. Samples on application to
W. BALL AND CO., Bedford Road Nursery, Northampton.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.
The Ottershaw Nursery, Chertsey.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.

THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.

CATALOGUES on application.

SEED POTATOS.

MYATT'S PROLIFIC KIDNEY,
SNOWFLAKE,
Good clean samples, 9d. per stone, 5s. per cwt. Bags 6d. each.
Cash with order.
JAS. BACKHOUSE AND SON, York.

Trade Offer.

DWARF ROSES.—Good plants, my own selection, £10 per 1000; 6s. 5s. per 500; 25s. per 100. Good planting SEAKALE, 25s. per 1000. For cash nett, with orders.
R. LOCKE, Redhill, Surrey.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown **MANGEL WURZEL**, and **SWEDE** and other **TURNIP SEEDS** of 1878 growth, and raised from transplanted Bulbs.
Seed Growing Establishment, Wisbech.

To the Trade.

SEEDLINGS:—**FIR**, Native Scotch, 2-yr., 4s.; **Pinus Laricio**, 2-yr., 3s. 6d.; **P. Strobus**, 2-yr., 4s. 6d.; **Picea Nordmanniana**, 1-yr., 25s.; **P. maritima**, 1-yr., 2s. per 1000.
TRANSPLANTED:—**PINUS STROBUS**, 2-yr., 1-yr., 12s. 6d. per 1000; **ASH**, Mountain, 4 to 5 feet, 25s. per 1000; **LIMES**, 4 to 6 feet, 15s., and 6 to 8 feet, 25s. per 100; **WALNUTS**, 4 to 6 feet, 15s., and 6 to 8 feet, 25s. per 100. Above offered as unsold on receipt of orders.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

ILLUSTRATED CATALOGUE OF FERNS.

The above, comprising 80 pages of illustrations, synonyms, "Notes on Cultivation," &c., is the most complete Fern List in the Trade, and will be forwarded on application. Postage 2d.
Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

GERANIUMS, &c., for Bedding.—Strong autumn-struck plants from store pots, of **Vesuvius**, Dr. Lindley, Indian Yellow, Christine, Stella, Tom Thumb and other varieties, 10s. per 100; **Madame Vaucher**, Crystal Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of Calderdale, &c., 12s. per 100.
HELIOTROPE, Light and Dark, 6s. per 100.
CALCEOLARIA, Golden Gem, 6s. per 100, package free for cash.
CENTAUREA CANDIDISSIMA, autumn-struck, good plants in large 60's, 30s. per 100.
S. BIDE, Alma Nursery, Farnham, Surrey.

FORTY THOUSAND Dwarf, Tea-scented, and other **ROSES**, in pots, at 15s. to 18s. per dozen, or 4s. per 100.

Extra fine Tea-scented **ROSES**, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen. Address
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ALTERNANTHERAS, of the following varieties, from stores:—*Amena*, spatulata, magnifica, paronychioides, amabilis, latifolia, and versicolor; also **LOBELIA BRIGHTON**, and **MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM**, 8s. per 100, 70s. per 1000. Also **MENTHA PULEGIUM GIBBALTARICUM**, 8s. per 100 and **NERTERA DEPRESSA** 20s. per 100.
Terms cash.
WM. BALCHIN, Hassock's Gate Nursery, Keymer, Sussex.

STRONG ROSE STOCKS!!!

ROSA MANETTI ... } 25s. per 1000; £10 per 10,000.
ROSA MULTIFLORA }

A. M. C. JONGKINDT CONINCK,
TOTTENHAM NURSERIES, DEDEMSVAART, NEAR ZWOLLE,
NETHERLANDS.

Cheap Bedding Geraniums.

ALFRED FRYER offers the following good Bedders, at per dozen for Cash:—Golden Tricolors: Peter Grieve, 6s.; Prince of Wales, 6s.; Isle of Beauty 4s.; Lady Cullum, 3s. 6d.; Mrs. Pollock, 2s. 6d.; Sophia Dumaresque, 2s. 6d.; Sir Robert Napier, 3s. 6d. Silver Tricolors: Lass o' Gowrie, 3s. 6d.; Mrs. John Clutton, 2s. 6d.; Prince Silverwings, 2s. 6d.; Queen of Hearts, 3s.; Happy Thought, 4s. 6d.; Distinction, 2s. 6d.; or one of each for 5s. 6d. Post-free for 6d. per dozen extra. Hamper and packing 1s. per dozen, or 3s. 6d. per 100; half price for packing out of p.s. For Priced LISTS apply to

ALFRED FRYER, The Nurseries, Chatteris, Cambridge-shire.

To the Trade

SPECIAL OFFER of SEEDLINGS, per 1000.

PINE, Austrian, 1-yr., 2s.; 2-yr., 3s. and 4s.
Corsican, 1-yr., 2s. 6d. and 3s.; 2-yr., 3s. 6d. and 5s.
FIR, Scotch, 1-yr., 2s. 6d.; 2-yr., 3s. 6d. and 5s.
Spruce, 2-yr., 1s. 6d.; 3-yr., 2s.; 4-yr., 3s.
CEDRUS DEODARA, 1-yr., 50s.
CUPRESSUS LAWSONIANA, 1-yr., 15s.
GORSE, 1-yr., 2s. 6d. Apply to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Cheap Plants by 100 or 1000.

WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter.

VERBENAS, purple, white, scarlet, rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 1s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.
LOBELIA Emperor William and Bluestone, two of the very best, 2s. 6d. per 100, 20s. per 1000.
CALCEOLARIA Golden Gem, best yellow, 10s. per 100; Kayii, yellow, 4s. per 100.
PELARGONIUMS, Vesuvius and Jean Sisley, best scarlets, 7s. per 100, 60s. per 1000; Madame Vaucher and Virgo Marie, fine white, 10s. per 100; Master Christine, best bedding pink, 10s. per 100; Striped Vesuvius (New Life), 6s. per dozen, 40s. per 100.
Silver variegated, May Queen and Flower of Spring, 10s. per 100; Waltham Bride, 15s. per 100.
Gold-leaf, Crystal Palace Gem, 10s. per 100.
Tricolor, Mrs. Pollock, 15s. per 100; other good sorts, as Sir R. Napier, 18s. per 100.
Double, Smith's Wonderful, good plants, 15s. per 100, or from stores, 12s. per 100; Madame Thibaut, finest double pink, 12s. per 100.

AGERATUM, Imperial Dwarf, 5s. per 100.
COLEUS and IRESINE LINDENI, crimson, 6s. per 100, 50s. per 1000.

HELIOTROPIMUM, light and dark, 6s. per 100, 50s. per 1000.

DAHLIAS, all the best sorts, 15s. per 100.

CENTAUREA CANDIDISSIMA, 18s. per 100.

Note: 25 of any sort can be had at 100 rate.
Packing included. Terms cash.
Cemetery Nursery, Gravesend.

ED. PYNAERT VAN GEERT, NURSERYMAN, Ghent, Belgium, offers the following
NEW CARPET-BEDDING PLANT: ALTERNANTHERA PURPUREA.

It is of a dense, compact habit, rapidly forming a close and bushy carpet, or a uniform and regular border.

In its peculiar shade of colour it differs completely from that of other Alternantheras, which are all so well adapted to Carpet-bedding. Alternanthera purpurea is of a deep purple shade, with a grey metallic reflection in the sun. We can affirm that it is also perfectly distinct in tint from Iresine Verschaffelti and Wallisi, from Coleus Nero, and other plants of deep foliage.

The new Alternanthera is very vigorous and comparatively hardy, and can be easily kept over the winter in a cool greenhouse. It is offered at the following prices:—

| | s. d. | £ s. d. |
|------------------|-------|---------|
| Single Plants .. | 16 0 | 1 12 0 |
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To the Trade.

JAS. GARAWAY AND CO. offer:—

PELARGONIUMS, Show and Fancy choice varieties, good bushy plants, to bloom in May, in 48-pots, 50s. and 60s. per 100.

CARNATIONS, best named varieties, 8s. per dozen pair.

CHRYSANTHEMUMS, large flowered, Japanese and Pompon, in 3-inch pots, 20s. per 100.

DAHLIAS, named varieties, 21s. per 100.

DELPHINIUMS, single and double, best named sorts, 6s. per dozen, 40s. per 100.

PYRETHRUMS, Double, best named sorts, 21s. per 100.

PHLOX, leading and distinct varieties, 4s. per dozen, 25s. per 100.

Jas. Garaway & Co.'s own Selection.

JAS. GARAWAY AND CO., Durham Down Nurseries, Clifton, Bristol.

ORCHIDS.

THE NEW PLANT and BULB COMPANY

Beg respectfully to inform their Friends that their SPECIAL LIST, No. 43, is now published, contents as follows:—Colombian, Mexican, Japanese and East Indian Orchids; and the finest representatives from each country, embracing Odontoglossums, Cattleyas, Oncidiums, Aerides, Dendrobies, Vandas, Cœlogynes, Cypripediums, Pleiones, Saccolabiums, Lælias, Maxillarias, &c. This List contains both the Prices for Established and Imported Plants, and the Prices range from 2s. 6d. upwards.

CATALOGUES free by post on application.

LION WALK, COLCHESTER.

TELEGRAPH CUCUMBER,

Rollison's True Selected Stock.

To the Trade, 5s. per 100 Seeds.

TURNER'S BLUE GOWN,

7s. 6d. per 100 Seeds.

And at per ounce on application.

PENGILLY AND POOL,

59, QUEEN VICTORIA STREET, LONDON, E.C.

GEO. JACKMAN & SON,
(ESTABLISHED 1810.)



Cultivators of
FRUIT and FOREST TREES
Evergreen and Flowering
TREES and SHRUBS,
ROSES, RHODODENDRONS,
Conifers and Hardy Climbers.

THE CLEMATIS

A SPECIALITY.

Descriptive Priced Catalogues free.

WOKING NURSERY, SURREY.

Novelties for the Flower Garden
For 1879.

THOMAS METHVEN & SONS

Have the pleasure to announce that they have made arrangements to send out early in May the following very desirable Novelties, which were raised by Mr. Smith, Gardener at Bargany in Ayrshire:—

GERANIUM, "COUNTESS OF STAIR."

Has been extensively grown in the gardens of Bargany for the last three years, and is considered by all who have seen it to be one of the most effective and distinct bedding Geraniums. It is of a dwarf robust habit, and the foliage is of a bright golden-yellow colour, with strongly marked chocolate zones.

Price, 18s. per dozen.

VERBENA, "PERFUME."

This fine Verbena has a compact habit of growth, a hardy constitution, and blooms with remarkable profusion. The colour is dark claret—a novel one in flowers of its class. It has, moreover, a delicious clove-like fragrance, which, besides its undoubted importance as a bedding-plant, must ensure its soon becoming a general favourite for bouquets.

Price, 12s. per dozen.

For Testimonials see Special Circular.

New Apple, "Northern Dumpling."

Received First-class Certificate, Royal Horticultural Society, London.

Raised by Mr. John Webster, The Gardens, Gordon Castle.

To be sent out in October.

Particulars in future Advertisements.

Orders are now being booked, and will be executed in rotation as they are received.

The usual allowance to the Trade.

LEITH WALK NURSERIES, EDINBURGH.

CHEAP ORCHIDS

Special List of Cheap and Desirable Kinds.



B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

| Each.—s. d. | Each.—s. d. |
|--------------------------|----------------------------|
| AERIDES roseum .. 10 6 | LIMATODES rosea .. 3 6 |
| " virens .. 10 6 | LYCASTE Skinneri .. 5 0 |
| " odoratum majus .. 7 6 | " Harrisoni .. 5 0 |
| " Lobii .. 15 0 | MASDEVALLIA Lin- |
| " Fieldingii .. 15 0 | deni .. 15 0 |
| ARPOPHYLLUM gi- | " polysticta .. 5 0 |
| gantem .. 10 6 | " Harryana .. 7 6 |
| BRASSIA verrucosa | " ignea .. 7 6 |
| major .. 7 6 | MAXILLARIA venusta .. 10 6 |
| CATLEYA Mendelii | " tenuifolia .. 3 6 |
| (imported) .. 10 6 | " lutea alba .. 7 6 |
| " Aclandiae .. 10 6 | MESOSPIDIUM |
| " citrina .. 3 6 | sanguineum .. 7 6 |
| " Trianae .. 10 6 | ODONTOGLOSSUM |
| " Warszewiczii deli- | Insleyi leopar- |
| cata .. 15 0 | dium .. 5 0 |
| " Warnerii .. 15 0 | " Hallii .. 7 6 |
| " lobata .. 10 6 | " hystrix .. 10 6 |
| " crispata .. 5 0 | " curosum .. 3 6 |
| " maxima .. 15 0 | " pulchellum majus .. 3 6 |
| " Regnellii .. 15 0 | " Phalaenopsis (im- |
| " Mossiae .. 5 0 | ported) .. 7 6 |
| " speciosissima .. 10 6 | " Rosii majus (im- |
| " marginata .. 10 6 | ported) .. 7 6 |
| CALANTHE Veitchii | " Alexandræ (nice |
| " vestita luteo oc- | plants, import- |
| culata .. 2 6 | ed, from .. 7 6 |
| " rubro oculata .. 2 6 | " Pescatorei (im- |
| CÆLOGYNE cristata .. 5 0 | ported), from .. 10 6 |
| " corrugata .. 7 6 | " gloriosum .. 10 6 |
| CYMBIDIUM eburne- | " grande .. 5 0 |
| um .. 15 0 | " Lindleyana .. 3 6 |
| " Mastersii .. 15 0 | " membranaceum .. 5 0 |
| CYPRIPEDIUM bar- | " Cervantesii .. 5 0 |
| batum superbum .. 3 6 | " rubescens .. 5 0 |
| " insignis .. 2 6 | ONCIDIUM aurosum .. 5 0 |
| " spectabile .. 3 6 | " Bauerii .. 10 6 |
| " Boxallii .. 5 0 | " sphacelatum .. 5 0 |
| " Pearcei .. 3 6 | " incurvum .. 7 6 |
| " Harrisianum .. 7 6 | " verrucosum .. 5 0 |
| " niveum .. 5 0 | " concolor .. 10 6 |
| " Crossii .. 7 6 | " flexuosum .. 3 6 |
| DENDROBIUM for- | " Papilio .. 7 6 |
| mosum giganteum .. 5 0 | " Krameri .. 10 6 |
| " chrysotis .. 10 6 | " bicallosum .. 7 6 |
| " cretaceum .. 3 6 | " cucullatum .. 3 6 |
| " Pierardii .. 3 6 | " pulvinatum .. 5 0 |
| " pulchellum purpu- | " Warnerii .. 15 0 |
| reum .. 3 6 | ORNITHIDIUM so- |
| " Findleyanum .. 10 6 | phronites .. 10 6 |
| " bigibbum .. 7 6 | PHAJUS grandifolius .. 3 6 |
| " nobile .. 3 6 | " albus .. 7 6 |
| " chrysanthum .. 3 6 | PLEIONE lagénaria .. 3 6 |
| " Gibsoni .. 7 6 | " Wallichiana .. 3 6 |
| " densiflorum .. 10 6 | SACCOLABIUM am- |
| " Bensoniæ .. 5 0 | pullaceum .. 5 0 |
| " rhodocentrum .. 10 6 | " Blumei majus .. 7 6 |
| " thyrsoflorum .. 10 6 | " curvifolium .. 7 6 |
| DENDROCHILUM | " giganteum (fine im- |
| filiforme .. 21 0 | ported plants), |
| " glumaceum .. 21 0 | from .. 15 0 |
| EPIDENDRUM vitel- | STANHOPEA tigrina .. 7 6 |
| linum majus (im- | VANDA tricolor insig- |
| ported), from .. 2 6 | nis .. 10 6 |
| GOODYERA discolor .. 3 6 | " tricolor .. 10 6 |
| LÆLIA cinnabarna .. 7 6 | " Roxburghii .. 15 0 |
| " elegans .. 21 0 | ZYGOPETALUM |
| " Dayana .. 10 6 | Makayi .. 5 0 |

Specimens of the above can be supplied, prices of which will be forwarded on application.

B. S. WILLIAMS,

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

JULES DE COCK, NURSERYMAN, Ghent,
Belgium, offers, per 100 plants, in store-pots:—*Arca lutescens*, 40s.; *A. rubra*, 30s.; *Chamaecyparis Fortunei*, 8s.; *C. humilis*, 8s.; *Cocos Weddelliana*, 10s.; *Corypha australis*, 20s.; *Euterpe edulis*, 25s.; *Lantana borbonica*, 12s.; *Pandanus utilis*, 25s.; *Glaziovian insignis*, 45s.; *Phoenix reclinata*, 20s.; *P. tenuis*, 12s.; *P. sylvestris*, 16s.; *Scaevola elegans*, 25s.; *Caryota sabinifera*, 50s.; *C. urens*, 40s.; *Thrinax elegans*, 40s.; *Aralia Sieboldii*, 6s.; *Dracæna indivisa*, 6s.

ROSES UNINJURED BY FROST.

WM. PAUL & SON,
PAUL'S NURSERIES, WALTHAM CROSS, HERTS,
 (adjoining Waltham Station, Great Eastern Railway, half an hour's ride from London.)

Have a very large and fine stock of Roses in pots at the following prices:—

ROSES IN POTS FOR PRESENT PLANTING, 9s. to 18s. per dozen,
 £3 15s. to £6 per 100.

The same, of extra size, 24s. per dozen and upwards.

ROSES IN POTS FOR GREENHOUSE CULTURE, 9s. to 18s. per doz.,
 £3 15s. to £6 per 100.

The same, of extra size, 24s. per dozen and upwards.

CLIMBING ROSES IN POTS, 12s. to 18s. per dozen.

The same, of extra size, 24s. per dozen and upwards.

SPECIMEN AND HALF SPECIMEN ROSES IN POTS,
 superbly set with bloom, the finest collection in the country to choose from,
 5s. to £5 5s. each.

They also beg to announce that Plants will be ready for Sale about the middle of May of their

NEW ENGLISH RAISED HYBRID PERPETUAL ROSES,
 DUCHESS OF BEDFORD, First-class Certificate Royal Horticultural Society, and
 First Prize (as the best New Rose) National Rose Society.
 COUNTESS OF ROSEBURY, Three First-class Certificates.
 R. DUDLEY BAXTER. Price, 7s. 6d. and 10s. 6d. each.

Priced Descriptive CATALOGUES free by post on application.



TREE FERNS and PALMS.

THE LARGEST AND BEST STOCK IN EUROPE.

ALSO MANY OTHER

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,
 Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, CYCLAMEN, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

VICTORIA AND PARADISE NURSERIES,
 UPPER HOLLOWAY, LONDON, N.

THE LAYING DOWN OF LAND FOR PASTURE.

AGROSTOGRAPHIA,

THE BEST TREATISE on the CULTIVATED GRASSES:
 NEW EDITION WITH ILLUSTRATIONS.

MAY BE HAD OF

THE LAWSON SEED AND NURSERY COMPANY
 (LIMITED),
 EDINBURGH AND LONDON.

New Verbenas for 1879.



MR. WILLIAM BULL is now sending out the following six NEW VERBENAS, which are a Selection made from the handsome Varieties raised by J. F. Mould, of Pewsey. These Verbenas have attracted considerable attention in the West of England, and a notice of them appeared in the *Gardeners' Magazine* of October 19, 1878. They are remarkable for the size and fine form of their flower-pips, their huge trusses, freedom of growth, distinct colours, and profusion of bloom. They are good and desirable, both for bedding purposes and for exhibition.

CLEOPATRA, waxy cream-white, suffused with pink; a fine, round, well-formed flower. 3s. 6d.

CYPRUS, bright, scarlet-crimson, with white eye; very large, finely-shaped pip; immense truss. 3s. 6d.

EARL OF BEACONSFIELD, delicate flesh colour, suffused with magenta-rose; bright centre. 3s. 6d.

HOGARTH, deep velvety crimson, shaded with chocolate; small white eye, surrounded with magenta-purple. 3s. 6d.

LORD SALISBURY, lively plum-colour; a fine flower, of good form; very rich and distinct. 3s. 6d.

VANDYKE, fine deep velvety crimson, shaded with maroon; purplish magenta centre; immense pip and truss. 3s. 6d.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

EVERGREENS.—

Plant in April.

HOLLIES, Specimen, 3, 4, 5, 6, to 15 feet.

LAURELS, bushy Portugal, 2, 3, 4, and 5 feet.

AUCUBAS, perfect globes, 2, 3, and 4 feet.

VEWS, English, 3, 4, 5, and 6 feet.

Also other Evergreens, extra bushy and good.

Many thousands of splendid plants, hardy, thoroughly transplanted, therefore well-rooted and lifting with balls.

Special prices and samples sent on application.

Prices low to clear ground. Nurseries, 250 acres.

JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

TEA ROSES for Bedding.—April and May are the best months for planting out Tea-scented Roses for summer and autumn flowering.

Strong Plants in pots, worked on seedling Brier, 12s., 15s. to 18s. per dozen.

Tea Roses for greenhouses and conservatories, in 7 and 8-inch pots, now coming into bloom, 30s. per dozen.

List of sorts on application.

CLEMATIS JACKMANNI, for bedding, 9s. per dozen.

CLEMATIS, twenty to thirty leading varieties, 12s. to 18s. per dozen.

List of sorts on application.

CRANSTON AND CO., King's Acre Nurseries, Hereford.

NEW ENGLISH ROSES.—The following

twelve new English-raised Roses for 25s., basket and packing free for cash with order:—May Quennell, Mabel Morrison, Robert Marnock, Dean of Windsor, Richard Laxton, John Bright, Mrs. Laxton, Penelope Mayo, Red Dragon, Marchioness of Exeter, Magna Charta, and Lady Mary Keith, all extra fine plants. List of Roses in pots (Tea-scented, new French varieties of 1879 &c.), gratis and post-free.

GEORGE COOLING, Nurseryman, Bath.

CRANSTON'S NURSERIES.

ESTABLISHED 1785.

EIGHTY ACRES.

ROSES, FRUIT TREES, CONIFERS,
FOREST TREES, &c.

Descriptive and Priced Catalogue for 1878
now ready.

Address—

CRANSTON & CO.,
 KING'S ACRE, near HEREFORD.

CHEAPEST PLANTS **EVER OFFERED.**

12 STOVE PLANTS, 12s., splendid selection.

12 GLOXINIAS, 10s., splendid selection.

12 CHOICEST CALADIUMS, 12s.

Rooted Cuttings of extra fine varieties of Plants at very low prices.

OTHER PLANTS EQUALLY CHEAP.

Universal satisfaction given, and money returned if plants not approved.

LISTS now ready, post-free, which please send for and compare before purchasing elsewhere.

FELTON & SONS,

Nurserymen, &c., by special appointment to H.R.H. the Prince of Wales,

HARBORNE ROAD, BIRMINGHAM.



WM. PAUL & SON,

(Successors to the late A. Paul & Son,
 Established 1806.)

ROSE GROWERS,

TREE, PLANT, BULB, AND
 SEED MERCHANTS.

WALTHAM CROSS,
HERTS.



Adjoining the "Waltham" Station,
 Great Eastern Railway.

Inspection of Stock invited.

Priced Descriptive Catalogues free by post.

THE GRANDEST LOT OF NEW ZONAL PELARGONIUMS,

For 1879, that were ever offered.

RAISED BY R. B. POSTANS, Esq.

CHARLES BURLEY

Has great pleasure to announce that the following New ZONAL PELARGONIUMS will be sent out for the first time on May 1, 1879 (not April.)

The whole of them are distinct, and grand acquisitions; of a richness of colour, combined with their fine forms, and in every way their habit possesses quality—hence the demand is sure to be great for them. Orders have been received for some of the varieties for the last twelve months, but owing to the shortness of stock they could not possibly be sent out before. C. B. has here departed slightly from the usual mode of distributing new Geraniums, viz., by offering cuttings—which he has often been asked for. These can be sent by post at the prices charged for them.

The following is the report, from the *Gardeners' Chronicle*, of the Pelargonium Society's Show, held at the Gardens of the Royal Horticultural Society, June, 1877:

"In the Class for Four Zonal Pelargoniums of the Florists' Class, not yet in commerce, Mr. C. Burley, Brentwood, was 1st, with the following four varieties of Mr. Postans' raising:—R. B. Postans, fine scarlet; Negro, crimson; Silvio, very bright scarlet, fine; and Freedom, fine dark variety.

"In that for One Zonal Pelargonium, with flowers of a distinctly novel character, Mr. C. Burley and Mr. H. Cannell, Swanley, were placed equal 1st, the former with Postans' Silvio, a very fine, bright, pale orange-scarlet, of great refinement of character; the latter the striped variety, New Life."

The following is from the *Gardeners' Magazine*:—

"For Four Zonals of the Florists' Class, not in commerce, Mr. Burley was first with Silvio, orange-scarlet, the flowers large, perfect in form, and borne in large trusses; Negro, crimson, very fine; R. B. Postans, rich claret; and Freedom, dark red. These have all been selected from the seed-bed of Mr. Postans, and are of first-class quality.

"In the Class for a Single Zonal of a distinctly novel colour, equal 1st prizes were awarded to Mr. Cannell and Mr. Burley; to the former for New Life, to the latter for Silvio."

"SILVIO."—Large flowers, of perfect form and good substance; colour soft orange-scarlet, zonate foliage, compact habit. This is the magnificent variety which was so much admired at the Pelargonium Society's Show, Royal Horticultural Society's Gardens, June, 1877, and was awarded equal 1st as a distinct novel colour, and one of the four awarded 1st prize. Not in commerce. It is, to say the least, a grand variety, and the best scarlet I ever saw. It is a perfect florists' flower. 7s. 6d. each; Cuttings 4s. 6d. each, 36s. per dozen.

"R. B. POSTANS."—Fine bold flowers, of excellent shape and substance—a true florists' type; colour velvety-crimson, shaded purplish-maroon. Acknowledged by all who have seen it to be a grand variety. The habit is one of the best, being medium-sized, zonate leaves, and branching. 7s. 6d. each; Cuttings 4s. 6d. each, 36s. per dozen.

"FREEDOM."—Large trusses of finely shaped flowers, borne on long pip-stalks; colour purple-magenta, white eye, good habit, zonate foliage. 5s. each; Cuttings 2s. 6d. each, 24s. per dozen.

"NEGRO."—Large sized flowers, of excellent shape and substance—a very fine variety; colour dark claret, shaded purple, good habit, slightly zonate foliage. 6s. each; Cuttings 3s. 6d. each, 30s. per dozen.

The above four were awarded 1st prize at the Pelargonium Society's Show, held at the Royal Horticultural Society's Gardens, June, 1877, in Class for the Best Four not in Commerce.

"CLEOPATRA."—Large round flowers of excellent form; colour dark velvety-crimson, in way of Squire of Weald, but much larger, good zonate foliage, habit good, and a true florists' flower. 5s. each; Cuttings 2s. 6d. each, 24s. per dozen.

"LORD SALISBURY."—Plant of nice branching habit, dark green, slightly zonate foliage, throwing up large trusses of fine shaped florists' flowers, of great size and substance; colour maroon, shaded-crimson upper petals. This is a great acquisition to the dark varieties. 5s. each; Cuttings 2s. 6d. each, 24s. per dozen.

"LONSDALE."—Fine large flowers, of perfect florists' form; colour scarlet, shaded purplish-claret, good habit, producing freely good sized trusses over a pleasing, neat zonate foliage. 5s. each; Cuttings 2s. 6d. each, 24s. per dozen.

"SEFTON."—Soft, rosy-scarlet flowers of rare size and matchless, in fact a perfect florists' flower, freely produced on good sized trusses, habit all that can be desired in a Zonal Geranium. 5s. each; Cuttings 2s. 6d. each, 24s. per dozen.

"MRS. IND."—A remarkably pretty variety, with marbled leaves, dwarf branching habit, throwing up good trusses freely of beautiful bright pink flowers, of nice size and form, with white centre; the wood is transparent, and altogether this is a beautiful plant. 5s. each; Cuttings 2s. 6d. each, 24s. per dozen.

The set of 9, 48s., packing 1s. extra. To be sent out May 1, 1879

NEW SILVER-EDGED GERANIUMS.

"MRS. PRESTON."—This is one of those beautiful varieties with the unusual good constitution possessed by all those from that well-known raiser, Mr. R. B. Postans. Fine branching habit, with silvery white leaf-margin, throwing up trusses of good size in profusion, of a fine salmon colour; flowers of good substance and nice form. 5s. each.

"PRINCESS ALICE."—A variety with fine silver leaf-margin, branching habit, throwing up a profusion of trusses of a fine pink; the flowers are of good shape and substance; a very attractive plant, the best by far in this way, with such individual flowers as you find on a Zonal in size. 7s. 6d. each.

The above two, ros. Cuttings, one of each, 5s. The set of nine Zonals, and the above two, for 53s., package included. To be sent out on and after May 1, 1879.

All Cuttings can be had by post, free.

CHARLES BURLEY,
NURSERIES, BRENTWOOD, ESSEX.
Post-office Orders payable at Brentwood Office.

TO OBTAIN
THE BEST LAWNS,
THE BEST CROQUET GROUNDS,
THE BEST BOWLING GREENS,
THE BEST CRICKET GROUNDS,
SOW



SUTTON'S PRIZE LAWN GRASS SEEDS,

Which produced three beautiful Lawns at the Paris Exhibition, 1878.

(See above Illustration, from a Photograph.)

These Lawns were awarded a Prize Medal, and thus referred to by "L'Echo Agricole," November, 1878:—

"The Lawns shown by Messrs. Sutton's Agent are at least equal in beauty, vigour, and luxuriance to those shown by any other exhibitor. They are of extraordinary beauty and evenness, and form throughout one charming velvety carpet."

Price, 1s. per pound, 20s. per bushel, Carriage-free.

SUTTON'S PAMPHLET on LAYING DOWN and IMPROVING GRASS LAWNS, &c.,
Gratis and post-free on application.

THE QUEEN'S SEEDSMEN, *Sutton's Sons* READING, BERKS.

THE THAMES BANK IRON COMPANY

OLD BARGE WHARF,

UPPER GROUND STREET,
LONDON, S.E.

Have the largest and most complete stock in the Trade;
upwards of £20,000 worth to choose from.

HOT-WATER BOILERS, PIPES, and CONNECTIONS,

And all CASTINGS for HORTICULTURAL PURPOSES.

Their New Illustrated Catalogue, 8th Edition, now ready
(price Sixpence).

Hot-water Apparatus erected complete, or the Materials supplied at Wholesale Prices.

NOVELTIES FOR 1879.



JAMES VEITCH & SONS

Bag to announce that they are now sending out the undermentioned splendid novelties:—

AMARYLLIS BRILLIANT,
price, 31s. 6d. each.

AMARYLLIS CHELSONI
price, 48s. each.

BEGONIA DAVISII,
price, 10s. 6d. each.

CHYSIS CHELSONI,
price, 10s. 6d. each.

CRINUM BRACTEATUM PURPURASCENS,
price, 21s. each.

CROTON EVANSIANUS,
price, 10s. 6d. to 63s. each.

CROTON HAWKERI,
price, 21s. to 42s. each.

CYPRIPEDIUM LAWRENCEANUM,
price, 42s. each and upwards.

CYPRIPEDIUM VEXILLARIUM,
price, 63s. and 105s. each.

DAVALLIA FIJIENSIS MAJOR,
price, 10s. 6d. each.

DRACÆNA PRINCESS MARGARET,
price, 21s. to 63s. each.

ERYTHRINA MARMORATA,
price, 10s. 6d. each.

EURYCLES AUSTRALASICA,
price, 10s. 6d. each.

HÆMANTHUS KALBREYERI,
price, 10s. 6d. and 21s. each.

KENTIA MACARTHURI,
price, 10s. 6d. to 63s. each.

NEPENTHES STEWARTII,
price, 31s. 6d. each.

PHILAGERIA VEITCHII,
price, 10s. 6d. each.

RHODODENDRON, DUCHESS OF TECK,
price, 31s. 6d. each.

RHODODENDRON, PRINCE LEOPOLD,
price, 31s. 6d. each.

SARRACENIA CHELSONI,
price, 21s. each.

TODEA PLUMOSA,
price, 10s. 6d. each.

UTRICULARIA ENDRESII,
price, 105s. each.

For full descriptions see Illustrated New and General Plant CATALOGUE, which will be forwarded on application.

ROYAL EXOTIC NURSERY,
KING'S ROAD, CHELSEA, S.W.

New Bedding Plants for 1879.

IRELAND & THOMSON

Have much pleasure in announcing that they are now sending out the following splendid Novelties:—

NEW AGERATUM, "HER MAJESTY."

Is of a dwarf-creeping habit, and produces flowers in great abundance, of a pale lavender colour, and is very effective. This will prove to be the best Ageratum yet sent out.

Price 12s. per dozen, 84s. per 100.

NEW TROPÆOLUM, "VESUVIUS."

This is admitted by all who have seen it to be the finest and most effective Tropæolum for bedding yet raised. It is of a dwarf habit, and produces flowers in great abundance, of the most intense scarlet colour. This will form one of the greatest additions to our Bedding Plants we have had for some time.

Awarded a First-class Certificate by the Royal Caledonian Horticultural Society.

Price 12s. per dozen, 84s. per 100.

NEW WHITE LOBELIA, "LOBELIA ALBA MULTIFLORA."

This is a Seedling raised from speciosa. In habit it much resembles its parent, but produces flowers of large size, of a pure white colour, and when seen in beds or lines it produces a dense mass of pure white. We can recommend this as the best white Bedding Lobelia yet sent out.

Awarded a First-class Certificate by the Royal Caledonian Horticultural Society.

Price 12s. per dozen, 84s. per 100.

NEW PINK LOBELIA, "LOBELIA PINK QUEEN."

This is quite a novelty among Bedding Lobelias. In style of growth it resembles pumila grandiflora, being of a dwarf, compact habit, and free bloomer. The colour of its foliage and stems is a bluish-bronze, with flowers of a beautiful pink colour.

Price 12s. per dozen, 84s. per 100.

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CALCEOLARIA, Williams' superb strain, finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

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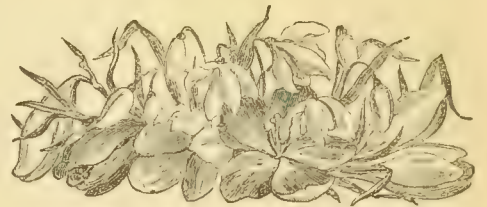
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SATURDAY, APRIL 26, 1879.

TROPICAL GARDENS.

GARDENS in the tropics, albeit oftentimes rich in landscape beauty, and containing many rare flowers and fruits which have not, and apparently cannot, be brought to a fairly satisfactory—not to say perfect—condition in our hothouses here at home, are nevertheless not altogether so perfect as one might imagine to be the case. One of the greatest of all drawbacks is the absence of the peculiarly fresh green turf, so common in our moist and cool climate. Turf there is, but never the cool, velvety carpet of English gardens. It is mostly harsh to the foot, especially in the hot or dry season, and never under the best of possible conditions does it ever approach the tender close freshness of our lawns in spring and summer time.

In English gardens we are apt to cry out for permanency—effects that will last. We sigh that some of our most beautiful flowers are so transient or ephemeral that they scarcely delight us ere they are gone. In tropical gardens, however, the reverse of this is apt to be the case—the variety of vegetation is not nearly so apparent there as here, because it never breaks upon one with the sudden freshness of spring, the fulness of summer, the glory of autumn, or the delicious glimpses of flower beauty, which whet our appetites even more keenly during the winter's fast, at which we are too apt to repine.

Near the equator spring and summer are represented by a hot and wet season, and autumn and winter by a hot and dry one; it is all summer weather—the spring beauty of flower and turf, and the autumn glory of gilded and painted leaves being unknown in the sense they are known to us. It is a long summer of hothouse flowers, the only charm being that they can be grown and admired out in the open air, but they often linger in bloom until their very loveliness serves to make them more monotonous than our common ever-changing garden flowers can possibly be.

We are led to make these remarks after seeing the best gardens in Singapore. The botanical gardens, which are just now for the first time entirely under Government control, are situated at Tanglin, a distance of 3 miles from the town. The roads being good, many visitors drive out here for an hour or so, if only to hear the band, before dinner. The route along the Orchard Road is fringed with Areca and Cocoa-nut Palms, and during the wet season the trees beside the smooth red road are draped with Polypodiums and other Ferns, and about the middle of September the deliciously fragrant Dendrobium crumenatum bursts into bloom freely, it being wild even on trees quite close to the town. Here and there pretty orchards of Rambutan, Oranges, and other fruit trees are passed, and now and then one gets pleasant glimpses of neat whitewashed bungalows, standing back from the road and for the most part embowered in trees.

On entering the gardens a golden-flowered specimen of Allamanda Schottii, scrambling over some low trees near the entrance, formed a truly natural and effective group, and the singular outlines of Cook's Araucaria on the hillside reminded one of our Fir trees at home. Passing a fine belt of Sago Palms we come to the aquatic pond, in which the rosy-flowered Sacred Bean (Nelumbium speciosum), three or

four species of Water-Lilies, having white, blue, rosy, and crimson blossoms, and even the lovely *Victoria regia* itself, is seen, evidently perfectly at home here beneath an eastern instead of a western sun. The elegant "Warringham" tree (*Ficus retusa*) droops over the farther edge of the long lake with all the grace of a Weeping Willow; and here, growing quite wild beside the path, is *Gleichenia dichotoma*, known as a rare hothouse Fern in English gardens; while two or three species of Pitcher-plants, so rare at home, are here perfect jungle weeds, being the first plants to appear after the land is cleared, or after a jungle fire! This is especially true of *Nepenthes Rafflesiana*, and there are one or two terrestrial Orchids which still push their way through the turf and flower yearly, having held their ground after the land was originally cleared for the garden. One of the great charms of the Singapore garden is that it is still partially surrounded by old forest, in which many now rare native plants still linger. Amongst other plants of great economic interest is a species of caoutchouc-yielding *Willughbeia*, and *Artocarpus elastica*, a plant related to the Bread-fruit tree, and interesting as affording by simple maceration and beating a peculiarly tough and serviceable bark cloth, which was probably the first clothing ever worn by any of the natives of the Archipelago. Here also may be found enormous clumps of the edible Bamboo, and among the evidences of former cultivation plants of *Uncaria Gambir*, the Gambier, or *Terra japonica* of commerce, are commonly met with.

One of the most beautiful of all the Orchids cultivated here in the gardens is *Vanda Hookeri*, a clump of which in flower, as seen at a little distance, reminds one very forcibly of Sweet Peas in cottage gardens at home. It succeeds perfectly well planted in a bed of earth and trained to stakes 5 or 6 feet in height, but above all it enjoys full exposure to the sun. Its erect spikes of white and lilac-purple flowers are freely produced near the apices of the shoots, and the growth made under these conditions is nearly as strong as that of its Indian congener, *V. teres*, which it much resembles in its slender habit, and in having short, cylindrical, or terete foliage. The *Stephanotis* bears its milk-white blossoms in plenty in the open air and full sunshine, as also does the rosy-flowered *Antigonum leptopus*, than which nothing can be more effective in its way as seen here, a fresh green mass of foliage draped with bright rosy racemes of flowers and buds, while it is a perfect failure in our hothouses in England. A very fine effect is produced by some plants of *Thunbergia laurifolia*, or an allied species, which have completely overrun some old forest trees standing on the skirts of the garden near the band-stand, so that they remind one of Ivy-clad ruins, so dense and fresh is the leafage held aloft by the old tree trunks.

A new economic garden has recently been formed for the culture and propagation of plants yielding commercial products, such as Coffee of the Arabian and Liberian varieties, gutta and rubber-yielding plants, *Cinchona*, *Ipecacuanha*, and fruit, timber, fibre, gum, and spice-producing plants of all kinds. A garden in the tropics, where one can see nearly all of the most beautiful and useful plants the world produces growing in the open air side by side, becomes especially interesting as contrasted with our own efforts at cultivating such plants in glasshouses at home, and yet in the case of Orchids, Ferns, and other dwarf-growing plants, we certainly have the advantage over the tropical cultivator. Of course, glasshouses are here not needed, since even the most delicate *Phalenopsis* can be fixed to the branches of a tree in the open air, or grown in a Cocoa-nut husk or basket suspended beneath a rustic

harbour-like framework covered partially with creeping or climbing plants for the sake of shade. There are several good private gardens in Singapore, but by far the best is that belonging to Mr. Whampoa, (illustrated in the *Gardeners' Chronicle* of February 16 and March 2, 1878,) who is an enthusiastic gardener, and it is a great treat to look over his collection of plants. *Amherstia nobilis* luxuriates here, the trees being cut back occasionally so as to keep them compact and bushy, and the racemes of scarlet and gold flowers are thus seen to better advantage against a background of green leaves. *Roupehia grata*, a plant known in our gardens thirty years ago, but which seems to have died out, forms a compact floriferous bush near the house in copartnership with a showy rosy-flowered *Ixora*, the rare *Stiffia chrysantha*, a Brazilian shrub, having orange-yellow tubular flowers subtended by yellowish pappus, also long ago introduced to our gardens, and now rarely to be seen except in the collections of such real plant-lovers as Sir G. Macleay, by whose gardener (Mr. Green) a few sprays in flower were recently exhibited at South Kensington.

Here are long ditches filled with the leaves and flowers of the Sacred Bean, and as seen early in the morning they are wonderfully fresh and lovely. This plant is a great favourite with the Chinese, and it is often to be seen growing and flowering beautifully in the little forecourts of their "joss" (a phonetic corruption of the Portuguese *Dios*) houses or churches. In some cases tanks are especially constructed for its culture; but very often a large vase is made to do duty for a larger receptacle, the roots being planted in good rich earth and watered freely. Very fine specimens may thus be seen growing in the vases and bearing three or four open flowers and many leaves. Our own cultivators of exhibition plants might take a hint from the Chinese gardeners in the matter. A painted nine-gallon cask with one end removed would afford ample rooting space for a large plant, and what a "telling" effect a good well-grown specimen of this—even if bearing only two or three of its lovely rosy flowers above the peltate leaves—would have in a collection of stove flowering plants! In order to keep it dwarf and robust it would have to be exposed to the light and air as much as possible. Many varieties of *Chrysanthemums*, the national flower of the Chinese, are grown here in pots and bloom fairly, but it is evident the climate is far too hot for them. These, however, and numerous clever specimens of topiary-work, in the way of shrubs cut into the semblance of men, animals, junks, and temples or pagodas, lend quite a Chinese character to the garden, especially in the vicinity of the house.

A little orchard of Mandarin Oranges was bearing a heavy crop of fresh green, but perfectly ripe and luscious fruit at the time of our visit, and a Nutmeg tree also bore ripe fruit. A fine specimen of the African Oil Palm exists here, also the tree yielding *Cajuputi* oil—a corruption of "kayu putih," or white wood—Clove, Allspice trees, and several others of economic interest. A Walnut tree was pointed out with pride by its owner as being the only one in the island, and as having given him a vast amount of trouble to rear. An Arab gardener in Egypt once proudly pointed out to me a bush tree bearing three or four little Apples, which he appeared to value for just the same reasons—it was rare, and had given him a deal of trouble to keep alive. The Papaw tree fruits freely here, producing fruits as large as a small Melon, the pulp inside being of a bright orange colour, and having somewhat of an Apricot-like flavour. This is generally a dioecious tree, bearing its male flowers and fruit on separate plants, the flowers of the female plant being large and nearly sessile on the trunk, while the male flowers are borne on branched

panicles, about 2 feet in length. In several instances, however, I noticed fruits on the male plant, but in no solitary case in which I cut them open was a seed detected within the fruit. The Cashew-nut, Bananas, Mangosteen, Rambutan (*Nephelium*), Rose Apples, two or three kinds; Durian, Rambi, Langsat, Bilimbing, *Psidium pomiferum* or Guava, Tamarind, *Anona squamosa* and *A. reticulata*, area few of the tropical fruits not unfrequently met with in the gardens of Singapore. F. W. B.

New Garden Plants.

LYCASTE LOCUSTA, n. sp.*

A new *Lycaeste* allied to *L. costata* and *L. Barringtoniae*, with a white column, green sepals, green petals, a green lip, a green callus, a green ovary, green bract, green sheaths, a green peduncle, green bulbs, green leaves—just as green as a green grasshopper, or the dress of some Viennese ladies. It is nearly as satisfactory to study this group as it is to brush hedgehogs, but this species is better than the sister species; it is very well distinguishable by its very fleshy, short perigones, very short blunt mentum, convex disc of the anterior lacinia of the lip, and the two most sharp keels running between the side laciniae. Flowers smaller and shorter than those of *Lycaeste Deppei*, the petals bent down inside the lateral sepals, thus making the perigone fully bilabiate. It was brought from Peru by Mr. Davis, and Messrs. Veitch have the satisfaction of flowering this novelty, which might create a surprising effect when brought before the court of the judges of the Royal Horticultural Society's Floral Committee, claiming a certificate. If Mr. Seden would cross it with a pure white *Lycaeste Skinneri* we might get a flower with a good Saxon flag, white striped with green, if things develop as we would have them. H. G. Rehb. f.

CÆLOGYNE OCELLATA MAXIMA, n. var.

According to my taste this is a great beauty. It is far stronger than the common plant, bearing a rich eight-flowered raceme of expanded flowers coming near those of *C. cristata*. The colour is the usual one; the lateral yellow blotches spread widely apart; the anterior central one is confluent and overrun by side-keels, those quite outside being the adventitious ones urged already by Dr. Lindley. I am told that the bulbs are a good deal larger than those of the genuine plant, being 3 inches in circumference. The inferior sheath under the inflorescence, usually persisting in this species, is very much developed. I have to thank Mr. B. S. Williams for the pleasure of having the showy inflorescence before me. H. G. Rehb. f.

ONCIDIUM FORBESII BORWICKIANUM, n. var.

This is a most remarkable variety of a rare species, having the whole lip bright yellow with feathered blotches, in lieu of a wide, brown, one-coloured disc, and a yellow spotted margin. It was grown by Mr. Walton, the experienced and successful grower of the very interesting collection of Mr. Alfred Borwick, Higham Hill, Walthamstow, a most zealous orchidist. H. G. Rehb. f.

[Mr. Borwick kindly sent us flowers of *O. Forbesii*, and of the new variety now described, which we have had engraved to show the difference between them (figs. 71 and 72). Eds.]

CAMELLIAS AND CAMELLIA CULTURE.

(Continued from p. 491)

GENERAL REMARKS ON CULTIVATION.

THERE is an opinion abroad, too prevalent and deeply rooted we fear to be easily removed, that Camellias are difficult to preserve in a healthy and flourishing state. It must be admitted that they are often met with out of condition, the plants scrubby, mis-shapen, bearing feeble branches, yellow leaves, and flower-buds which expand indifferently, or drop off before expansion. These facts we fear have done much to maintain the misconception, or perhaps they are the foundation of the opinion that Camellias are

* *Lycaeste Locusta*, n. sp.—Pseudobulbo pyriformi compresso obtusissimo costato; folio cuneato oblongo-oligulato acuto plicato; pedunculo folium subaequantem paucivaginatum; bractea ovarium subaequantem, mento obtusangulo brevi; sepalis impari erecto transverso oblongo obtuso, sepalis lateralibus porrectis oblongo-ligulatis acutis; tepalis eisdem appressis cuneato-ligulatis acutis, labello trifido, lacinia lateralibus semioblongis antice acutis, lacinia antica semioblonga carnosae convexae, limbo minute ciliolato denticulato, carinis duabus argutissimis a basi antice in basi laciniae mediae in callum emarginatum crassum transversum confluentibus; columna trigona basi pilosa. Flos viridis excepta columna alba. Tela perigonii valde carnosae.—Peruvia. Davis.

difficult to grow. Having cultivated the Camellia for many years, and possessing no less than 250 varieties, we may perhaps be allowed to say, without laying ourselves open to a charge of presumption, that we believe that while on the one hand no plant is more easily managed, on the other hand no plant is so generally mismanaged, or, we might say, so systematically ill-treated.

Before proceeding further let us propose half-a-dozen questions, to which we will reply, and then pursue the question of general cultivation.

1. Why are Camellias scrubby?—Answer: Because in cutting off the flowers they are usually cut with long stalks, and thus the eyes or wood-buds best stored with food are cut away and the new growth thrown on to eyes with a limited supply of food at their command. Or, as another and wholly distinct cause, insufficient heat or moisture is supplied during the period of growth.

2. Why are Camellias mis-shapen?—Answer: Because the trees are not pruned sufficiently or are pruned at the wrong season.

3. Why are Camellias so often seen bearing feeble branches?—Answer: Because they are not sufficiently nourished. This may be that they are grown in an unsuitable soil; it may be that too little moisture and heat are given during the period of growth; or it may be that the soil becomes soddened from insufficient drainage, or too much water when the plants are not growing or flowering.



FIG. 71.—ONCIDIUM TOKOESII.



FIG. 72.—ONCIDIUM FORBESII VAR. FORWICKIANUM. (SEE P. 524.)

4. Why are the leaves of Camellias yellow?—Answer: Because grown in an unsuitable soil, or kept too dry when flowering and growing, or too wet when in state of comparative rest.

5. Why do the flowers of Camellias expand indifferently?—Answer: It is with Camellias as with Roses, some kinds—Valtaredo, for example—are so full, or the petals are so tightly folded, that the flowers will not expand fully in our climate without the aid of heat. However healthy and satisfactory the plants may otherwise be, such kinds require more heat and moisture than is good for others so soon as the buds show colour. But the same phenomenon is sometimes met with even in kinds not over double. The cause, then, is unsuitability of soil, or too much or too little water.

6. Why do the flowers drop off before expansion?—Answer: This is natural to some kinds, of which the Waratah is an example, and such kinds should be avoided. In other cases the causes are similar to those which bring about indifferent expansion, namely, bad soil and injudicious management of watering.

In framing the above answers we have not overlooked the fact that different phenomena may have their foundation in one and the same cause. But we have put the matter before our readers in this way in order that they may find a direct and simple answer to questions which are continually being put to us.

Before proceeding to discuss the cultivation of Camellias in pots and Camellias in the open ground—each of which systems will be made the subject of a separate chapter—let us endeavour to give the reader

a distinct conception of the nature of the plant with which he has to deal.

The Camellia is an evergreen shrub, a native of China and Japan, and the nearer we can approach the climate of those countries in the respective seasons of growth and rest, the more successful is our practice likely to be. The plant is almost hardy in our climate. It loves the shade and dislikes heat, except during the seasons of flowering and growth, and even in the flowering season the flowers are large and last longer when opening in a cool temperature. The young roots are fine, hairlike, and exceedingly numerous, requiring a light porous soil in which to work and expand freely. From a cultural point of view the Camellia may be associated with the Rhododendron, not only thriving best in a similar soil (light fibrous loam or peat), but requiring also in most points similar treatment, with the addition of a glass structure from which the frost is excluded to protect the flowers in winter and early spring, at which period they naturally expand.

ON PROPAGATION.

The Camellia may be propagated in various ways. It is grown from seed, principally with the view of obtaining new varieties. The seed should be gathered as soon as ripe, soaked in warm water for twenty-four hours, and sown immediately afterwards in light fibrous loam or peat. If sown in pans, covered with not less than an inch of soil, and placed in a warm

single red, which is found to grow freely from cuttings.

Take pieces of the almost ripened wood in August or September. Cut them into lengths of about 3 inches, leaving two leaves to each cutting, and insert the cuttings round the side of a 6-inch pot in a soil composed of sand and peat. Plunge the pots in a cold pit, give one good soaking of water, shade from the sun, and as winter approaches protect them from frost. By the end of February they should be removed to a close house and placed on bottom-heat, where they will form roots in a couple of months, when each rooted cutting may be transferred into a separate pot. These young plants should be kept in a close house syringed pretty freely and shaded until the new growth is finished and hardened, when they also may be sent to join the general stock and subjected to the general treatment.

Grafting is another means of propagating the Camellia, and the means most generally resorted to. Take a two-year-old plant of the species or single red which has been obtained from seed or from cuttings, as above described. This is called the stock. Cut off the head to within an inch of the ground level. Pare one side of the remaining inch. Next seek a scion or graft—for these terms are synonymous—pare the lower end so that it will lie on the stock in such manner that the inner bark of the graft lies exactly upon the inner bark of the stock. Bind the two together with loosely-twisted cotton, and cover the

point of the greenhouse, it will probably vegetate in a few weeks, but it not unfrequently lies in the ground for a year and a-half, or even two years. Care should be taken to keep the soil in an equable state of moisture, and the cultivator here is more likely to err on the side of giving too little water rather than too much water; the outer covering of the seed is very hard, and heat and moisture are the agents by which we seek to soften it to facilitate vegetation. When the seedlings are rising they should be shaded constantly in sunny weather, and when they have formed their third leaf they should be carefully transferred into single pots with as much soil to the roots as possible, and kept in the same temperature and shaded as before.

In a few months, when the growth stops and hardens, they may be placed among other Camellias in pots, and share in common with them the treatment which will be advocated in our next paper. The blooming of seedlings is often long deferred: we have seen plants many years old that had not given a single bloom. If the cultivator wish for a speedy settlement of the value of his seedlings, it is well to graft them on matured stocks as soon as he can cut wood sufficiently strong for the purpose; but this process is expensive and unsatisfactory if applied extensively, as he will probably, by this practice, propagate many indifferent varieties.

The Camellia is also grown from cuttings. All kinds do not succeed equally well in this way, and there is no means of deciding this question except by actual experiment. Consequently, the named varieties are usually grafted on the species (*C. japonica*), or

point of junction with tallow, or wax, or grafting composition, to exclude air and moisture.

Grafting is usually performed in autumn, and that season is considered the best, but it may be done at any time between August and February. The stocks when grafted should be placed in a close house with gentle heat, or if a close house is not available, the desired conditions may be obtained by the use of handlights.

About six weeks after grafting the graft will be found united to the stock, not very firmly perhaps, but sufficiently to admit of the loosening of the ligature. If the ligature is wholly removed, it is however often necessary, and always the safer plan, to retie with bast at the top and bottom of the junction. Air may now be gradually admitted, and after a time, say two months, these grafted plants may be removed to join the general stock.

Inarching is an old-fashioned way of propagating the Camellia, but it is still occasionally practised. It is especially useful for converting large plants of indifferent varieties into the handsome modern kinds. It may indeed be considered as a species of grafting. The grafts instead of being wholly cut off from the tree are laid on sideways while communication with the parent stem and root is still maintained. This was for many years the favourite method with nurserymen for propagating even small plants of the finer sorts of Camellias. It was a very safe plan, but both troublesome and tedious, and now that grafting is so thoroughly understood that with skilful propagators not one graft in a hundred fails, inarching is practised only in exceptional cases. *William Paul, F.L.S., F.R.H.S., Paul's Nurseries, Waltham Cross.*

(To be continued.)

EFFECTS OF THE PAST WINTER ON PLANTS GROWING IN THE GARDENS NEAR DUBLIN.

THAT the past has been one of the most severe and destructive winters to vegetation which has occurred for a long time is generally admitted. A few degrees lower temperature have been registered in some previous winters, but according to well authenticated records it was at most only of one or two nights' duration. Anything like the long continuance of severe frost which we have had to record for 1878-79 is almost unprecedented. The following table will go far to prove this. The readings were taken from a very accurate self-registering thermometer placed against the bole of a tree 5 feet above the ground and freely exposed, in the Botanic Garden, Glasnevin, which is about 60 feet above sea level. The readings taken at the College Botanic Garden are not quite so low, as the gardens are only a few feet above sea level, and are very much protected by buildings, &c. I have therefore taken the Glasnevin readings, as affording a more correct estimate of the temperature in the neighbourhood of the city.

| F. | Frost. | Wind. | F. | Frost. | Wind. |
|--------------------------|--------|-------|-------------------------|--------|-------|
| Nov. 25..11.0 or 21.0 .. | N.W. | | Jan. 2..11.0 or 21.0 .. | N.W. | |
| Dec. 4..10.0 or 21.4 .. | N.W. | | " 4..12.0 or 20.0 .. | N.W. | |
| " 11..10.0 or 22.0 .. | N.W. | | " 5..12.0 or 20.0 .. | N.W. | |
| " 15..9.0 or 23.0 .. | N.W. | | " 6..10.0 or 21.8 .. | N.E. | |
| " 17..5.0 or 27.0 .. | N.W. | | " 11..9.8 or 21.2 .. | N.E. | |
| " 20..10.0 or 22.0 .. | N.W. | | " 12..5.0 or 26.4 .. | N.E. | |
| " 24..8.0 or 24.0 .. | N.W. | | " 17..11.4 or 20.0 .. | N.E. | |
| " 25..4.0 or 27.4 .. | N.E. | | " 26..11.0 or 21.0 .. | N.W. | |
| Jan. 1..10.0 or 22.0 .. | N.E. | | " 27..5.0 or 27.0 .. | N due | |

It will be seen from the table that the lowest temperature occurred on the morning of December 25, when the thermometer marked 4°.6, showing 27°.4 of frost. Soon after daybreak the wind went suddenly round to south-east, and a rapid thaw set in for a period of five days; this again gave place to frost, which lasted, with short intervals of thaw, from January 1 to 27. During part of this time there was a cold north-east wind, which was very destructive, and has left its mark behind on the sides of Conifers and other evergreens exposed to it.

Some rather remarkable facts connected with the effects of the frost on the same kinds of plants have come under my notice. I will take, for example, the different kinds of *Dracena* that have been so much planted in Dublin gardens of late, where they were considered quite hardy, having stood uninjured during the last eight winters. Some of these had attained a height of 10 to 14 feet, and had strong woody stems, giving quite a tropical appearance to their surroundings.

At Glasnevin *D. australis* was 15 feet high, *D. calocarpa*, Wend., 10 feet, and at the People's Garden, Phoenix Park, they were almost as fine. At the University Gardens, though well-established, they were not so large, but all, small and great, in localities not much above the level of the sea, are quite dead. On the other hand, at Lord Pembroke's fine garden, Mount Merrion, which is about 250 feet above sea level, and more towards the mountains, they are comparatively safe. At Killakee, which is again at a greater height, 700 feet above sea level, and quite near the mountains, they have stood well. I find the same observations hold good with regard to *Phormium tenax*, the New Zealand Flax; this is the more remarkable, as the temperature was even lower at Killakee than with us. At the Phoenix Park, Glasnevin, College Botanic Garden, and other gardens, it has been killed to the ground; while at Mount Merrion, Mount Anville, and Killakee, it is scarcely touched. At the University Garden I had some fine plants of the variegated New Zealand Flax (*P. Veitchii*) growing near the common form; the latter is killed to the ground, while those with variegated leaves are scarcely injured. Similar occurrences have been mentioned to me from elsewhere, the variegated form proving the hardier of the two. I may mention another genus which has suffered more in some localities than others, viz., *Tritoma* (*Kniphofia*). The different kinds of *Tritoma* have been very conspicuous plants in Dublin gardens during the months of August and September, and were generally looked on as quite hardy, especially *T. Uvaria*, *T. Burchellii*, and *T. Rooperi*. These with their varieties have all been cut to the ground. The hardiest of them all seems to be *T. caulescens*, a large plant of which at Glasnevin has not lost a leaf, whilst *T. Macowani* succumbed at once; *T. media* has also stood well.

The late winter has taught us that, so far as we

know, there is but one truly hardy Palm, viz., *Chamærops Fortunei*, Hook., which has stood everywhere in Ireland that I have heard of, and is quite unimpaired. A few others have barely survived, as *Jubæa spectabilis* and *Chamærops Khayana*, Griff. (*Palmus*, p. 134, fig. 217); these stood unprotected and uninjured at Glasnevin during the last eight winters, but were unable to resist the inclemency of the past season. By comparing the native countries of those plants that were killed or very much injured with the countries of those that have survived, or are but slightly injured, I find that as a general rule Japanese and Chinese plants have proved almost hardy, while Australian, New Zealand, South American, and Cape plants have in most cases succumbed, and Californian and South European plants are much injured. For instance, we find that such plants as *Ceanothus*, *Myrtles*, *Fuchsias*, *Clianthus*, *Diplacus*, and others are nearly or quite dead, while *Camellia japonica*, *Akebia quinata*, *Aralia Sieboldii*, and *Azalea indica* alba are uninjured.

Again, Himalayan plants have come well through the ordeal; the fine *Rhododendrons* at Glasnevin are not at all injured, and at Killakee a fine plant of *Cerasus lusitanica* is much cut up, while beside it *Rhododendron arboreum* is uninjured. The fine Himalayan *Primroses* are also quite safe, such as *P. mollis*, *P. sikkimensis*, *P. rosea*, &c.; some of them are at present beautifully in bloom.

A curious coincidence I find in the Heath tribe, viz., the common *Erica mediterranea* and its Irish variety are almost everywhere much injured, while at Sir Francis Brady's, near Dalbeg, *E. hyemalis* is not only uninjured but flowered well this spring.

Bulbous plants have escaped very well, only a few being killed. In the College Botanic Garden the Cape *Gladioli* are uninjured, while *Dahlia* tubers quite close to them and planted deeper are dead. *Watsonia fulgida* and *Amaryllis Ackermannii* are starting into growth; *Crinum capense*, *Crinum scabrum*, and all Japanese *Lilies* are quite safe. Among herbaceous plants the losses have not been serious, a few only having rotted away at the crown.

Appended I have made a list in their natural orders of those plants which seemed to me the most remarkable amongst the killed and injured. I have also noted the more interesting of those that have escaped and may presumably be pronounced to be quite hardy.

KILLED, OR MUCH INJURED. UNINJURED, OR ONLY SLIGHTLY DAMAGED.

| | | |
|---|--|--|
| <i>Clematis cirrosa</i> | <i>Ranunculaceæ.</i> | |
| <i>Magnolia grandiflora</i> , much coloured | <i>Magnoliaceæ.</i> | |
| <i>Cocculus laurifolius</i> | <i>Menispermaceæ.</i> | |
| | <i>Lardiabaceæ.</i> | |
| | <i>Akebia quinata</i> | |
| | <i>Sarraceniaceæ.</i> | |
| | <i>Sarracenia purpurea</i> | |
| | " <i>flava</i> | |
| <i>Romneya Coulteri</i> | <i>Papaveraceæ.</i> | |
| | <i>Mecynopsis Wallichii</i> | |
| | " <i>nepalensis</i> | |
| | <i>Crucifereæ.</i> | |
| | <i>Vella pseudo-cytisus</i> | |
| | <i>Droseraceæ.</i> | |
| | <i>Dionaea Muscipula</i> , in cold frame | |
| <i>Lavatera angustifolia</i> | <i>Malvaceæ.</i> | |
| " <i>phœnicea</i> | <i>Abutilon vexillarium</i> , injured, but growing well. | |
| " <i>arborescens</i> | | |
| | <i>Sterculiaceæ.</i> | |
| | <i>Fremontia californica</i> , quite safe | |
| | <i>Ternstroemiaceæ.</i> | |
| | <i>Camellia japonica</i> , several vars | |
| <i>Hypocissus balearicum</i> , injured | <i>Hypericaceæ.</i> | |
| " <i>Coris</i> | | |
| " <i>asperum</i> | | |
| <i>Cneorum tricoccon</i> , killed | <i>Rutaceæ.</i> | |
| | <i>Pittosporaceæ.</i> | |
| <i>Pittosporum Tobia</i> | <i>Pittosporum revolutum</i> | |
| | <i>Billardiera longifolia</i> | |
| <i>Ceanothus</i> , sorts, much injured | <i>Rhamnaceæ.</i> | |
| | <i>Ternstroemiaceæ.</i> | |
| <i>Pistacia Terebinthus</i> | | |
| <i>Davallia dentata</i> | <i>Leguminosæ.</i> | |
| <i>Clianthus puniceus</i> | <i>Thermopsis laburnifolia</i> | |
| <i>Edwardsia grandiflora</i> | <i>Cronilla glauca</i> | |
| " <i>chilensis</i> | <i>Edwardsia microphylla</i> | |

| | | |
|--|--|--|
| <i>Rosa bracteata</i> | <i>Rosaceæ.</i> | |
| <i>Spiræa Reevesiana</i> , only <i>Spiræa</i> injured | <i>Rubus australis</i> | |
| | <i>Myrtaceæ.</i> | |
| <i>Myrtus communis</i> | <i>Punica Granatum</i> | |
| <i>Eucalypti</i> , killed almost everywhere | | |
| <i>Escallonia montevidensis</i> | <i>Escalloniaceæ.</i> | |
| | <i>Escallonia macrantha</i> | |
| <i>Pasiflora cærulea</i> , in cases killed | <i>Fassifloraceæ.</i> | |
| | <i>Cactaceæ.</i> | |
| | <i>Opuntia Rafinesquiana</i> , growing well. | |
| <i>Eryngium pandanifolium</i> | <i>Umbellifereæ.</i> | |
| <i>Selinum decipiens</i> | | |
| <i>Fuchsias</i> of sorts, save the hardy <i>F. Riccartoni</i> | <i>Onagraceæ.</i> | |
| | <i>Lythraceæ.</i> | |
| | <i>Lagerströmia indica</i> , injured but growing | |
| | <i>Araliaceæ.</i> | |
| | <i>Aralia Sieboldii</i> | |
| | <i>Panax japonicum</i> | |
| | <i>Dimorphanthus mandschuricus</i> | |
| <i>Eurybia Gunniana</i> | <i>Compositæ.</i> | |
| <i>Dahlia argyrophylla</i> | <i>Diplopappus chrysophyllus</i> | |
| <i>Ozothamnus rosmarinifolius</i> | | |
| <i>Erica arborea</i> | <i>Ericaceæ.</i> | |
| " <i>mediterranea</i> | <i>Erica Mackayana</i> | |
| " <i>australis</i> | <i>Azalea indica alba</i> | |
| <i>Arbutus Andrachne</i> | All Himalayan <i>Rhododendrons</i> , including <i>R. Falconeri</i> , <i>R. Hookeri</i> , <i>R. argenteum</i> , &c. | |
| | <i>Oleaceæ.</i> | |
| | <i>Olea europæa</i> | |
| | " <i>fragrans</i> | |
| | <i>Primulaceæ.</i> | |
| | <i>Cyclamen persicum</i> | |
| <i>Myrsine semiserrata</i> , much injured | <i>Myrsinaceæ.</i> | |
| | <i>Aquifoliaceæ.</i> | |
| | <i>Ilex latifolia</i> | |
| <i>Solanum jasminoides</i> | <i>Solanaceæ.</i> | |
| " <i>lycoides</i> | <i>Solanum crispum</i> , not much injured | |
| <i>Lycium afrum</i> | <i>Fabiana imbricata</i> | |
| <i>Teucrium fruticans</i> | <i>Labiata.</i> | |
| <i>Satureja montana</i> | <i>Phlomis fruticosa</i> | |
| Nearly all shrubby <i>Salvias</i> | <i>Verbenaceæ.</i> | |
| <i>Aloysia citrodora</i> | | |
| <i>Clerodendron fortuneatum</i> | <i>Scrophulariaceæ.</i> | |
| All shrubby <i>Veronicas</i> , such as <i>V. decussata</i> , <i>V. speciosa</i> , killed | <i>Calceolaria violacea</i> | |
| <i>Diplacus glutinosus</i> | <i>Veronica Hulseana</i> | |
| | <i>Lauraceæ.</i> | |
| <i>Laurus nobilis</i> , everywhere injured | <i>Cephalotus</i> | |
| | <i>Cephalotus follicularis</i> has survived in a cold frame | |
| <i>Hakea arborescens</i> | <i>Proteaceæ.</i> | |
| | <i>Grevillea rosmarinifolia</i> , safe and now in flower | |
| <i>Pinus Massoniana</i> | <i>Conifereæ.</i> | |
| " <i>Russelliana</i> | <i>Araucaria imbricata</i> stands quite uninjured | |
| <i>Picea bracteata</i> | | |
| <i>Biota mexicana</i> | <i>Palmaceæ.</i> | |
| <i>Cupressus Coulteri</i> | <i>Chamærops Fortunei</i> | |
| <i>Dacrydium Franklinii</i> | | |
| <i>Jubæa spectabilis</i> | <i>Aroidæ.</i> | |
| <i>Phœnix dactylifera</i> | <i>Richardia æthiopica</i> | |
| <i>Chamærops humilis</i> | <i>Smilacaceæ.</i> | |
| | <i>Smilax latifolia</i> | |
| | <i>Trillium grandiflorum</i> | |
| | <i>Liliaceæ.</i> | |
| | <i>Phormium Veitchii</i> | |
| | <i>Dianella cærulea</i> | |
| <i>Dracæna australis</i> | | |
| <i>Phormium tenax</i> | | |
| <i>Tritoma</i> , sorts | | |
| <i>Agapanthus umbellatus</i> , injured | | |
| <i>Astelia Banksii</i> | <i>Juncaceæ.</i> | |
| | <i>Xerotes longifolia</i> | |
| <i>Crinum longifolium</i> | <i>Amaryllidaceæ.</i> | |
| | <i>Crinum scabrum</i> | |
| | " <i>capense</i> | |
| | " <i>album</i> | |
| | " <i>ornatum</i> , variety: this has at present stems and leaves 2 feet high | |
| | <i>Iridaceæ.</i> | |
| | <i>Gladiolus gandavensis</i> | |
| | <i>Watsonia fulgida</i> | |
| <i>Gynerium argenteum</i> | <i>Graminaceæ.</i> | |
| | <i>Bambusa Fortunei</i> | |
| | " <i>Metake</i> | |
| | <i>Arundo conspicua</i> | |

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EDUCATION OF GARDENERS.

(Continued from p. 497.)

WE now come to bothy education, and it is not the least important, although I am sorry to say it is the least observed of the branches, simply because it is not compulsory. The boy is compelled to learn at school, the lad is compelled to learn something in his routine duties in the garden; but wherever the compulsory clause drops out then the ruck of men think and act for themselves, and often mispend their time. Is it possible to conceive, far less to calculate, the many hours that might be set apart for self-teaching, absolutely lost to myriads of men throughout the world? Recollect, young men, an hour lost can never be regained, as time won't wait for us, and life will not be prolonged to make up lost time. It ought, therefore, to be in some measure profitably employed during your spare evenings. Not that I discountenance recreation, manly sports and suchlike; continued labour, either bodily or mental, is neither good for the system nor for the mind, but too much frivolity is dangerous, and incapacitates the individual for healthier, stronger food. Self-teaching in the bothy is powerful for good for the future of every young man. It may or it may not be generally recognised—that is to say, all may not join to form a sort of class and incite emulation and competition—but notwithstanding, no lad ought to be deterred from thinking and acting for himself.

Every reader is following out self-teaching in some shape or the other. It is incumbent on each gardener to make himself acquainted with as much of the standard literature of gardening as he can lay his hands upon. All are not equally favoured in getting at literature of this kind. Some have libraries got up by the head gardener, who has induced his employer to provide a stock of books for the use of the young men in the bothy; and where such a privilege is granted, it is a boon that ought not to be too lightly esteemed. There is so much now-a-days presented to us in the shape of weeklies and monthlies, at very reasonable prices, that no one need be without some vehicle of information, and even where there are a few young men living together, they can club, and do club together, to get their weekly gardening print. The facilities for getting at literature of this kind are greater than they were wont to be, and no young man having a spark of intelligence and ambition about him but will strive to get possession of a few books bearing upon his profession, even if he has to stint himself of some luxury. There are two classes of books—the one bearing upon the scientific, and the other upon the practical branches of horticulture—that will come within his cognisance: he will be none the worse if he can apply himself and master in some degree the contents of a few of each class. I do not wish to be misunderstood. Botany is one department, and practical horticulture is another. It is far more desirable that the general gardener should acquaint himself thoroughly in the practical departments bearing upon the art, than that he should neglect them and go into botany. Both, doubtless, are good, but the mere fact of being able to diagnose a flower will not stand a practical gardener in good stead, or be a valid excuse to his employer if he allows the plant from which the flower was taken to die for want of proper attention. Better be a good something than a swallower at everything. The former has some chance of gaining approbation among a certain class of his fellow-men, the latter has none. But self-teaching need not only be confined to books and book-reading; practical geometry might have a turn, with a decided advantage to the student in after-life. It is most desirable that the business man, be he nobleman or gentleman, should have certain improvements which he may desire to carry out—it may be in the landscape, it may be in the forms and dispositions of houses for plants, or fruits, or service-houses in general—reduced to some sort of intelligible plan. It is exceedingly awkward if a party in the position of head gardener, when he is attempting to give his version of how a certain portion of ground ought to be laid out, has to point with his finger, or draw on the gravel with a stick, something that he wishes to explain, and which would require quite a genius to comprehend and follow out. Now, a slight knowledge of practical geometry would put him in possession of all that was needed for his purpose; he does not require to give a perfectly finished sketch or to go into details as an architect would do when preparing a plan, or a contractor would do when giving an estimate.

All that is absolutely necessary on his part is to show that he understands what he is endeavouring to explain, and can put it on paper so that others can follow him. This—I say it advisedly—is far more necessary for a nobleman's head gardener than a knowledge of Lindley's *Introduction to Botany*, or an intimate acquaintance with Hooker and Arnott's *British Flora*. Then, again, a knowledge of figures and book-keeping is an essential, and a little self-culture in this way will help a young man wonderfully on in the world. He has got the rudiments at school, but he is only beginning to awake, as he gets into the active business of life, to the practical value of the instruction he received at that time, and a little furbishing up will quicken his perceptions, and put him in the right track. Were young men to associate together and have one night a week during winter for education—say two hours set apart for debate and conversation—one reading a paper on some interesting subject, or furnishing a plan—a sketch, say of a flower garden or set of houses, or a bit of landscape with trees and walks introduced, and others freely debate upon how such things might be altered, and what ought to be introduced so as to make it more effective, it would tell powerfully in favour of the club and its associates in after years. Speaking personally, I well remember the club we had at Donibristle and Fordell, both in Fifeshire, how we were accustomed to read papers and discuss them as this Association does—how the late Mr. Foulis came into the bothy, and gave us his countenance, how our minutes were kept and papers recorded, and filed as if in an invoice book, and the healthy influence it exercised upon us all. It quickened our intellect and indeed influenced our lives. Depend upon it, if gardening is to be better paid, better thought of, better patronised, it will be because her sons rise to be equal to any position or any task that may come in their way. This can only be achieved by a course of sound practical training and studious application of the mind to the general curriculum of gardening art. You all know how much really depends upon a man's own industry: some are learned and not educated, some educated and not learned; be it yours to profit by good example, and make good use of your spare hours in the evening, and you eventually will have your reward. *James Anderson.*

INTERESTING STOVE PLANTS.

(Continued from p. 367.)

I ONLY know three plants with perforated leaves—the well-known *Ouvirandra fenestralis*, or Lattice-leaved plant, which requires peculiar treatment not to be met with in the stoves we are writing about, and therefore it is needless to attempt the growing of it; *Monstera deliciosa*, also well known, and far too large if grown for fruit, but a plant in a 6-inch pot is big enough for leaves. The holes in these are very marked; occasionally there are entire leaves, and it is very interesting to watch the appearing of the holes. In *At Last* Kingsley declares that “so fast do they grow that they have not time to fill up the spaces between their nerves, and are consequently full of oval holes.” This passage was quoted to me as a botanical fact, but seeming to my mind rather a poetical license, I turned up the *Treasury of Botany*, and read:—“M. Trécul, who has examined the mode of formation of the holes in the leaves [of *Monstera*], says that they are the result of changes that take place in the tissue of the leaf, whereby ultimately the outer skin, or epidermis, becomes torn, and a hole produced, the size of which depends on the age of the leaf at the time of its formation, and that they have nothing to do with the imperfect development of lobes, as might at first be supposed.”

The third plant, *Malortea fenestralis*, is a small Palm of rigid, narrow growth; 3 feet seems its full size, and it flowers when only 1 foot high. The leaves are full of slits, more in the style of *Ouvirandra* than *Monstera*. Room must certainly be made for this interesting Palm, which can be raised from the seed it ripens, and the slits soon make their appearance in the young leaves.

I was told at Kew that at certain stages of the leaves of the *Victoria regia* there are slits (air holes) in them, which admitted water. Of course this is a plant we can only see at botanic gardens, or Chatsworth; and as Kew is open for so many hours every day in the week there is no difficulty in taking

observations of this or any other peculiar plant. It is most satisfactory to see such a large majority was against the early opening of these gardens. I may mention what was my own experience last summer when going with Mr. Goldring from one part of the grounds to another. To save time we went through one of the stoves, and there were detained by a respectable couple, who stopped at every ordinary plant in flower, and at last inquired of the young man in charge if he had any Mistletoe in that house. I was struck by the civil answers they got, but as my time was limited by the necessity of catching a train, and Mr. Goldring's time was valuable, it was rather provoking to be stopped up in the narrow passages by such visitors; and I could not help remarking that one o'clock was surely soon enough for that class of learners. All must feel their ignorance in botanic gardens, but there are different degrees of ignorance.

To suggest growing a *Musa Cavendishiana* sounds rather ridiculous, but although as with the *Monstera* fruit is not to be thought of, this plant takes up very little room, bears no end of ill-usage, and proves an unfailing source of interest. The long-sheathed leaf, with its strongly defined midrib, and the side ones set at right angles, uncoiling day by day, is a beautiful object. When the plant gets too tall we cut it down, and begin with a fresh sucker again, the whole growth of which is a study. What we naturally call the stem is strictly a rolled-up leaf; and if one cuts in slices the so-called stem we can unroll the leaf until nothing is left. A young sucker 1½ foot high makes a very handsome single plant for the room, and by generous seeding leaves of large size and of the finest colour and texture can be grown in a 12-inch pot. But I must own such over-fed suckers may rot away, while the old starved parent cannot, almost, be killed, although no justice be done to it for years and years.

A good selection of Pitcher-plants will show some of the distinctive properties of this curious genus: *Nepenthes Phyllamphora*, which can be kept dwarf by pinching, shows well the coiling of the terminal filament, the chief use of which, Mr. Darwin believes, is “to support the pitcher with its load of secreted fluid.” *Nepenthes leavis* exhibits the best climbing power, and *N. maculata* has large spotted pitchers, which it produces freely; all three being easily grown and thriving sorts.

There must be a bulb or two of *Gloriosa superba* or *Plantii*, grown, not merely for their beautiful orange Lily-like terminal flower, but for the curious terminal hook at the tip of the leaf, which can catch hold of a twig and thus support the plant. “When the plant is young it can support itself, and hooks are not found;” and again, “the leaves on the summit of a full-grown flowering plant which would not require to climb any higher, were not sensitive, and could not not clasp a stick.” Mr. Darwin ends his account of this plant, “We thus see how perfect is the economy of Nature” (*Climbing Plants*, pp. 78, 79).

Although almost hardy, I cannot resist referring to *Mutisia decurrens* and *M. Clematis*, which bear a similar tendrill, and which are also peculiar as being instances of the very few climbing plants in “the immense family of the Composite.” Mr. Darwin writes: “*Mutisia* is the only genus in the family, as far as I can learn, which bears tendrills.” *M. decurrens* is rather apt to be lost; 1st, from its bare, leggy growth, dead-like at the base, and often cut over before prudently leading up 3 feet or 4 feet to the young shoots; and, 2d, the roots run a great distance, and are apt to be cut off in those dangerous fits of tidying up the wall that periodically take place. We have lost good-sized plants by both of these ways, and also by trying to get rooted pieces of the roots. I feel inclined to say they never root, although you may follow up a brittle runner for a yard and more. Neither does it love being confined in a pot; in short, it is a difficult plant to keep, unless left alone; but the hooking leaf, and fine orange *Gazania*-like flowers, are worthy of all care. The flowers last four weeks in water.

The flower of *M. Clematis* is rose colour, I believe, and good; but I only know it as a complete contrast to *M. decurrens* in foliage. A passing glance would set it down as a Vetch of the fields. This species is noted by Mr. Darwin (p. 117), where he says that “the petioles and tendrills appear to be much affected by the light, for the whole leaf usually sinks down during the night and rises during the day, moving also during the day in a crooked course to the west;” and “the tendrills retain their sensibility to an unusually late age.”

Returning to bulbs, *Amaryllis reticulata* is no trouble, not deciduous, has beautiful pale pink white-streaked flowers in winter, and the deep green leaf has a strong white line down the centre, correct as if painted with compass and ruler—a poor compliment, but meant for a very high one by the speaker, an observing workman. *F. J. Hope, Wardie Lodge, Edinburgh, March.*

KITCHEN GARDEN PLANS.

[By the courtesy of the officials of the Scottish Horticultural Association we are enabled to lay before our readers to-day the kitchen-garden plans to

There is no doubt that the competitors for these prizes have each of them adopted in his plan the form best adapted for a kitchen garden, and one which I would always recommend should be chosen where practicable.

FIRST PRIZE PLAN (fig. 73).—The walks are here so

on both sides. The outer thick black line I take to represent a hedge, which is the usual boundary to such gardens, although this is not made quite clear on the plan. There appears to be a wall at the back of all the houses with a border for fruit trees

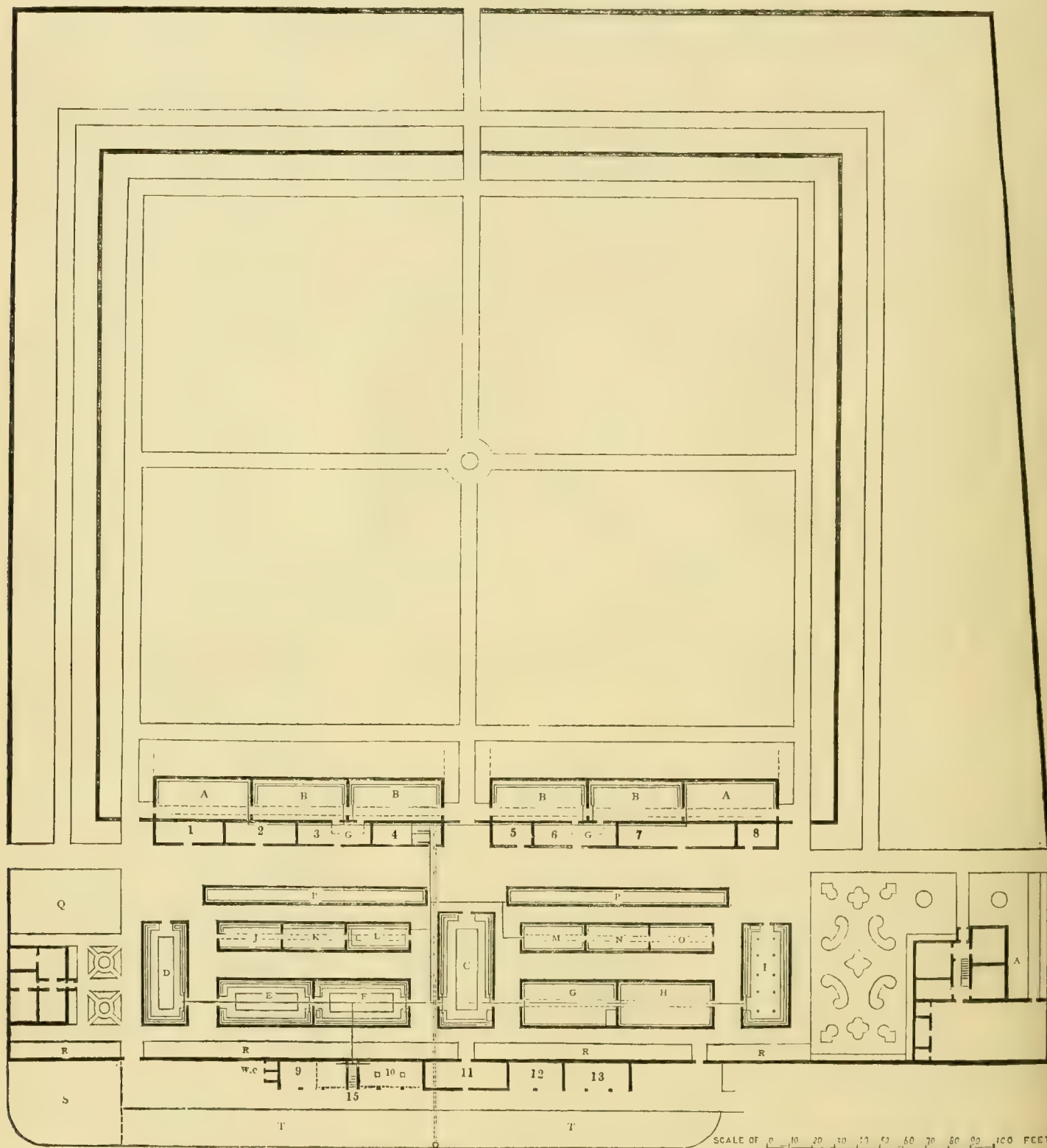


FIG. 73.—MR. CHARLES WARWICK'S (1ST PRIZE) PLAN OF A KITCHEN GARDEN.

REFERENCES TO PLAN.—First prize plan, drawn by Mr. Charles Warwick, Dalkeith Gardens :—A, A, Peach houses ; B, B, B, B, vineries, with rain-water tanks at G ; C, conservatory, with cold-water tank in lower right-hand corner ; D, intermediate stove with hot-water tank in upper right-hand corner ; E, hot stove ; F, fernery, with hot and cold water tanks in upper and lower left-hand corners ; G, Fig-house, with cold-water tank in lower right-hand corner ; H, orchard-house ; I, greenhouse, with cold-water tank in upper left-hand corner ; J, Cucumber-pit ; K, Melon-pit ; L, forcing-pit ; M, Orchid-pit ; N and O, plant-pits ; P, P, pits or frames ; 1, storeroom ; 2, vegetable shed ; 3, tool-house ; 4, stokehole, with flue underneath, with trap-doors for putting in the dung and ventilating ; 5, open shed with forcing-shed underneath ; 6, open shed for Mushroom dung with Mushroom-house ; 7, fruit-room ; 8, office ; 9, open shed with forcing-shed underneath ; 10, open shed for Mushroom dung with Mushroom-house ; 11, potting-shed ; 12, soil-shed ; 13, open shed ; 14, W.C. ; 15, entrance to forcing and Mushroom-houses. Q, plunging ground for pot-plants in summer ; R, borders for fruit trees against wall ; S, manure-yard ; T, frame ground. Gardener's house in the right-hand corner, at A, with parlour, living-room, kitchen, pantry, lobby, and with bedrooms above. Young men's rooms opposite, with a mess-room, kitchen, lobby, foreman's room, and with bedrooms above. Heating apparatus shown thus : : :—and the top pipes thus =, and heated by two 8-feet Trentham boilers, to be used separately or together.

which the 1st and 2d prizes were awarded in the recent competition, originated by Mr. Downie, and carried out under the auspices of the Association. We have thought it would add to their interest to append the following brief comments upon the plans, by a competent garden architect :—]

arranged as to throw the ground into four equal parts. This method offers the greatest facility for manuring, cropping, &c. There is also shown a good border on either side of the wall for fruit trees ; this is right, as the expensive nature of walls demands that they should be made the most of by planting fruit trees

but I suppose this is intended to stop at the end of the gardener's house on the one side and the young men's rooms on the other side, and the space to be enclosed by gates or doors.

The vineries, Peach-houses, plant-houses, and pits are well placed, as is the position for the heating appa-

ratus. In the arrangements for the sheds I would suggest a smaller number of outside doors. The store-room might be entered from the vegetable shed, and the door of the latter moved nearer to the partition wall of the former. I would also enter the fruit-room

convenient, and the shed would be much warmer than by entering in the centre. The Mushroom and forcing-houses would have been preferable if they had been placed at No. 3, and kept aboveground, as in many cases, if placed underground, they would be

SECOND PRIZE PLAN (fig. 74.)—This is very similar in outline to the 1st, but the arrangement of the houses is inferior. It is much better to keep the fruit and plants apart, and I consider a conservatory quite out of place in a kitchen garden; it should be near to or

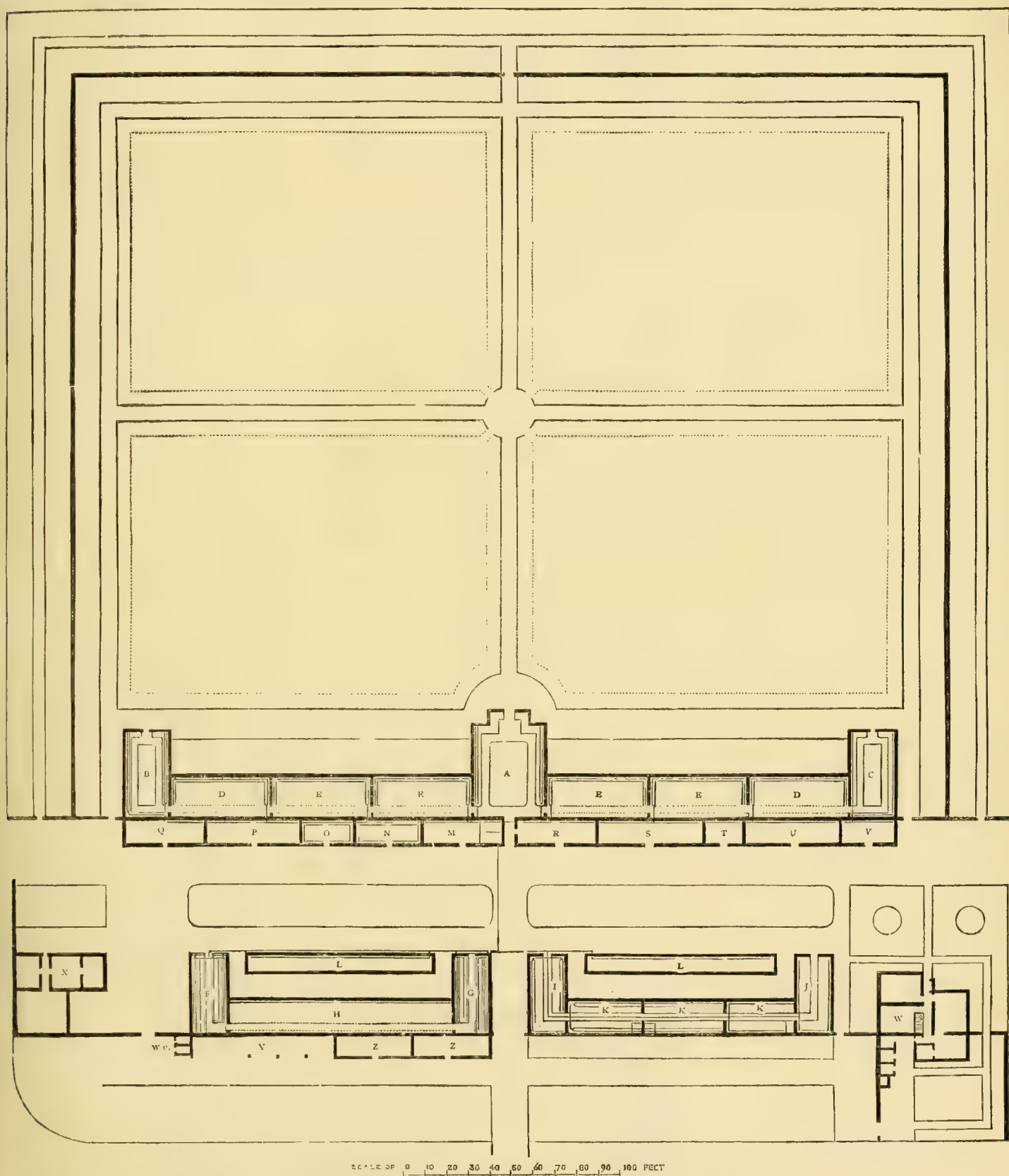


FIG. 74.—MR. CHARLES WEBSTER'S (2D PRIZE) PLAN OF A KITCHEN GARDEN.

REFERENCES TO PLAN.—Second prize plan, drawn by Mr. Charles Webster, Dalkeith Gardens:—A, conservatory; B, plant stove; C, greenhouse; D, Peach-house; E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, potting-sheds.

from the potting-shed by a door placed in the centre of the partition wall, thus allowing uninterrupted space for shelves on both sides and at one end, and by moving the door of the potting-shed down nearly close to the fruit-room there would be an unbroken space for the potting benches, which would be more

partially or wholly under water in winter, and I see no possible advantage accruing from placing them below the ground level. In conclusion, I would remark, that I think the plan a very creditable one for a young gardener, and I concur in the opinion of the judges in placing it first.

adjoining the mansion. The remarks as to the divisions of the sheds and alteration of the entrances made in reviewing the first plan, would apply also to this; but here the Mushroom and forcing-houses are arranged as I have remarked they ought to have been in Mr. Charles Warwick's plan, given on p. 528.

There is considerable merit in this plan also, and it well deserved the 2d prize which it obtained. *G. Eyles.*

Notices of Books.

Mycographia seu Icones Fungorum. Royal 8vo, pp. 249, tab. pict. 113. Williams & Norgate. 1879.

Every lover of mycology is highly indebted to Dr. Cooke for the important assistance secured to science by his numerous works. His handbook is exactly what the name imports, a manual, which is in constant use, while his monthly journal is a ready medium for the record of new or newly established species, and for the intimation of novel facts in various directions so soon as they are made public. His lately published synoptical *Clavis* of the Hymenomycetes, a work of immense labour, is the only ready index to the widely distributed species of this important branch of mycology, while his translation from the Polish of Rostafinski's elaborate work on those curious organisms, the Myxomycetes, opens to those who are unacquainted with a language but little read in this country the various accurate observations of a clever and trustworthy writer. We are, however, far from mentioning all that has been done by this indefatigable epitomist, whose labours we fear have been more profitable to the public than to himself, except as regards the honour necessarily consequent on such numerous and well directed exertions. We have, however, now to bring before our readers what must be considered as his *opus magnum*, viz., his monograph of various genera or sections of genera, comprised in a volume just completed, containing figures of no less than 405 species, almost in every case derived from authentic specimens which have been readily placed in the hands of our author for illustration. Each species is accompanied by an analysis and, by what is of great importance, a measurement of the sporidia. We do not indeed attach quite so much weight as is often done to minute differences of measurement in very closely allied species, as it is notorious that even in the same individual specimen considerable variations in size will occasionally occur; but making the proper judicious allowance, there can be no doubt that characters derived from this source are frequently decisive where other helps fail. Dr. Cooke's object, however, has not been so much to distinguish species, so as to place their establishment beyond the possibility of controversy, as to collect materials for future use; and though a few of the figures leave somewhat to be desired, arising from the necessary defects which more or less attend colour-printing, or the imperfection of dried and sometimes badly dried specimens, it must at once be allowed that as a great body of mycological illustrations the importance of the work can scarcely be over-stated, and it is most certain that it is indispensable to every zealous student of mycology. Dr. Cooke's industrious habits, added to the means he possesses of rapidly publishing any observations of species which may be placed in his hands, have given him access to an almost unequalled abundance of materials, and we are therefore sure of being well repaid for the encouragement which we may be able to give to any of his publications.

While we are grateful for the completion of the first volume of this multitudinous repertorium, we should be wanting in duty if we did not call, not only upon immediate students of mycology, but on lovers of science in general, to support such disinterested exertions. Some of our older mycologists are rapidly passing away, but it is very pleasing to know that there is in this country a band of young mycologists who, whether as systematists or followers of more original research, bid fair to carry on the work, and to make this part of botanical science redound to our national honour. *M. J. B.*

RUDGEA MACROPHYLLA.—When visiting Mr. WILLS' nursery, at Anerley, the other day, Mr. Bause, the manager, called our attention to a couple of flowering specimens of this magnificent stove shrub, which appears to be but little known in gardens, the result probably of the difficulty which we believe is experienced in propagating it. Its *Ficus*-like leaves are large, obovate-lanceolate, and shining; and its white pubescent flowers, which in form resemble the bells of *Hycinths*, are produced at the points of the shoots in dense globose clusters, measuring 4 inches in diameter. It appears to flower freely every year, but becomes somewhat leggy in its style of growth as the plants attain age. Nevertheless, when seen in flower it well deserves high praise. It appears to have come from the neighbourhood of Rio de Janeiro, whence it was introduced into the Pine-apple Nursery, where it flowered in March, 1867, and was shortly afterwards figured in the *Botanical Magazine*, t. 5653.

Florists' Flowers.

AURICULAS.—There will still be a few plants in flower till the middle of the month, but by far the largest number will be past blooming by May 1. The plants are removed to their summer quarters as they go out of flower, and the best place is certainly the north side of a low wall. Potting should be commenced after the middle of the month, for if the collection is a large one it will take some time to get the whole done. An amateur grower told me that he took just a month to pot all his plants, and he managed to get through on an average fifty pots a-day. The soil should be shaken from the roots, and the long tap-roots must be well cut back; after repotting, the plants should be placed at once in the frame, and the lights should be kept rather close until fresh roots are formed into the new compost.

CARNATIONS AND PICOTEEES will now be making rapid progress, and the flower-stems must be tied to the supports as they advance in growth. Attend to watering regularly, clear off decaying and dead leaves, and keep the pots free from weeds. Disbud as soon as the buds can be perceived. Premising that the flowers are for exhibition, either the centre bud must be removed or the side buds. If the side buds are removed one flower only will be produced. If the centre bud is removed there will be three side buds; this system of disbudding will make a difference of a week in the time of flowering. Greenfly is a very troublesome pest, and is best destroyed when the plants are in the open air by dusting with tobacco-powder.

CHRYSANTHEMUMS.—The plants will now be growing freely, and after the frames or glass structures where they have been wintered have been fumigated to destroy the greenfly or thrips that may be on the plants, remove them out-of-doors. Repot as the plants fill the pots with roots, and those intended for specimens should be trained and stopped as they require it. See that none of the plants suffer for want of water, as they are likely to do if not carefully watched when the pots are filled with roots.

DAHLIAS.—The Dahlia is very easily injured by frosts, and even in favourable districts it is not safe to plant out before the end of the month. Intending exhibitors would do well to have the ground prepared by forking it over during the spring months in fine weather; it does harm instead of good to work on the ground when it is wet. See that the glass lights are removed from the frames all day, and also at night when there is no danger of frost. Advantage must be taken of favourable weather to plant them out.

GLADIOLI.—A few roots may still be planted up to the end of this month; but all the choicest and scarce varieties should be planted out in April. Seeds may also be sown on fine ground in beds out-of-doors, or they may still be sown in pots, and the pots plunged in a gentle hotbed.

HOLLYHOCKS.—Cuttings struck in the spring, if they were not ready for planting out last month, should be done as soon as they are well established. No one would begrudge the extra time and space required under glass lights to grow on scarce and valuable plants until they were well established. They ought to be well inured to standing in the open air before they are planted out.

PANSIES AND PINKS.—The first-named will now be a source of much pleasure to the fancier; the flowers are not only most welcome, but they are at their best and brightest in the flowery month of May. If the plants are in beds the surface of the soil should be stirred occasionally, and the seed-pods picked off as soon as the flowers fade—if seeds are not wanted. Peg the shoots down close to the ground. Sticks must be placed to the rising flower-stems of Pinks, and disbudding must be performed as advised for Carnations if fine flowers are wanted. If the flowers are merely to be cut for bouquets or vase decoration, it is as well to leave all the buds, as several half-opened on a stem, or in various stages of development, have a pretty effect when the centre bud is fully open.

PENTSTEMONS AND PHLOXES.—Ill weeds grow apace, and they are also very displeasing objects in flower-beds. See that they are removed, and if the weather is warm and dry, the plants will require a good watering. This may be done in early morning or at night, and after the first watering place a thin layer of short rotten manure on the surface of the ground between the plants. As the flower-stems advance in growth see that they are secured to the sticks, and that the sticks have a firm hold of the ground. Continue to give two thorough waterings a week if necessary, instead of dribbles daily. Plants in pots also require plenty of water.

PYRETHRUMS.—These require very similar treatment to Phloxes or any other herbaceous plants in pots. Some of them will flower this month, and the flower-stems must be tied to the sticks like the others. The same treatment also as regards pot plants.

TULIPS.—These will be in full beauty from the middle to the end of May, and the cultivator who has been striving for perfection in his flowers will be able to enjoy the results of his previous care and watchfulness. There is danger from frosts even up to the end of the month. The canvas screens, glass lights, or whatever protecting material is used, should be in requisition as often as there is danger of frost, and the shading must also be used to keep the direct rays of the sun from the flowers. Water as often as it may be required, taking care not to splash any upon the flowers. *J. Douglas.*

Garden Operations.

KITCHEN GARDEN.

Unless a very favourable change in the elements speedily ensues, all the early crops of vegetables, &c., will inevitably be much later this year than they are in general, as, owing to a prolonged continuance of inclement weather, vegetation of all kinds, out-of-doors, has as yet made but little progress in growth. This is especially apparent in the crops of edible seeds which have been sown out-of-doors, and in the case of plants which have been put out this season; and as a natural consequence the thinning and setting out of crops of Carrots, Parsnips, Onions, Beet, &c., will this year be much retarded, and thereby help to increase the numerous matters which will necessarily demand attention in every direction at the busy period of the year. With these prospective considerations we strongly recommend that every description of work of a collateral nature, as the cleaning of walks, the clipping and repairing or making of Box or other edgings, and similar matters, be brought to a close without further delay. Besides such operations there will, about this season, be a considerable area of ground falling in where exhausted crops of Brussels Sprouts and other kindred subjects stand; when these stems are allowed to stand after they are required, it tends materially to impoverish and drain the surrounding ground; they should therefore be cleared off immediately they are done with, and the preparation which is needful for the future crop should be accomplished. Amongst other subjects which are suitable as a succession crop we may enumerate French Beans, late Peas, Celery, and Potatoes. For the two former subjects a good dressing of manure should be given, and as time at this season is almost too precious to admit of much trenching being done, we advise to substitute the process of double digging, which is almost as beneficial in the case of Celery. Manure need only be applied in the trenches; this should, however, be of the best description—for a crop of Potatoes it will not be necessary. As time and circumstances permit these tubers should now be got in as soon as possible, and so also should those of Jerusalem Artichokes. As soon as the crops of Carrots, Parsnips, Onions, Beet, &c., are up sufficiently to be handled and thinned-out let this be proceeded with, as many advantages accrue to early thinning-out such crops. In the case of Carrots and Onions we make a point of going over these more than once. In the first instance we leave enough to admit of every alternate plant being removed when required for use in a young state, so that the final thinning leaves the plants about 8 or 9 inches apart, Beet about the same distance, Parsnips 12 inches apart, Turnips, Salsify, and Scorzonera from 8 to 12 inches asunder.

FORCING DEPARTMENT.—Plentiful supplies of French Beans should now be on hand. Give daily attention to the watering and syringing of these plants, or the red-spider will assuredly become troublesome. Pot cultivation of these should now be dispensed with, and subsequent successions be grown in frames under cold and sunless conditions, and in unheated places. Keep the plants somewhat close, and before hot drying weather comes, well mulch the surface soil about the plants with 3 inches of good manure, and supply them with copious waterings occasionally according to existing conditions. Potatoes should also now be in, in quantity. The superiority of English Potatoes grown in this way to others, when judiciously managed, only requires to be better known to be fully appreciated; and it is somewhat astounding, considering the trifling expense involved in this business, that the practice of growing them in frames is not more generally adopted. Early Carrots are now coming in, and afford a luxury to the managers in the cooking department for various purposes. Of Seakale the late supply from pots, which have been merely protected with litter or ashes to exclude air, will be coming in, and should now be excellent in quality. Rhubarb is now superseded by supplies from out-of-door plantations. If the forced roots are required

for planting, they should be divided and planted out at once. Mushrooms.—See that no lack of moisture exists where beds are in a bearing state. For summer use beds should be made out-of-doors, or in a cool, damp place in a cellar or shed. Look well after all young plants of Broccoli, Cauliflower, Lettuce, Leeks, &c., which are pricked out in cold frames. Shade recently put out plants when necessary, and keep others as sturdy and hardy as possible by a course of proper ventilation. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD-HOUSE.—We have now arrived at the period when the trees in the earliest house have completed stoning. The fruit will rapidly increase in size, and the trees will stand a higher temperature than at any other period of their growth. Plenty of atmospheric moisture is also necessary at this time. With a high temperature attention must also be given to the state of the roots. Trees in pots must have regular and copious supplies. A few hours' inattention as to watering on a hot day will frustrate the labours of the whole season. The constant attention required as to watering the roots, and the liability of the most careful cultivator to err on one side or the other, is one of the most cogent arguments against cultivating Peach and Nectarine trees in pots at all. Planted-out trees require no such unremitting attention in order to produce fruit of the best quality. The last surface-dressing should be applied just before the fruit begins to swell: two good handfuls is enough for a 13-inch pot. By this time, if the trees are doing well, the whole of the previous dressings will be permeated with fresh rootlets. Syringe the trees well twice a day with tepid water until the fruit approaches near the ripening stage, when it must be discontinued. The blossoms seem to hang long on the trees in good condition this year, which is a promising sign. I have noticed that if the blossoms drop rapidly after they open we do not get a good set of fruit. The Pear and Plum trees are left longer out-of-doors than the Peaches and Nectarines, and the blossoms open later. Pears do not set well under glass, unless the atmosphere of the house is kept as dry as possible, and as much air as can be admitted during the day; they can be aided by artificial means, shaking the trees twice daily or distributing the pollen with a small brush. I must refer readers to the previous Calendar for further instructions. *J. Douglas.*

PINES.—So far as the assistance which we derive from the force of solar and other agencies is concerned, I may say that up to the present time the deficiency this season stands almost unparalleled, and therefore recourse to hard firing has been continuous in this department, in order to keep up the heat in the various compartments to a minimum state. It will be necessary after such a period as this to be very attentive to details in management, especially to the ventilation and the means which are employed for resisting the powerful effects of sunshine. In the former case admit air slightly at the apex of the house early in the morning whenever there is an indication of a sunshiny day, and give a little protection from sunshine in the same way to those plants which are placed at no great distance from the glass. Let all recently potted suckers and plants in small pots have immediate attention when they have filled the pots moderately full of roots; for this purpose the pots, soil, &c., which will be required for shifting the plants, should be ready to hand, and in a warm condition when it is used in the process of potting. Let the plants be firmly embedded in the soil, which should be in a lumpy condition. If good yellow loam full of fibre, and not too friable when used can be procured, this kind of material cannot, according to my experience, be surpassed for Pine cultivation; and if the soil is very tenacious, an admixture of roadside scrapings will be highly beneficial. At all times, and in every case when Pine plants have had a shift into larger pots, let the heat about the pots be well sustained at from 90° to 95°. The preceding Calendar indicated suitable temperatures and conditions for these plants at the present season, let therefore such still continue in force. *George Thos. Miles, Wycombe Abbey.*

FIGS.—Brown Turkey Figs started in November are now taking their last swelling for ripening off, and will be valuable in making up a dessert at a time when fresh fruit is very scarce, but to have them really good after a cold unless season like the past, considerable attention must be paid to the daily management of the house and trees. To secure flavour we must have colour, and as this depends upon full exposure to sun and light, clean span-roofed houses answer best for early forcing, and these should be thoroughly heated so as to admit of free ventilation in the coldest weather, for the twofold purpose of exposing the fruit to the influence of oxygen, and the prevention of condensation of moisture under the glass. In the management of the trees all useless spray should be removed, side shoots stopped and thinned, and large leaves turned aside where they are

likely to shade the fruit. The Fig being a gross feeder care must be taken that the roots are kept in a moist state through all the finishing stages, and this may be most easily secured by mulching heavily with some nonconducting material after the pots or borders have been well soaked with tepid liquid manure. Although ripening Figs require dry heat, it must not be supposed that the syringe is to be laid aside, as, independently of the necessity for keeping red-spider in check, the wood and foliage will receive great benefit from a thorough washing with tepid soft water at all times after the ripe fruit has been closely gathered from the trees. The temperature may now range from 65° to 70° at night, and 10° to 15° higher by day when fire-heat is employed, but under the influence of bright sunshine the Fig revels in a temperature of 85° to 90°. Let succession-houses have generous treatment in the way of heat, moisture, and stimulants where feeding is considered necessary, and syringe backwards and forwards twice a-day. Keep all stopping and tying well in hand, and thin the fruit where the heavy crop is likely to injure the trees. When grown under glass all free-bearing kinds show a great deal more fruit than they are able to support to maturity, and one false step in the management of the border often ends in the shedding of the entire crop. In the management of Peaches or Grapes we never think of overloading, but carefully reduce, or consider and thin again. Let Figs have the same rational treatment, and barren trees will soon become the exception instead of the rule. *W. Coleman.*

STRAWBERRIES IN POTS.—The season has now advanced so that under the influence of light and sun the later kinds of Strawberries, such as James Veitch, British Queen, and Sir Charles Napier, may be pushed forward under the most advantageous conditions. In a former Calendar it was advised that the above-named varieties should, on the appearance of growth, be raised up near the light, and set wide enough apart to admit of a free circulation of air by having the plants set so that the leaves do not more than touch each other, as their long leaf-stalks and flower-spikes have a tendency to become weakly and drawn if they are kept too close together. It is better when dealing with these late kinds, which do not like hard forcing, to keep something in hand, as, unlike earlier kinds, they can be kept for days in a cool house with the fruit turned from the light. With regard to that grand late variety, James Veitch (which, when its peculiarities become better known, will be a general favourite from the fact of its noble appearance), I would suggest that plants of it should be retarded as long as possible for supplying fruit for travelling a distance in hot weather. I have seen this variety exhibited of immense size, but of a pale colour and covered with a whitish bloom, which is far from being unpleasant to look at; but the variety will also colour to a sparkling scarlet in a high temperature fully exposed to sun and air. This condition is induced by gradually raising the temperature after the fruits are nearly swollen to their full size. I tried several experiments with them last year, for the sake of improving the colour, with this result—that the colour improves in brightness according as the temperature is raised from 70° to 90°, or even to 100°, in case circumstances are pressing. The plants should be liberally supplied with liquid-manure when swelling, and be allowed full time to develop and ripen, as the variety is somewhat coarse in flavour if not finished off to perfection. *W. Hinds.*

PLANT HOUSES.

ORCHIDS.—Presuming that the winter is at last worn out, the time has arrived to place all Orchids in their summer quarters. This particularly applies to those that are wintered in one house and summered in another. The following much-valued warm Odontoglossums—*vexillarium*, *Warscewiczii*, *Krameri*, *blandum*, *navium majus*, and *Phalenopsis*, always winter best in a light position in the intermediate-house. During the summer they prefer the cool-house. So soon as the day temperature of this house rises on most days to 60° without the aid of fire-heat it is time for the above plants to be shifted from their winter quarters. If one end of the cool-house is warmer than the other place them there, and for the first fortnight after their admission keep them a trifle drier than they have been in the warmer house. With mild weather they are soon at home, and all through the summer enjoy the airy moist atmosphere as much as any plant in the house. *O. vexillarium* will be now fast pushing up its spikes, and ought to be making from the base of the young bulbs plenty of new roots to support the flowers. Of these roots woodlice are very fond, and if not trapped and killed they will eat every one immediately it becomes visible. A plant thus crippled may flower and look very pretty, but it will bear no comparison as regards perfection with a plant supported by uninjured roots. *O. vexillarium* is a shallow-rooting plant, and therefore does not require any great depth of compost, but it certainly enjoys plenty of shallow, well drained root-room. Occasionally, when growing fast, some of the leaves

clasp each other so firmly as to check the youngest leaves, causing them to crinkle. The moment this is observed liberate the leaves by passing a thin bit of wood between them, at the same time see that none of the spikes are in any way hitched up. The black spots which sometimes appear on the tips and upper edges of the young leaves are caused by the temperature of the house dropping a few degrees from its average. This spot prevails to a large extent on plants grown in too high a temperature during the dark and short days of winter. With the exception that *O. Warscewiczii* requires less 'pot-room' than *O. vexillarium*, it may be treated exactly the same. *O. Krameri*, when well flowered, is very pretty; unfortunately it is now but poorly represented in this country. I have no doubt that a hundred or so imported plants of it would meet with a ready sale, at remunerative prices to the collector. Plants of this species which have been a long time under cultivation, when broken up with a view to propagation, grow away very slowly, compared with many other *Odontoglossums*. *O. blandum* and *O. navium* are rare and much-prized plants, which, when in flower, somewhat resemble *O. cirrosum*; both, especially the former, are less robust, their spikes more compact and more finely cut, but the markings of the flowers are very much alike, so much, indeed, that they might all pass for first cousins. The two plants in question will flourish under the same treatment as *O. crispum*, only in the winter they must have a few degrees more heat. *O. Phalenopsis* is a plant seldom seen in good health; this is owing, more often than not, to the foliage being attacked by a small species of red-spider; to remedy this the foliage should be often dipped (say once a month) in very weak tobacco-water, allowing it to dry on. I have found this plan answer better than using a powerful mixture that requires washing off soon after it is applied. Plants of this species that are not doing well should have what flowers they show removed; they may then be broken up into small pieces and potted in well drained peat and sphagnum. Such plants should still be kept in the warm house until they have made roots. Healthy plants may safely be placed at once in the cool-house. *O. Roezlii* is a very beautiful plant, that is strongly rose-scented; it requires more heat than any of the above. During winter it succeeds best close to the roof of the East Indian-house; it should not be over-potted, being a compact rooting plant, that prefers to feel the side of the pot, in which state it will take plenty of water at all times. Grow this species through the summer in the intermediate-house. The one great enemy to all these warm *Odontoglossums* is yellow thrips; this pest must be kept under by frequent light fumigations and by brush and sponge. *Masdevallia tovarensis* may be placed now in the cool-house if well-established; plants of it that have been recently potted may have another week or two in the warm-house. *M. Chimera Wallisii*, *M. bella*, and *M. Nycterina*, three warm *Masdevallias*, will now do suspended in the cool-house. These plants all pass their flowers in a downward direction, like *Stanhoopes*; they therefore should never be grown in pots, or, of course, many of their flowers will not see the light. Put them in shallow baskets made of Teak rods, placed wide apart; use no crocks, and give them peat and sphagnum to root in; they must be kept wet the whole year round—dryness, either at the root or in the air, proves fatal to them. *J. C. Spicers, Burford Lodge, Dorking.*

SUGGESTIONS TO VILLA GARDENERS.

WOULD you prosper, you will find
You must always bear in mind,
If your garden 's to succeed,
What you feed on you must feed.
Man or plant, while they're alive,
Must have food to make them thrive
Therefore, if manure be brought,
See it's such as "it did ought,"
Rotted well, and thick and rich,
Soft to touch, and brown as pitch,
Smelling strong, yet to trained noses
Prospectively as sweet as Roses.
All long sodden dripping straw,
Like a stackyard in a thaw,
Is just useless—pray believe it—
Not a rootlet can receive it.
As litter it may mulch your trees,
Or do about your Strawberries;
But for aught else, long ere 'tis rotten
The very heap may be forgotten.
So, if they bring you what's not fit,
Just say you will have none of it.
Dig deep, and at the proper season
Give plenty, but not out of reason:
So will you thrive, your gains be doub
And good returns will pay your trouble.

Agriol

THE Gardeners' Chronicle.

SATURDAY, APRIL 26, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, April 28—Sale of Orchids, at Stevens' Rooms.
TUESDAY, April 29—Manchester Botanical and Horticultural Society's Show and Exhibition of National Auricula Society.
THURSDAY, May 1—Sale of Established Orchids, at Stevens' Rooms (three days).
Linnean Society's Meeting, at 8 P.M.

THE CINERARIA, the subject of our coloured illustration to-day, has become exceedingly popular during the last few years, and it is certainly deserving of popularity, seeing that it is adapted for all classes of cultivators. Botanically, Cinerarias are included in the vast genus *Senecio*, a genus numbering 900 species! and including the common Groundsel, *S. vulgaris*, which has not much beauty to recommend it, and *S. pulcher*, one of the noblest herbaceous plants we have. *Senecio cruenta* was introduced from the Canaries in 1777, and was the progenitor of the many garden varieties of Cineraria we now have. *S. aurita*, *S. tussilaginis*, and *S. lanata*, may also be specified as having, by intercrossing one with the other and with *S. cruenta*, produced our present races of hybrid Cinerarias. No doubt hybridisers will not neglect the chances offered them by the magnificent *S. pulcher* already mentioned. True Cinerarias have compressed fruits, while those of *Senecio*, including the Cinerarias we are now concerned with, have 5—10 ribbed, more or less cylindrical fruits.

It would be difficult to name a plant better adapted than the Cineraria (we use the word in its ordinary garden acceptation) to furnish greenhouses or conservatories during the spring months, and which at the same time is so well adapted for cutting from. It may be had in flower from Christmas until May; and the exceedingly varied and brilliant tinted flowers are quite distinct from any others. The prevailing colours are blue, purple, and crimson, and these are to be found in many shades; a large proportion are selfs, and others are edged with a white ring round a disc of another colour. There has been considerable improvement in the Cineraria recently, and there are several strains in cultivation. The best is undoubtedly that of Mr. JAMES, of Redlees, Isleworth, from whose flowers our illustration was taken, and who is not only a skilful cultivator, but a careful hybridist, and he did not, as some fancy, make a lucky chance hit. He obtained some of the large French flowers, which were sadly wanting in form, although they lacked nothing in colour, size, and constitutional vigour; these were crossed with flowers of a type which possessed breadth and substance of petal, and a style of plant that could be grown and trained into large specimens. The result has been in every way most satisfactory; the character of the plants is such that they may be trained into exhibition specimens. Nothing has been lost in size, while the form and substance of petal are everything that can be desired, and there are also the rich glowing colours. Indeed, as we looked at Mr. JAMES' flowers this year, we thought there was but little room for further improvement.

The Cineraria is not over particular as regards soil: Mr. JAMES grows his in a compost of six parts of good turfy loam and one part of rotten cow-manure, adding a little sand if necessary, but omitting leaf-mould, which many persons deem essential. The plants are grown and flowered in low span-roofed pits, but any form of house answers. The Cineraria is most successfully cultivated in the following manner. The named varieties are propagated by taking off shoots from the roots in July and

August. These should be potted singly in small pots in light sandy soil; after potting let them be placed in a frame with its back to the south, or, better still, behind a north wall. The old plants should be retained until a sufficient number of plants are rooted. Some will form roots and grow away very rapidly; these must be removed and placed in another frame where more air can be admitted; and as the others start into growth they can be removed to the same frame. When the plants have well filled the little pots with roots, let them be repotted into 4-inch pots, or a size smaller, according to the strength of the plants. They will do well in ordinary frames with the highest part to the south; the frame may also be raised from the ground by placing a brick or two under each corner; this allows a free circulation of air night and day. The lights should also be tilted. A temporary stage of trellis-work should be made, to raise the plants near the glass. They should be freely watered, for if any of them are allowed to flag greenfly and thrips will speedily appear. A low pit will answer quite as well to grow the plants in as frames.

After they are established growth is very rapid, and they will soon require to be shifted into larger 6 or 7-inch pots. The potting material we use is, turfy loam about four parts, one part leaf-mould and one part rotten cow-manure, with sand added if necessary. Those plants intended to flower early will not be again potted, but if specimens of large size are wanted in April they must be repotted into 8 and 9-inch pots. The centre stem of the late-flowering plants should be stopped early; the others ought not to be stopped. As soon as there is any danger of frost remove the plants to a heated house, and experience suggests a span-roofed structure running north and south. Careful watering is now necessary; the plants must be kept moist at the roots, but the foliage should not be wetted, nor water splashed over the pots. The plants that are not stopped require no tying or training. Specimens must be trained by fastening a wire round the pot under the rim, and gently drawing the shoots down to this with a strip of matting. When the roots have nearly filled the pots in which they are intended to flower (and an 8½-inch or 9-inch pot is sufficient for the largest specimen), they should receive manure-water twice a week—sheep manure answering well for this purpose. Put half a bushel into a barrel with 15 gallons of water, stir the mass up well, and let it settle for about twenty-four hours, and before applying it reduce its strength by the addition of an equal quantity of rain-water. Cow manure makes an excellent liquid to water with, it is not so strong as sheep manure, and a larger proportion of it may be used to the same quantity of water. Guano water, and that formed by soaking horse-droppings, seems to encourage too much the development of leaves.

In using manure-water it is most desirable to err on the side of its being too weak rather than too strong. We shall never forget as fine a lot of specimen Cinerarias as could be seen anywhere quite ruined by giving the manure-water too strong. The plants were coming into bloom, and all at once they ceased to do well, the foliage began to flag and the blooms to open prematurely. There was much anxiety felt as to the cause, and on examining the roots it was found that nearly all the fibrils were dead, and the plants too far gone to recover. The cause of the disaster was discovered, but there was no remedy.

When the flowers are open it may be necessary to shade them after the 1st of March. The bloom ought to be preserved as long as possible, but the shading must not be used thus early except to obstruct the direct rays of the sun. Let them have as much light as possible. It is objectionable to paint the glass with any sort of wash

for the reason that they shade the house when it is desirable that it should receive all the light possible; blinds fixed on rollers to work with pulleys should be used to shade greenhouses, in preference to any other system of shading.

The most popular method of propagating the Cineraria is from seeds. Sow in May or June in light soil; when the small plants are large enough to handle, prick them out about six or nine in a 4-inch pot, and when these have grown so that the leaves touch each other, re-pot them simply in small pots, and treat them as previously directed for named sorts. Seedlings generally grow more strongly than named varieties. They are less difficult to propagate, and for general decorative purposes they answer equally well. Seeds from a good strain should be obtained to start with. The insect pests are principally greenfly and thrips, but red-spider will also attack the leaves. Fumigate with tobacco smoke to destroy the two first; the other will seldom appear if the best attention is given to the plants. Keep the plants close to the glass during the whole period of their growth. Avoid a dry atmosphere, and see that they do not suffer for want of water at the roots.

— SNOWDROPS.—A short time since we gave some illustrations of various species of Snowdrops, in order to show the distinctions between them. Mr. FITCH's pencil now supplies a suggestion as to the mode of utilising these fairy-bells in woodland walks and similar situations. A pot of Snowdrops in a greenhouse or on a drawing-room table is beautiful enough, but for real poetry and sentiment a group *au naturel*, as shown in our illustration (fig. 75), is far more effective. The delight of coming upon such a group beneath a spreading Beech tree weighed down with melting snow goes far to compensate even for such a winter as we have experienced lately.

— LONDON INTERNATIONAL HORTICULTURAL EXHIBITION, 1880.—Undeterred by the little support which the proposal has hitherto met with, Mr. WILLS seems determined, on his own responsibility, to organise such an exhibition. At Brussels, on Saturday last, at a banquet given by the Flora Society of that city, and at which his health was proposed, Mr. WILLS again alluded to the matter, and his proposal, we learn, was received with acclamation by the leading Belgian horticulturists present. For our own parts we share the opinion of the committee, who decided that circumstances at present were not favourable to the inception of such an undertaking. Later on in the season, if things should improve, there will still be time to act; for the present an attitude of passive attention seems the most appropriate. We print a communication from Mr. WILLS in another column.

— THE LEGION OF HONOUR.—The French Government through its ambassador at our Court is complaining of the use made of this Order for advertising purposes. Of course it was very stupid, not to say disgusting, on the part of the French Government to prostitute an Order supposed to be of merit in this way, but the enterprising merchants who were lucky or unlucky enough to be so honoured or dishonoured, are surely not to blame. They looked upon the matter, as they were justified in doing, from a business point of view. As a witty friend of ours once said with reference to a similar matter, "What is the honour to me? I do not want the honour. I cannot eat it." But the merchant or the tradesman can turn the honour to profitable use, and why should he not?

— THE AURICULA SOCIETY.—It was pleasant to see this flourishing young Society holding its exhibition under the roof of the Royal Horticultural Society. Except under special circumstances, we hold that the proper place for all these little daughter societies is under the wing of the mother society. Perhaps some arrangement could be made whereby subscribers to the smaller societies might become affiliated to the Royal Horticultural on payment of a small fee, and with privileges in proportion to the small payment made. Everything should be done to



NEW CINERARIAS.

maintain the vitality of the old society—so sorely tried, but so valiantly doing its best.

—THE ROYAL NATIONAL TULIP SOCIETY.—At a recent general meeting of subscribers to the above Society it was resolved unanimously that for the show of 1879 the method of judging which has been adopted during the last few years should be abandoned, and that judges who are not exhibitors should be elected to judge the flowers, as was done formerly. It was also resolved that the day of exhibition should in future be fixed on the first Saturday in May. The next and making-up meeting will be accordingly held on Saturday, May 3, at the "Bull's

—SELAGINELLA PERELEGANS (BELLULA).—In reference to the name *S. bellula* employed for the Selaginella described and figured at p. 173 of our present volume, Mr. BAKER has kindly pointed out that it is already published, having been adopted by CESATI for one of BECCARI's Bornean plants. We propose, therefore, to substitute, for the plant described at the page above quoted, the name of Selaginella perelegans, T. M.

—ORCHIDS AT EALING PARK.—This charming place maintains its old reputation for some good aspects of plant culture, one of them is shown by three plants of Veitch's variety of *Vanda suavis* now in fine

Oncidium sessile, with its rich golden sepals and petals, the lip slightly spotted with chocolate. These are growing in a small span-roofed house, in a temperature required for an East Indian-house. It is a matter for considerable regret in the neighbourhood that Ealing Park will in all probability be vacant in a year or so hence, owing to the term of occupancy by J. S. BUDGETT, Esq., coming to a close.

—THE YEW AS POISONOUS TO CATTLE.—Considerable discussion has from time to time arisen as to the effect of the Yew on cattle, and the most diverse opinions have been expressed on the subject, some denying that the Yew is poisonous, others—and



FIG. 75.—SNOWDROPS *IN NATURE*. (SEE P. 532.)

Head" Inn, off the Market Place, Manchester, at 3 o'clock in the afternoon, when the day of exhibition will be fixed, the judges appointed, the schedule revised if necessary, and any other business that may arise transacted. As this is an important meeting the committee hope that as many members will attend as can possibly do so, and those who cannot attend are invited to write to the Honorary Secretary, to state the day they prefer for the exhibition, and to offer any further suggestions, which will be duly considered. The schedule of prizes will be issued a few days after this meeting. The committee hope that every member will do his utmost to increase the number of subscribers and exhibitors. Those who desire to help forward the cultivation of those flowers should address themselves to Mr. SAMUEL BARLOW, the Honorary Secretary, Stakehill House, Chadderton, near Manchester.

bloom. The largest plant has three spikes of flower counting in the aggregate twenty-eight blooms, one has twenty-one, the other twenty. The sepals and petals are spotted and barred with a considerable depth of colour, and each segment is margined with delicate mauve-pink. The handsome shape and massiveness of the flowers are particularly worthy of mention. The plants are in excellent health and vigorous growth; the largest plant has twenty-five leaves feathered down to the pot, and the admirable way in which these plants are managed does much credit to Mr. J. MAULDEN, the gardener at Ealing Park. The collection of Orchids is a small one, but it contains some good things, viz., a very fine form of *Maxillaria Harrisoniae*, large and with a finely coloured lip; *Epidendrum nemorale*, with dark chocolate sepals and petals, and a pale pink lip; the curious

with too good reason—asserting the reverse. The truth would seem to be, that there are certain times and certain seasons when the Yew is not poisonous. It is possible also that certain trees are not poisonous, and that certain beasts are not liable to ill-effects from eating the foliage. Such individual variations, both in plants and in animals, are common enough, and will in part explain the different opinions prevalent. Recently, through the kindness of Mr. RUTLAND, we have been supplied with specimens of Yew from the Duke of RICHMOND and GORDON's Park at Goodwood. The first was a spray from a male tree now in full bloom. This tree is fenced off, because in the experience of the farm steward, Mr. CLARK, six bullocks and two horses have on various occasions perished from eating the foliage. The second specimen has foliage of a much deeper green

colour, and the flowers that are female are much later in development, though quite forward enough to be impregnated by the pollen from the male trees. There is no evidence to show that this female tree has proved poisonous, though there is, we learn, a prevalent impression that the female tree is not poisonous. Mr. RUTLAND tells us that the Yew is more poisonous in the autumn and winter than in the summer months, when the trees are in a growing state, and this is perhaps what might be expected. The farm steward says, from the experience of nearly a quarter of a century, that he never lost a beast in summer—all the cases that have come under his notice were in late autumn.

— THE PRICES OF ORCHIDS.—In their endless variety of form, purity, and intensity of colour, combined in the case of many with agreeable perfume, Orchids stand unequalled amongst all the other families of flowering plants. These circumstances coupled with the generally natural appearance they have even in a cultivated state, from the absence of the training which becomes necessary with most other subjects, have tended to make them favourites, not alone with those who have been so far enamoured with their beauties as to form collections more or less complete, but also with all who appreciate flowers. Often have we heard these remarks verified by the pleasurable expressions emanating from the throngs of people that usually surround the place where they are displayed at the exhibitions, not unfrequently accompanied by regret that the high prices the plants command deter them from thinking of attempting their cultivation. In times past this was no doubt correct with the majority of the best species, and it still holds good in regard to such as are new and very rare, but through the immense importations that of late years have taken place, owing to the enterprise of those who have sent out experienced collectors to almost every corner of the world where anything not only new but of established merit is to be met with, many of the most popular and beautiful have been brought into the country in such numbers as to reduce their cost to a few shillings each. This is evident by the figure at which they are now being offered by some of the leading nurserymen—prices so insignificant that a few years back it would never have been deemed possible they would come so low. In the *Cattleyas*, *Calanthes*, *Coelogynes*, *Cypripediums*, *Dendrobiums*, *Masdevallias*, *Odontoglossums*, *Oncidiums*, *Aerides*, *Saccolabiums*, and other genera, are a large number of the most beautiful and established favourites that can now be had for almost as few shillings each as pounds were formerly asked, in fact for less than such common and homely plants as *Pelargoniums* are sold the second year after a new variety is let out. Amongst the families we have named there are many that need little fire-heat. Orchids collectively are of comparatively small growth, and a small house or two will hold a sufficient number to afford more interesting variety than in the case of any other description of plants we could name. Now the treatment requisite to keep them in a healthy thriving condition is beginning to be more generally and better understood, even in the case of those which come from countries where there is a high temperature. The hot, smothering, moisture-saturated atmosphere, the outcome of insufficient air and excluded light, is now known to be alike baneful to the plants and disagreeable to any one looking at them. There need no longer be the dread so often entertained that to have Orchids entails the double infliction of a large expenditure of money to commence with, and a vapour-bath every time the place in which they are grown is visited.

— PRIMROSES IN KENT.—Just now the banks of the hedgerows by the roadsides and about the fields, as well as the woods, are carpeted with a rich harvest of Primrose blossoms. In the remoter country districts, where the plants are mercifully spared the cruel treatment they receive in populous neighbourhoods, of being torn up by the roots for transplantation, there is a marvellous wealth of blossoms, and the plants, owing probably to the wet summer, are very strong and vigorous, and the flowers of great size. Where the roadways run through cuttings made for the sake of lowering the otherwise steep hills, the Primroses have rained themselves down the banks, and the grass clothing them is aglow with their radiant flowers. In the woods, where watercourses run along the low grounds, immense clumps can be met with,

the blossoms of which can be counted almost by hundreds. The unusual size of the flowers is a subject of general remark; this is traceable also to the free-rooting propensities of the plants during the moist times of last year. The common Wood Anemone appears to be unusually prolific of bloom; the woods are in many places thickly carpeted with them, and the presence of the rose-coloured form appears to be more common than usual. In these pretty pictures Nature suggests the way by which the gardener can clothe the sides of woodland walks and the semi-wild spots that are abundant on the confines of parks. This lesson is constantly being taught, though it is but slowly learned. A little of the gardener's art brought into play in the first instance in a proper dispersion of the subjects can be made to lay the foundation of many delightful surprises in the time to come.

— THE GARDEN SUPERINTENDENT AT THE CRYSTAL PALACE.—We regret to hear that Mr. THOMSON, who has held the post of Garden Superintendent at the Crystal Palace since the death of Mr. GORDON in 1873, has felt it necessary to tender his resignation of that post to the Board of Directors. It is no secret that the cause of Mr. THOMSON resigning arises from the desire of the Directors to reduce the working expenses of the garden by selling cut flowers and plants—in fact the surplus stock. Every gardener who is in the habit of paying occasional visits to the Crystal Palace will bear us out in the assertion that both the gardens and the plants in the interior of the Palace have been vastly improved under Mr. THOMSON'S care—that never since the grounds were formed have they been kept in such a high state of efficiency—and that the whole establishment, horticulturally, has been elevated into first rank amongst the public gardens of Europe, solely by Mr. THOMSON'S skill and energy; and all this has been effected, it must be stated, at a saving of something like £2000 a year on his predecessor's expenditure. It is, indeed, a matter of surprise how, with the small amount of glass at his command for so large a place, and the greatly reduced amount of labour at his disposal, he has managed to keep up the great supply of plants required to make any show at all in so enormous a building—to say nothing of maintaining a stock of many thousands of bedding-out plants required for the decoration of the outside gardens in the summer months. As for surplus stock there can surely be none to speak of if the gardens are to be kept up as they have been, and as the Directors, if wise, will take care that they shall be; but no man can make bricks without straw, and as the Directors seem determined to try a policy of neglecting the pounds while clutching at pennies, it is clear that Mr. THOMSON has taken the only course that he could have done to maintain his own credit, and we understand that after May 9 he will be at liberty to accept another appointment. It is not at all likely that so skilful a practical gardener, who has shown himself to be a man of great administrative capacity, and whose reputation amongst his fellows is so high, will long lack employment.

— ANTHURIUM SCHERZERIANUM.—To those who do not succeed so well as they could desire in inducing a free-flowering tendency in this gorgeous plant, it may be useful to record the fact that Mr. DOUGLAS did not succeed so well with the plant when he fresh potted it, as is generally done, in the spring; but now that the plants are potted in August, they produce their brilliantly coloured spathes with the greatest profusion. Mr. DOUGLAS pots them as he would *Cattleyas*, in peat, sphagnum, and charcoal, and half-fills the pots with crocks, and all the old soil is washed from the roots before they are transferred to the new compost.

— OLD FAVOURITES IN THE GARDEN.—While gladly welcoming every new-comer that in the shape of plant, flower, or fruit can increase the interest in and add to the beauty of a garden, let us gratefully remember some of the grand old things that are yet indispensable for the grateful service they afford. A foremost place must be given to the fine old Crown Imperial. In a Kentish farmhouse garden we have lately seen some large clumps of mixed Crown Imperials that have remained undisturbed for years, and, growing with extraordinary vigour, have thrown up numerous coronals of red and orange flowers. Clumps of *Dielytra spectabilis*, unprotected

during the severe frost and unscathed in the severe ordeal, are thrusting up such flower-stems as one rarely sees, having rooted deeply into the moist sandy loam, and been invigorated with a good dressing of manure on the surface. There, too, are wondrous clumps of the single blue and double red *Hepaticas*, 1 to 2 feet in diameter, the growth of many years, that have shot down their roots deep into the soil that nurtures them in such vigorous health. Double lilac and double white Primroses, huge clumps of the common Primrose, immense patches of double and single Daffodils, the leaves almost hidden amid the rich harvest of flowers; the large single Jonquil, double and single Anemones in large thoroughly established patches, Solomon's Seal, blue and white Violets, the lovely blue *Omphalodes verna*, rivalling its near neighbour the charming *Myosotis dissitiflora* in the brilliancy of its soft blue; Cowslips of unusual size and richness of colour; the red and the white Honesty; patches of Tulips that have remained untouched for nearly half a century; Hyacinths in large groups, with Crocuses in abundance, made up a selection of early blooming spring flowers that could not be matched for effectiveness and varied beauty. Some of these were growing at the feet of old espalier-trained Apple-trees with moss-covered trunks of large dimensions, testifying to the number of years they had been planted, but which had almost worn themselves out in a life-long service. It was a garden full of interest, one in which the visitor could linger with delight; and its chief attraction lay in the old-fashioned aspect of *abandon* presenting itself to view on every hand.

— NUTTALLIA CERASIFORMIS.—An extremely pretty shrub in flower at Kew is *Nuttallia cerasiformis*. It is of nearly globose habit, branches freely, and bears pleasing pale green leaves, obovate in form, with the most profuse array of white flowers in drooping racemes, which give it the aspect of a *Ribes sanguineum*, except in the colour. It is a native of North-west America, and constitutes a genus of Rosaceæ—of botanical interest as forming a transition between the Amygdalæ and the Spirææ. The flowers are dioecious, and this is a male specimen.

— THE HORTICULTURAL SOCIETY OF MENTONE.—Wherever Englishmen settle there they introduce their national habits so far as circumstances will allow. Citizens of other nationalities taking up their abode in a foreign country endeavour to adapt themselves, with more or less success, to the customs of the country, but JOHN BULL, with a stronger will and a stronger faith in the excellence of his own institutions, sets to work to reproduce on foreign soil the good things and sometimes, we fear, the bad things of his native land. The Pytchley meet finds its replica at Pau, Hurlingham is reproduced at Monaco, cricket and lawn tennis and the skating rink—there is hardly a town on the Continent frequented by the English where these may not be found. And now we have before us the announcement of the inaugural *fête* of the Agricultural and Horticultural Society at Mentone—a society founded by an English resident, Mr. ANDREW, numbering, after an existence of a few months only, some 150 members, including many of our compatriots among them, as Dr. BENNET and Mr. HANBURY, gentlemen well known to the readers of the *Gardeners' Chronicle*. The superb gardens at Monte Carlo, figured in the *Gardeners' Chronicle* in 1874, furnished Palms and Camellias, Roses and Tree *Præonies*, a pretty good foundation for a show; and these were supplemented by miscellaneous groups of fine specimen shrubs and flowers from various exhibitors. Some of the bouquets were turned *more gallico* into emblems and signboards—a practice which we hope our British friends will do their best to suppress by introducing a more tasteful plan. The fruits and vegetables of the district—Lemons, Oranges, and Olives, Almonds and Plums, Maize and Potatoes, Figs and French Beans, Tomatoes and Artichokes, Peas and Pine-apples, Asparagus and Seakale—were well represented. Among agricultural products olive-oil and the “vin-du-pays” were shown—the less we say about the latter the better, except to congratulate the consumer that there is not much of it. But oh! home-keeping reader, shivering with the very recollection of Easter weather here, think of such a flower show in April. If the committee of the Agricultural and Horticultural Society of Mentone should do us the honour to seek our assistance as judges next year—well, we might be disposed to accept the invitation!

— *FORSYTHIA SUSPENS*A. — Rarely is this plant seen on walls, scarcely ever on the side of a house, the position for which from its quick growth it is so well fitted; but at Kew the graceful weeping branches, covered with golden flowers, make it an object of special attractiveness. It is equal in display to the favourite *Jasminum nudiflorum*, but grows with much greater rapidity. *Forsythia Fortunei* is also in flower; and while some believe it distinct, it is said by others to be our *F. suspensa*, of which it really is a sexual form. It has a long style and short stamens, the contrary being the case with *F. suspensa*. The organs of both sexes in each appear to be perfect, so they cannot be spoken of as male and female; indeed, though dimorphic, so far as we know, it might prove to be trimorphic, as in *Lythrum*. We have a plant that is no doubt physiologically dioecious, although morphologically hermaphrodite.

— NOTES FROM A LANCASHIRE GARDEN. — We understand that Messrs. MACMILLAN are about to publish a small volume entitled *A Year in a Lancashire Garden*, compiled, with additions, from the "Notes from a Lancashire Garden" which have from time to time appeared in our columns, and which attracted much attention at the time of publication.

— THE INTER-RELATIONS OF FLOWERS AND INSECTS. — With some boldness, it must be confessed, M. BOMMIER has lately denied that there is any reciprocal adaptation of insects and flowers—that the size, colour, and perfume of flowers have no relation to the formation of nectar—and that they are independent of insect visits. The production of nectar is in direct relation to transpiration. The nectar-secreting organs, whether in or out of the flower, are simply, in M. BOMMIER'S opinion, special reserve stores of nourishment. M. BOMMIER has a formidable amount of facts to overthrow.

— THE FRENCH INSTITUTE. — Our distinguished agriculturist, Mr. LAWES, has lately been elected a correspondent of the Academy in the section of Rural Economy, in place of the late Marquis DE VIBRAYE.

— DISEASED ROOTS IN RUBIACEÆ. — M. MER has lately described in the *Comptes Rendus* a diseased condition of the roots of *Ixoras* and like plants, consisting of swellings which, when examined, are found to contain cysts full of vibrios, *Anguillulidæ*. It would appear from this that the state of affairs is very similar to that so common in Cucumbers in this country, and which has so often been illustrated in our columns.

— BOTANICAL DIAGRAMS. — Dr. ARNOLD DODEL-PORT and CAROLINA DODEL-PORT are publishing at Esslingen (SCHREIBER) a series of botanical and physiological diagrams, in size about 27 by 36 inches, which are of great merit, and which will be useful in upper-class schools and for botanical lecturers. Specimens may be seen at the Linnean Society.

— THE WEATHER. — The report issued by the Meteorological Office, for the week ending April 21, states that the weather was fair generally on the 18th, and also over our north-eastern and eastern districts on the 19th, dull and unsettled on all other days, with frequent heavy showers over England. Some snow in the North on the 15th. The temperature was considerably below the mean in all districts, the deficit varying from 5° in "Scotland, W.," and "Ireland, S.," to 9° over the Midland Counties. Changes from cold to milder weather and *vice versa* were sudden and frequent, the highest readings being mostly recorded either on the 13th or 20th, and the very low values between these dates and the 21st. The rainfall was less than the mean in Scotland and all the northern parts of England, but more than the mean in other districts. The large amount entered to "Ireland, S.," was due to a very heavy fall which occurred on the 19th, or morning of the 20th, when 1.73 inch was measured at Valentia, and 0.90 inch at Roche's Point; this excessive fall does not appear to have been felt at the inland stations in the district. The wind was generally easterly to northerly during the early part of the week, but south-easterly and southerly breezes appearing in the West on the 18th, and extending to all districts by the following day. At the close of the week, however, the wind had returned to the eastward. South-easterly to southerly gales were felt at some of our western and south-western stations on the 19th.

Home Correspondence.

Hymenocallis macrostephana. — There is a further point with regard to this plant, in addition to the information already given, which I think should be made known. It was grown at Sion House as *Pancratium fragrans*, and under this name, therefore, may be found in other collections. Again, it is possible that under this name some information may be got of its history; and this is important for a plant of so much botanical interest and horticultural value. *P. fragrans* is a synonym for the beautiful *P. speciosum*, and that specific name could not be allowed—given perhaps by some horticulturist anxious to direct attention to the most delicious perfume. Now the genus *Pancratium* is wrong for both plants, though the one we have just alluded to is always perhaps grown as such in gardens; they are really species of *Hymenocallis*, and these genera are quite distinct, though at one time classed together. To point out a difference, the seeds of *Hymenocallis* are round, fleshy, and greenish, just as in *Crinum*; those of *Pancratium* dry, black, and flat by being pressed together. The plants I first saw of this came from Mr. Woodbridge; and hearing a glowing account of it, the name being unknown, the plant evidently distinct, and not in the Kew collection, a visit to Sion House was at once decided on. There it was growing in quantity, and with many flowers, one of which I submitted to Mr. Baker, because of the necessity of verifying garden names. He immediately recognised it as one of which he had taken notes, sent by Sir Philip Egerton. Another came from the Editors of the *Gardeners' Chronicle*. To Sir Philip Egerton is due the honour of bringing it first to botanical notice; he also sent a plant to Kew, as did likewise Mr. Woodbridge. To the latter is due the gratitude of horticulturists for recognising its merit, and bringing it under special culture, without which its value for garden purposes might long have remained unknown; and further for bringing it under the notice of the Horticultural Society, who properly awarded a Botanical Certificate, but no less does it deserve a Floral First-class Certificate. [And this it has now had. Eds.] I may add, from Mr. Baker's information, that this plant is closely allied to *Choretis glauca* of Herbert, who would doubtless have placed it in that genus, which now, however, is not allowed to stand. *Choretis glauca* has long been grown at Kew, but never flowers, and in this it remarkably contrasts with the profusion produced by our novelty. *R. I. L.*

The Floral Committee's Awards. — Mr. Baines' admirable letter of April 19 is in itself an exhaustive treatise on the above, and few will deny that his view is for the most part a correct one, still I cannot admit that it is a "legitimate reason" for refusing certificates to plants, "that these plants are rarely grown by any other method than from seed; and as they would not reproduce themselves true from seed they could not consistently receive certificates individually." It seems to me that the simple fact of a plant standing on the committee's table should entitle it to be adjudicated upon on its own merits, even though no means of reproduction (whether by seed or otherwise) be known. If its good points can be seen individually, they should also be recorded individually, with no regard to after-propagation. With this exception, I think Mr. Baines must undoubtedly carry the majority of the committee with him. *Charles Noble*.

— It is put forward as a strong point against the granting of certificates to new plants by the botanical or scientific members of the Floral Committee that Botanical Certificates, so-called, do not possess the value supposed to be contained in a floral First-class Certificate. If this be so, there is an obvious means of equalisation. Abolish Botanical Certificates and award only First-class Certificates in all cases where certificates are awarded, and the invidious distinction is done away with. In presenting objections to the proposed division by the members of the committee into sections for the performance of special work, Mr. Baines, who is the apologist-in-chief for the Floral Committee, asserts that this division, to a certain extent, exists already. Just so; then why not make the arrangement a sensible one, and allot each section its proper work at once, rather than have botanical plants before florists who care not one atom for them, or florists' plants before botanists who towards these are equally indifferent? On one occasion a first-class plantsman and botanist was roughly taken to task by a certain florist because he dared to vote upon the merits of a Zonal Pelargonium. Can anything be more absurd than to put plants or flowers before a body of men for judgment, and then to tell certain of them that these are not in their line, and that they ought not to vote? In reference to a remark made by Mr. Baines, that "in the estimation of nineteen-twentieths of horticulturists the award of a Botanical Certificate stamps a plant as worthless," I ask how is it that, such certificates having been in past years granted by the Floral Committee, he,

as an active member of that body, has not before raised his voice against the granting of awards to plants that only, by his own showing, serve to damn their reputation? In saying this Mr. Baines makes a tremendous reflection on the society of which he is a member, and charges that body with having, in granting such certificates, literally thrown dirt at all plants that obtained such awards. Mr. Baines introduces a saving clause, "excepting as a mere interesting subject." How a plant is at once interesting and yet worthless I leave him to explain; to my poor apprehension it is a paradox that "no fellow can understand." Let me tell Mr. Baines that hardy plants grown under the shelter of a cold frame during a rough inclement spring will only then show their true character, and it is under such conditions awards should be made. The phrases, "Is it hardy?" "Has it been grown under glass?" have already become standing jokes at South Kensington. Mr. Baines takes exception to the suggestion that exhibitors of new or rare plants present at the meetings should be present at the committees, because those living at a distance could not enjoy the same advantages. Here is a case in point. "If," says Mr. Elwes, referring to the case of the *Hymenocallis*, "Mr. Woodbridge had been present, I have no doubt the result would have been different." Just so. And no doubt different results would often follow if exhibitors present were invited to give explanations or answer questions before awards were made. Were exhibitors from a distance made aware that such a plan was adopted doubtless they would often think it worth while to attend the committee in person. *A.*

— Mr. Baines (p. 504) seems to fear that I am an advocate of one class of plants—that to which the *Chionodoxa* belongs. I have just been into our cool Orchard house in which there are in flower *Odontoglossum Rossii majus*, with twelve flowers; a *Cattleya citrina*, with five flowers; two plants with fine spikes of the purple-tinted most beautiful form of *Odontoglossum Alexandræ*, and a fine pot of *Dendrobium Jamesianum*, and others; these with a fairly furnished conservatory—though any credit for cultivation belongs more to my gardener than myself—yet give surroundings which ought to prevent my being "circumscribed in appreciation" of plants in general. I cannot plead guilty to favouritism, except perhaps, as we have all a weak spot, in the case of Lilies. *George F. Wilson*.

Note on *Primula nivea* (in answer to the enquiry on p. 508). — The plant intended by Mr. Entwistle is no doubt that figured under the name of *P. villosa* var. *nivea* at *Bot. Mag.*, t. 1161. It is common in English gardens under the name of *P. nivalis*, an appellation which originated with Donn in *Hortus Cantabrigiensis*, but the proper *P. nivalis* of Pallas is a totally different plant of the group of *P. farinosa*. An excellent division of the genus *Primula* for gardening purposes is furnished by the veneration of the leaf. In the Primrose, the Cowslip, *P. longiflora*, *nivalis*, and many others, the edges of the young leaf are recurved. In the Auricula group, to which *P. villosa* belongs, they are incurved. As defined by Duby in De Candolle's *Prodromus*, *P. villosa*, Jacq., covers a wide range of forms, including *viscosa*, *rhœtica*, *pedemontana*, *latifolia*, and several others, which for horticultural purposes may be readily individualised. *J. G. Baker*.

Soluble Phenyle. — I find the soluble phenyle answers so perfectly as a preservative of Clover seeds from birds that I enclose a sample of the young plants from one of the patches recently sown on my lawn for your examination. The mixture was used in the proportion of (as near as may be) 38 tablespoonfuls of the phenyle to 6 quarts of water, applied to 1 bushel of fine coal-ashes, the whole well stirred together and placed in a closed box for two or three days. The Clover seed was then sowed with it in the usual way, and though it was quite exposed to view (from the heavy rain washing some of the ashes away) the scent remained strongly, and the seed shortly germinated and was perfectly untouched by the birds, although they have on all previous occasions of sowing been very troublesome and made repeated attempts at sowing almost complete failures. The plants have come up thickly, and I enclose the accompanying morsel from one patch to show their condition. *O.*

Hardiness of the *Stauntonia latifolia*. — Three years since, having a fine plant planted out in an old conservatory, which had to be pulled down in order to make room for a new one, not liking to throw it away, it being so very sweet-scented and with such good foliage, I planted it in front of the stables here—rather an exposed position; it now covers a large space, and has never had any protection. After the severe winter we have passed through the foliage looks as fresh and as green as that of any of the hardy shrubs we have. It is now full of bloom-buds, and some are out in blossom. I consider it a valuable hardy climber. I think if its hardiness were more generally known it would be more extensively

planted than it is at present. *F. Rutland, Goodwood Gardens, Sussex.*

Rhexia virginica.—In the *Gardeners' Chronicle* of August 31 was an engraving of my prime favourite among our natives—*Rhexia virginica*. It was all too small as to the individual flowers, but their abundance (rarely seen in the wild plant) compensated for this. You say that "it is indigenous to the Southern States of North America," which is true, but it is also frequent in the Northern States. The specific name, which Linnaeus found so convenient, and applied so loosely, might easily lead to the inference that it was peculiarly southern, but it really extends from Massachusetts to Florida. It is quite abundant in my pasture (New Jersey), while on the land of a neighbour not pastured, there are patches of it several yards across exclusively occupied by *Rhexia*, forming an unbroken sheet of bloom as perfect as any artificial "bedding out." It is singular that the root of this plant has been so overlooked by botanists. None of our Floras, local or general, give any other description than "root perennial." Even Bentham and Hooker in *Genera Plantarum*, ignore the root. Works on culture say it is propagated "by division and seed." Your description, "it has a fleshy root-stock," does not quite meet the case, for it is not a root-stock. The only place where I have seen the root accurately described is in *Loddiges' Cabinet*, tab. 840, which says—"having a tuberous root," and that "it may be propagated by separating the tubers in the spring." They are often in clusters of three to five, like a miniature *Dahlia* root, all at the base of the stem, though more frequently they are at several inches from the plant. Sometimes the very end of a very fine, almost hair-like root will become tuberous at 6 or 8 inches from the stem; then, again, a root will bear two to four at intervals, like beads on a chain. The root proper is so exceedingly fine and delicate that one not knowing what to look for might dig up a number of plants without finding the tuberous roots. They are not tubers proper, but of the nature of sweet Potato roots, as described by Dr. Gray in the *American Agriculturist* for November last. *X.*

Willows: The Spring.—I estimate that the spring is this year fully a fortnight later than the average. My conclusion is based upon the flowering of the Willows, whose habits in regard to seasons I have long closely watched. This especially applies to the Willows that flower during the month of April. The very early species, such as *Salix daphnoides*, and its allies, are not to be depended upon. In them the flower-buds are so far developed before the winter that they readily expand at irregular seasons under the influence of a few warm and bright winter days, such as often occur early in February. As registers of the progress of vegetation they are valueless. Such, however, is not the case with many of the later species. *Salix amygdalina* may be instanced as an example. The male catkins of this species are fully blown here with me at the end of the second week in April with remarkable regularity in average years. In my diary I find the 13th of the month entered as the usual day when this Willow may be said to be in full bloom. At that date the lovely male catkins of this charming tree may generally be seen in profusion—long golden, perfumed tassels, hanging in thick rows from all the terminal branches, and making the tree quite yellow in the distance; but this year on April 13 the catkin buds had little more than escaped from the scales, and it will be quite the end of the fourth week of the month before the golden stamens are fairly protruded. My other April-flowering Willows indicate about the same delay. *James Salter, Basingfield, near Basingstoke, April 21.*

The Weather.—There is an old saying that one swallow does not make a summer—a fact that was brought forcibly home to my mind to-day (April 21); for on going a short distance from here I saw a poor solitary bird languidly skimming a little above the surface of a large lake, the weather at the time being piercingly cold, with the sky as heavy and leaden-looking as at any time during the winter. One could not help but feel sorry for the little wanderer for having ventured into this sunless climate of ours so soon; and yet it brought a ray of hope that a change for the better was near at hand, especially as immediately after I heard the nightingale make a sorry attempt at trilling his well-known note, followed by the husky voice of the cuckoo, who had evidently taken cold in his passage across, or more probably since he had reached these at present, to him, inhospitable shores. As the first advent of these birds is always interesting, I should be glad to know if they have been seen or heard of elsewhere before this date. The wind is now blowing with force from the north, presaging ill for Peaches, Nectarines, and Apricots, the first of which are in full bloom, excepting a few kinds, and the latter are set, but under such adverse conditions they cannot swell or make the least headway, and the chances are that they will again be a

short crop, although only a week back the walls were white with flower, and all so full of promise. If we could only retard the blossoms in some way without weakening them, what a help it would be; but fortunately they are late this season, although, as it turns out, sadly too forward to be anything like safe. I notice that all the large-flowered Peaches and Nectarines of the Noblesse and Pitmaston type are much in advance of the smaller, such as Stirling Castle, Pourpre Hative, Impératrice, and others of that class; and in raising new varieties this is a matter worth bearing in mind, as a week, or even a few days, make all the difference between success and failure; for so long as the stigma and other vital organs are snugly ensconced among the unfolded petals they never take much harm. Naked and exposed, they are at the mercy of frost and wet, and soon perish from the effects. Pears, Apples, Plums, and Cherries, are wisely taking their time, and waiting for the bright luminary that seems well nigh extinguished. I think I saw it somewhere stated that he would go out at the end of 17,000,000 years, which I thought was a catastrophe that few of us need trouble much about; but, alas! he appears to have vanished in our time, and left us to grope our way as best we can in gloom and darkness. Can our astronomers, who study the heavenly bodies, tell us where he is, and when we may expect his benign presence again? For truly, if ever poor mortals stood in need of something to cheer, gardeners and farmers do at the present moment, for they have well nigh given way to despair. *J. Sheppard.*

Camellias at Walton Lea, near Warrington, the Residence of John Crosfield, Esq.—One of the most pleasing sights we have had this season has been the Camellia-house at Walton Lea. Mr. Crosfield devotes a large unequal span-roofed house entirely to their culture. There are planted out in it upwards of forty of the best varieties, which average in height from 7 to 9 feet, all being quite young plants; but for health and beauty of shape (pyramidal), with very little tying in, we never saw them equalled. They were when we saw them (April 12) one mass of bloom from the top of the plants down to the ground. The old reticulata, trained to a wall, was very fine, in fact the well furnished conservatory, stoves, healthy ranges of Peach-houses, vineries, &c., with the beautiful and well-kept grounds at Walton Lea, are well worth a visit at any time, and reflect great credit for the skill and attention bestowed on them by Mr. Kipps, the obliging head gardener there. *Thomas Powell, Liverpool.*

The Tulip Tree.—I am pleased to see that the attention of your readers is being called to this noble tree. It has for long been a matter of surprise to me that it is scarcely to be met with in a young state. Our forefathers evidently appreciated it more than we do, as there are few old places that cannot show fine examples of it. Here there are several fine old trees, equal in height and bulk of timber to Beeches and Elms, that were doubtless planted at the same time. They flower abundantly every season, and when the leaves change to a beautiful rich yellow in autumn they form one of the finest features of a domain peculiarly rich in trees. I may add that I have planted them in considerable numbers in a variety of soils, and have never seen them fail to grow freely when once established. *J. Bell, Strathfieldsaye, April 17.*

Rose Cloth of Gold: a Hint.—I have tried to grow this splendid Rose under different circumstances and under different treatment—as a pot Rose, as a climber against a south wall, and in a conservatory—but without success until this season, when there is every prospect of a splendid lot of bloom on some of the branches only. The Rose in question was planted on the back wall of our orchard-house, some time previous to October, 1876. At that time it had made fairly good growth, but so far as I can learn, it did not bloom. In the following winter I only cut out the weak growth; it started vigorously the following spring, and when the shoots were about 18 inches in length, acting on the advice of a good Rose grower, I pinched them back, expecting they would flower on the laterals, but failure again was the result—plenty of growth, but not the least sign of a bud. In 1878 little trouble was taken, except to supply it with water and to keep it free from insects, till August, when we were obliged to tie it to the wires to keep it out of the way. On preparing the house last winter it was almost decided to cut it down, but bearing in mind what was written of it by the prince of amateur Rose growers, "A grand goblet to hold nectar to the gods," and having on one occasion seen it in perfection at the Crystal Palace, more charitable feelings prevailed. About three weeks ago I noticed at the end of one of the lower branches a flower-bud, and on mentioning the matter an assistant pointed out a dormant bud on the lower part of the branch which he had inserted

last August; this led to a little reflection and close watching. To our delight, in a few days we noticed two of last year's shoots, which are trained at right angles, showing flower-buds on every side-growth. Where the two start from the main stem, the growth of 1877 is split about 1 inch. The tree covers a large space and is growing vigorously, but there are no signs of flower-buds except on those branches where the bark was injured last year. I have seen "ringing" Pear trees practised when other means had failed to render them productive, and with good results too, though we do not hear much about it being done now, and on one occasion I was to a certain extent successful in "ringing" a stubborn standard Green Gage. I intend trying the "ringing" process on Rose Cloth of Gold next autumn, and shall be glad to communicate the result. [Please do so.] *A. Donaldson, Stoodleigh Court, Tiverton.*

London International Exhibition for 1880.—I much regret my letter has drawn forth what "Alpha" evidently thinks is a smart rebuke, and that he has been obliged to borrow language from recent political speeches to convey his meaning. I did not for a moment think of making any personal attack on any one, and what I have done in this matter has not been for the sake of my own personal glorification; it has been urged on by a patriotic feeling—a feeling which stimulates every true Englishman who loves his country, and wishes to see its greatness maintained and its resources developed. I still maintain that there has not been a committee of horticulturists properly appointed to discuss this great and most important matter. There has been too much of the hole-and-corner system about it; the great mistake, as I have before pointed out, has been the want of publicity. Only a very few horticulturists knew what was going on. I therefore again most emphatically say, that the gentlemen who constituted the late committee did not represent the general body of horticulturists, and I feel sure that when a large open meeting is held—which I have every reason to hope will be very soon—very different opinions will be expressed from those held by "Alpha." I find in this country (Belgium) all horticulturists are much in favour of it, and all have expressed their willingness to help the scheme in every possible way. I shall not slacken any of my energy in the matter, although my hands will be pretty full in preparing for a great event which is to take place here next year. *John Wills, Hôtel de Poste, Brussels, April 23.* P.S. Since writing the above I have been favoured with the following note:—

"Sandringham, Norfolk, April 21, 1879.

"Sir,—Your letters of the 3d and 4th inst., with enclosures, have been laid before the Prince of Wales. In reply, I am desired by His Royal Highness to inform you that he is inclined to look favourably on your project of holding a grand International Horticultural Exhibition in London next year, and that His Royal Highness will consider the question of accepting the Presidency of the proposed Exhibition later on, when the guarantees required of you are found.—I am, sir, yours faithfully,
"J. WILLS, Esq. "DIGHTON PROBYN."

Town Trees and Shrubs.—The longing that most people feel, whose lot it is to spend the greater portion of their lives in cities or towns, for a bit of green foliage, is evidenced by the way they shut out light and sun from their dwellings, by crowding the windows with plants, and allowing the small plots of ground in front to become overgrown by the two or three trees or shrubs standing therein, as if they were afraid to part with a branch or leaf, so precious do these appear in their eyes. This is not much to be wondered at, shut out as they are from fields and meadows, with their hedgerows, and having little before them in the way of vegetation except what they can grow in a pot or in the few yards of soil allotted to their dwellings. It must therefore be very gratifying to such as these to see that efforts are now being made to introduce trees along the sides of our streets, and to find that in most cases where suitable preparations have been made for them they are thriving well. I was much struck with those on the Thames Embankment, and more particularly with the Planes, which of all others appear the best adapted for growing in towns. This is owing to the way they shed and renew their leaves and bark, thus keeping themselves tolerably clean and healthy in spite of smoke, dust, and other adverse circumstances, and as they are so exceedingly ornamental in their character, they are quite unsurpassed for street decoration. This being the case, it will be well to use them chiefly for that purpose, and to plant anything else that may be desired to afford variety in squares or other enclosures. Rows or avenues of one kind are always far more pleasing and satisfactory than a mixture of sorts having different habits, and which on that account do not associate well together; but in large open spaces this diversity of growth is just the thing required, and may there be indulged in, almost without limit. There is one tree, however, that should be avoided for town planting, and that is the Lime, the leaves of which often by the end of

August look as if scorched, thus giving them a most wretched appearance. Were it not for this, its sweet blossoms, moderate and compact growth, and the symmetrical shape it always assumes, would render it one of the most desirable, as it is when not affected by an impure atmosphere. Next to the Plane, the Poplar is the most desirable for town planting, as it grows fast and well, and retains its foliage quite fresh and green till late in the autumn. I have a strong opinion that the Tulip-tree would thrive as well as any, but I have never yet met with it in or near any town, and am unaware whether it has ever been tried or not. [Yes, on a small scale, and with success. Eds.] The way the leaves of this change off towards the winter, and the rich colours they then assume, renders it one of the most striking among deciduous trees, but somehow or other it is one that is very seldom met with. The same may be said of *Ailantus glandulosa*, the growth of which is rapid, and the foliage exceedingly ornamental, bearing a close resemblance to the Sumach, which of all deciduous shrubs is one of the handsomest and best for town planting, it being very distinct in its habit, and quite of a tropical character. Conifers of all kinds refuse to grow satisfactorily in a smoky atmosphere, and there are but few evergreens that will succeed really well, the best among them is the *Aucuba*, on account of its having such thick, leathery, highly-polished leaves, from the surface of which dust and other deposits are easily washed by the rain. The same may be said of the *Euonymus*, which is quite a town plant, and thrives almost as well as in the fresh country air. Looking at the Holly, one would suppose that it would do so likewise, but such is not the case, for wherever there is much smoke and dust they grow very slowly, and have anything but a comfortable appearance. As there are now so many varieties of *Aucuba* of distinct character, it is much to be regretted that they are not more largely used, for besides their exceedingly ornamental foliage their bright coral berries help to render them objects of great beauty. *Berberis Bealii*, if it would succeed, would be a grand companion-plant to any of the *Aucubas*, associated with which its lustrous dark Palm-like foliage has a fine effect. Although this has been in the country many years, and ought to be plentiful, I have not as yet met with it in any town garden, but it is one of those plants that ought to do well. *Chrysanthemums* seem rather to revel in smoke and dust, as they may be seen in perfect health in any part of London where there is a bit of ground large enough to grow them. J. S.

The Germination of Old Melon Seeds.—With respect to the germination of old Melon seeds, I notice at p. 470 an account of seeds germinating which were said to be thirty-three years old. This is important in a sense, as showing the length of time that seeds will retain their vegetative qualities; but there is no reason assigned why the seeds retained those qualities over such a long period. For all practical purposes, however, it is a matter of little or no consequence, as, in my opinion, fresh seeds are as good if not better than those two or three years old. It was an accepted theory with old gardeners, that seeds, either of Melons or Cucumbers, improved with age; but that theory was exploded years ago. My last crop of Melons last year was raised from seed saved from the first crop, which was ripe in the end of May. I had two varieties, viz., Conqueror of Europe and Malvern Hall, the latter a favourite early kind; and I had a good highly-coloured fruit of Conqueror of Europe for the fruit show in Liverpool on November 20. I also exhibited a basket of Malvern Hall Melons at the horticultural meeting held in the Town Hall, in Manchester, early in December (I forget the exact date); thus showing that fresh seeds are not only productive, but, constitutionally speaking, are equal to anything that can be obtained from older seeds. I was kindly furnished with seeds of Meredith's Hybrid Cashmere Melon by two "noted gardeners" (one living in North Wales and the other in Devonshire) two years ago: the seeds were marked 1864, and not a single seed germinated. One cause of the vitality of this sort of seed seems to be generally overlooked in discussing the subject—the glutinous matter in which the seeds are embedded in the centre of the fruit is in many instances washed clean away, thus robbing the seed of Nature's own preservative. All seeds that are covered with this "gluten" should be dried with what remains upon them when they are taken out of the fruit. It will form a scaly coating or gum-like substance over the seed, which is Nature's own protection; and I believe to this cause, and to the nature of the place in which the seeds are stored, may be ascribed their vitality over a greater or lesser number of years, provided always that the seeds are the produce of a full-grown and properly developed fruit, which was grown upon a healthy and well-nourished plant. W. Hinds.

Cinerarias from Seed.—With reference to the complaint made Mr. Hinds as to the difficulty experienced by gardeners generally in securing a good

strain of *Cinerarias* from seed, I would remind him that he, at least on his own showing, and probably many others, have the remedy in their own hands. Mr. Hinds admits that he has been propagating and growing all the best kinds, if so why not save his own seed and thus secure a good strain in this way. If he does this and finds that the seedlings do not produce such fine quality of bloom as do the parent plants, he must not blame seedsmen if the same results flow from their seed. As a rule good showy strains are grown for seeding, and it is as easy to grow good strains as bad ones. I think such growers as the Messrs. Smith, of Dulwich, and Mr. James, will support the statement that a good, well selected strain does, as is the case with theirs, eventually become so true as rarely if ever to produce indifferent flowers. A. D.

Professor Beale's Sod-Cutter.—Prof. W. I. Beale, who occupies the chair of Botany and Horticulture at the Michigan Agricultural College, has sent us a plan of his implement for cutting turfs, which our artist has put into perspective (fig. 76), and this, with Prof. Beale's note, will enable its construction to be understood. The Professor's experimental implement was a rough one, made from materials at hand, to test the principle. The framework is of two pieces of 4 x 4 inch scantling, firmly put together at the forward end, with a clevis, or hook, to hitch the animals to it. Under the forward end he places a block 2½ inches thick; the use of this is not stated, but we assume it is to prevent running too deep. A pair of plough handles are attached, for guiding the implement. The knife is a piece of saw-plate, 6 inches wide, sharp at the forward edge, and bent up at right angles to cut 12 inches wide: this is so bolted to the frame that the cutting edge is 2½ inches below the lower edge of the roller immediately in front of it. This roller, which is an important part of the implement, is 6 inches in diameter, and 6 inches long, the

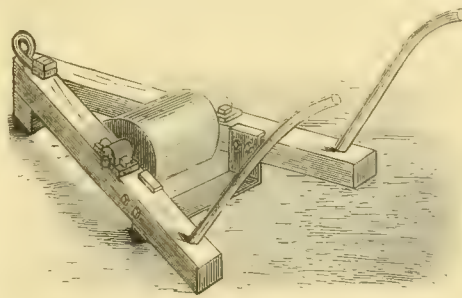


FIG. 76. PROFESSOR BEALE'S SOD-CUTTER.

bearings of which run in boxes attached to the frame. The cutting edge of the knife must be 2½ inches (or the desired thickness of sod) below the lower edge of the roller, and the knife-edge of the roller must be in a line with the rear surface. These points being secured, the attachment of the knife and roller to the frame may be effected by any method that seems best. In using two horses, Prof. Beale had the driver stand upon the machine, but suggests, if he had much cutting to do at one time, he would load the frame to the proper working weight. Though this was a mere trial implement, and roughly made, Prof. Beale sums up the whole case by saying, "It cuts well." *American Agriculturist*.

The Maréchal Niel Rose.—Possibly "J. M." is right in his surmise that there may be more than one variety of this glorious Rose. Some years since we had a second variety under that name here. It was undistinguishable from the Maréchal in leaf, wood, and general habit, but it flowered but little, and the flowers were so much inferior to the true strain of Maréchal Niel that it was weeded out and destroyed. But apart from this probability there seems nothing at all improbable in the Maréchal Niel Rose flowering freely at high elevations in the southern counties of Scotland, as described by a correspondent. In some articles on the climatology of Great Britain, in reply to the late Mr. MacNab, I took occasion to point out that many semi-tender plants appeared to thrive better in many parts of Scotland than in large portions of England, as proved especially by *Fuchsias* in the open air and other plants. And the Maréchal Niel does remarkably well as a standard in East Anglia, the east winds of which bleak district in the spring I will back for biting severity against any cold to be found in the three kingdoms. In fact the safety of this Rose, as well as many other plants, may often be best secured by planting it in the coldest and most exposed situations. Here less growth is made than in warm sheltered places or against walls, and the little made is less succulent and consequently more hardy, and also, of course, more floriferous in

proportion to its amount. Many of our finest flowers of the Maréchal, as well as of our largest of flowers, are obtained from standards worked on the common Brier. These invariably flower twice—sometimes three times a year, and by growing a dozen or so of such plants in different parts of the garden, and also one or more on walls looking to every quarter of the compass, it is seldom indeed that this unequalled golden Rose may not be had in the open air from April to January. This method of planting special Roses in different aspects to prolong the blooming season has not been carried out to the extent that its extreme usefulness deserves. Céline Forestier is another Rose that deserves planting and cultivating in quantity in this way. This Rose is even more useful than the Maréchal for bouquet and other decorative work. The Maréchal as a Rose, a full cup of golden glory, is unequalled, but it is of little use in delicate arrangements with other flowers; its buds even are too heavy, and when half-opened—the perfection of Rosehood—they are almost too ponderous unless for centres; but Céline Forestier, though not so rich in frosted gold, has a marvellously rich beauty and play of colour in it, while its form and size during all its earlier stages of growth are perfect for matching and massing with other flowers. D. T. Fish.

Foreign Correspondence.

SOUTHERN MANCHURIA.—We have been favoured with the following particulars concerning some articles of commerce cultivated in Southern Manchuria, and exported from the port of Newchwang, which we have no doubt will be read with interest. They are contained in a letter forwarded by Arthur Davenport, H.M. Consul at Shanghai, under date of December 28, 1878, to Edward Bradford, Esq., one of the Past Masters of the Society of Apothecaries, and were accompanied by a package containing samples and seeds of the several articles; these have been safely received, and have been kindly presented by Mr. Bradford to the Apothecaries' Botanic Garden at Chelsea. The particulars in question are contained in the following letter received by Mr. Davenport from a merchant trading at Newchwang:—

"The seeds have been put in a small box, which is divided into four compartments, containing respectively specimens and seeds of Manchurian Tobacco, Hemp, Jute, and Indigo, and there is also enclosed a packet of the seed (Basil) from which is made the so-called Hemp-seed oil used here by store-keepers and ship-masters. The names of the specimens are marked on cards or labels in Chinese and English.

"For Hemp and Jute the mode of cultivation is identical, except that Hemp is sown in the best soil and Jute in soil rather inferior. The mode of preparation is said to be absolutely identical.

"The situation preferred is level ground near a stream. The soil may be either black or red, but must be marshy. The farmers prefer animal manure to bean-cake, and pig-dung to horse-dung. With horse-dung, of late years, they have taken to mixing a little human excrement, which they formerly used to avoid, thinking it too strong.

"The seed is sown thickly in drills early in the month of April. The young plants when about 6 inches high are thinned out, so as to leave a distance of 7 inches between each plant. No further attention appears to be paid to them until the seeds are ripe, probably about the end of August. The plants are then cut, the upper part with seed-pods removed, and the stalks tied in bundles and thrown into water to steep. At the expiration of a week they are taken out; the pith is rejected, and the fibres are used as Hemp or Jute without further preparation. The farmers only preserve sufficient seed for their next year's crops, burning or throwing away the surplus.

"We sent some specimens of Hemp to Australia, where it was valued at £20 per ton.

"Tobacco requires a dry and very good soil, granted which the situation is immaterial. It needs occasional showers. The time of sowing and mode of cultivation are similar to that of Hemp, but it is cut about a month earlier, when the seeds are ripe. The plants, with the leaves on, are dried in the sun, and the leaves when dried are picked and sorted according to quality, but not with extreme exactitude. Large leaves are preferred to small, and thick to thin.

"Indigo is sown, cultivated, and cut much the same as Hemp. Some farmers, however, decompose pig-hair (not bristles) in water, and apply it with its liquor as manure. Our comrade thinks this is only done where dung cannot be obtained, but I think he is mistaken, as people come here annually from Kwan Li to buy pig-hair for this purpose.

"The Indigo plants, as soon as cut, are thrown into small ponds or cisterns, made specially for the purpose,

and smoothly lined with chunam to exclude the mud. Here they are steeped in water, the proportion of which to the plants is a trade secret, for thirty-five days or thereabouts, a little longer in cool weather, a little less than that in warm weather. These holes are exposed as much as possible to the sun, in order to hasten the decomposition of the Indigo plants, but are covered with matting in wet or stormy weather. When sufficiently decomposed, the plants are taken and strained under pressure. The solid matter is thrown away as refuse; the liquid, with the liquor in the ponds, is then considered to be indigo.

"The plant, the seed of which, when pressed, supplies what is called here Hemp-seed or paint oil, is cultivated much the same as Hemp and Jute. The oil is boiled by the purchaser, and then can be used for painting boats, ships, &c.

"All the above products come from far beyond the barrier as a rule, and are chiefly brought down during the winter in carts, the indigo and oil being packed in baskets, the Hemp and Jute in bundles, the Tobacco in packages of eight catties, sometimes matted, sometimes open."

Unfortunately the commercial samples are not accompanied by botanical specimens of the plants. The Tobacco and Hemp, however, appear to be species or varieties of *Nicotiana* and *Cannabis* respectively; while the Jute is the *Abutilon Avicennae* (*Sida Abutilon*, Linn.), and the Indigo is a species of *Polygonum*, probably *P. tinctorium*. Of the Hemp-seed oil plant, the seeds only have been forwarded, and these have not yet been identified. The seeds of all these samples have been sown at Chelsea, where they will be carefully observed; and they have also been distributed from thence. Samples of the several products and seeds have been forwarded to the Kew Museum.

Reports of Societies.

Royal Horticultural: April 22.—Notwithstanding the frequent recurrence of these spring displays, the exhibition held in the large conservatory was again of great excellence for its size, and of more than usual interest to florists, by reason of the annual show of the Southern section of the National Auricula Society being held at the same time and place, a lengthy report of which is given further on. Mr. William Bull again contributed a large and most effective group of plants, for which he was awarded a Large Gold Banksian Medal. The collection included a handsome array of Palms and Cycads, a considerable number of Orchids, including quantities of *Dendrobium nobile* and *Odontoglossum vexillarium*, &c.; double white and double lilac Primroses, *Azalea Marvel*, a much-improved variety of the amœna type, and rosy-lilac in colour; *Azalea Emblem*, also of the same type, and rosy-magenta in colour; *Coleus Surprise* and *C. Distinction*, both new introductions, the former with pale green leaves and well-marked yellow venation; and the latter a darker green, with crimson veins and midrib. Messrs. Paul & Son, Cheshunt, sent a remarkably fine group of sixteen pot Roses of medium size, and splendid quality as regards foliage and flowers, to which a Large Gold Banksian Medal was also awarded. The most remarkable specimen was one of the shy-blooming Tea Rose *Souvenir d'Elise*, which bore over three dozen perfect flowers; next in point of merit being the specimens of *Centifolia rosea*, Victor Verdier, Etienne Levet, with blooms over 5 inches in diameter; Marie Van Houtte, Cheshunt Hybrid, Annie Laxton, and Charles Lawson. Messrs. William Paul & Son also contributed a group of Roses in pots, to which a Silver-gilt Flora Medal was awarded; and four boxes of admirable cut blooms. A medal of similar value was awarded to Messrs. James Veitch & Sons for a group of smaller Roses, not fully developed as regards the flowers; and flowering specimens of the fine white-flowered *Magnolia stellata*, the sweetly-scented *Boronia megastigma*, double lilac and yellow Primroses, &c. To Mr. B. S. Williams a Small Gold Banksian Medal was accorded for a fine group of flowering and fine-foliaged plants, including a number of Orchids and a pan of flowering plants of *Venus' Fly-trap*, *Dionaea Muscipula*; and Messrs. Cutbush & Son, of Highgate, and Messrs. Charles Lee & Son, Hammersmith, each received Silver Flora Medals, for choice collections of stove and greenhouse flowering and fine-foliaged plants. Messrs. Barr & Sugden again sent an attractive series of cut blooms of many forms of *Narcissus*. Mr. Cannell brought another grand lot of cut blooms of Zonal Pelargoniums, and Mr. T. Pestrige, Brentford, contributed a large collection of small plants of various bicolor, tricolor and silver-edged Pelargoniums. Mr. Hooper, of Bath, had a couple of stands of his showy Pansies; and from the Society's garden, Chiswick, came a group of admirably flowered small Azaleas.

SCIENTIFIC COMMITTEE.—Dr. Maxwell T. Masters, V.P., F.R.S. in the chair.

Insects in Welwitschia.—Mr. MacLachlan reported that the insects found in the *Welwitschia* was *Odontopus sexpunctatus*, the nearest ally in this country being the *Pyrrhocoris aptera*, a plant-feeding bug. Mr. Edgeworth remarked that bugs of this character are very common in India, especially on species of *Asclepias*, which are very poisonous to other creatures.

Insects in Grape Vines from Peru.—Mr. MacLachlan reported that in his opinion the insects found in these specimens were the results rather than the cause of the disaster. The insects were both members of the order *Bostrichidae*, the larger one being a *Bostrichus*, the smaller a *Rhizopertha*.

Insects in Bamboo.—Mr. MacLachlan stated that the larvae attacking Bamboos in India, as forwarded by Mr. Routledge, were those of a boring beetle belonging to the *Bostrichidae*.

The Coffee Disease.—Dr. M. C. Cooke alluded to the measures taken in Ceylon to destroy the fungus (*Hemileia vastatrix*), and which promised to be successful. Dr. Cooke had recommended the use of sulphur, as used in the case of the Vine and Hop mildew.

Plants Exhibited.—From Mr. Bull came an Orchid, *Liparis* (?), which will be referred to Professor Reichenbach for identification. Messrs. Veitch showed a *Lycaste*, named by Professor Reichenbach, *L. Locusta*. From Messrs. Veitch also came a very remarkable form of *Hibiscus Rosa sinensis*, called *schizopetalus*, with deeply fringed petals like those of a *Clarkia*. The Chairman remarked on the analogy between these petals and the "compound" stamens of Mallows. Mr. G. F. Wilson showed a *Primula* under the name of *P. ciliata*, and which was referred to Dr. Masters for further report. The Hon. and Rev. J. T. Boscawen sent flowers of a fine variety of *Cattleya Skinneri*. A species of *Cypripedium*, shown by Mr. Jennings, was referred to Dr. Masters for report.

Spores of Dry Rot (?)—Mr. MacLachlan showed specimens of a fine dust covering woodwork, crockery, &c., and which appeared to be the spores of some fungus.—Referred to Dr. Cooke for examination and report.

Root Growth.—Dr. Masters laid before the committee the results of some experiments made by him on the development of roots and root-hairs on plants grown under varying conditions of soil, &c., and made some comments thereon. The paper will probably be published in the *Journal* of the Society.

FLORAL COMMITTEE.—Dr. Denny in the chair.—At this meeting, held in the Council-room, First-class Certificates were awarded to Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House, unanimously, for *Hymenocallis macrostephana*. To Messrs. James Veitch & Sons, for *Asparagus plumosus*, a handsome South African species introduced about three years ago, and described in our number for April last year; for *Hibiscus rosa-sinensis schizopetalus*, described in another column; for *Psychotria* (*Glouera*) *jasminiflora*, a stove shrub, with Laurel-like leaves and trusses of white Jasmine-like flowers; for *Lælia flammea*, a hybrid between *L. cinnabarina* and *L. Pilcheriana*, with dark orange-scarlet flowers with a crimson apex to the lip. To Messrs. Veitch & Sons, Messrs. Paul & Son, Cheshunt, and Mr. R. Dean, of Ealing, for *Primula platypetala plena*, a very fine double purple-violet Primrose, shown by the first-named firm under the name of *Primula lutescens plena*, and by Mr. Dean under that of *Arthur Dumoulin*. To Mr. John Wills, for *Gloxinia Mrs. Bause*, a large, finely-formed flower, clear white, with a broad ring of bright rose at the apex of the throat or tube. To G. F. Wilson, Esq., for a very fine deep rosy crimson flowered *Primula*, shown under the name of *P. ciliata*, and referred to the Scientific Committee for identification. To Mr. Denny, gr. to Lord Londesborough, for a new Lilac, *alba grandiflora*, a very fine free-flowering pure white companion to Charles X., if not a sport from that variety; and to Messrs. Barr & Sugden, for one of Mr. Leeds' seedling *Narcissus* named *N. incomparabilis albidus expansus*, rather paler than the type, and with a larger more spreading crown. Since the last meeting the Council have originated a new award in the form of a "Certificate of Merit," and the first recipient was Mr. Charles Green, gr. to Sir Geo. Macleay, who received the award for a well-flowered specimen of *Echium fastuosum Decaisneanum*, a cold greenhouse plant, with lanceolate leaves and noble dense spike of rich purple flowers. Messrs. R. Smith & Co., Worcester, sent a good sample of their new Fern, *Adiantum Farleyense* var. *alcicornis*, described in our last number, and which we believe, is shortly to be sent out. Mr. Parr, gr. to Gernon's Grove, Leatherhead, again showed his fine new *Abutilon*, King of the Yellows; Messrs. Paul & Son, Cheshunt, sent two new Azaleas, and Mr. R. Dean examples of *Aquilegia arctica*.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. Mr. Atkins, gr. to Colonel Lloyd-Lindsay,

M.P., Lockinge Park, sent a well preserved sample of black Alicante Grapes, to which a Cultural Commendation was awarded. Well grown samples of President Strawberries were shown by Mr. Ravenhill, gr. to Alderman Sydney, Bowes Manor, Southgate, and Mr. Messon, gr. to A. Meadows, Esq., Poyle Park, Bucks, and Cultural Commendations were voted to both exhibitors. An excellent dish of Sturmer Pippin Apples, sent by Mr. Louis Killick, received a vote of thanks.

National Auricula (SOUTHERN SECTION): April 22.—For the first time since the formation of the southern section of this Society the annual show was held, as we hope it may be for many years to come, under the sheltering wing of the Royal Horticultural Society, in the large conservatory at South Kensington; and we are glad to be able to record the fact of its being an unusually good display for the season—a season, it must be borne in mind, which by reason of its cold, sunless, and ungenial character, has been all too powerful in retarding growth and in preventing the development of that high degree of refinement in form and purity of colour which so much delights the eye of the genuine florist. The want of refinement in the flowers was a somewhat marked characteristic of the display on Tuesday last as compared with last year's show, but as regards numbers we think the exhibition of 1879 will show a slight increase over its predecessor—a circumstance due in a great measure to the liberal contributions brought up from South Wales by Mr. J. T. D. Llewellyn. The Rev. F. D. Horner and Mr. Ben Simonite were the only Northern exhibitors, though the Northern florists were also represented in person by Mr. Gorton, of Eccles, and Mr. Douglas, of York. Mr. Horner took all the 1st prizes but one; while Mr. Douglas, gr. to the President, F. Whitbourn, Esq., and Mr. Ben Simonite, took the bulk of the others pretty equally between them.

In the class for twelve Auriculas, dissimilar, the 1st prize was won by the Rev. F. D. Horner, Kirkby Malzeard, Ripon, with Sapphire (Horner), purplish-violet self; Freedom (Booth), Smiling Beauty (Heap), Ajax (Horner), a grey-edged flower, in the way of Sykes' Complete; Erebus (Horner), a very dark self flower, but rather small in the paste, and scarcely pure enough; Lancashire Hero (Lancashire), Prince of Greens (Traill), George Lightbody (Headley), Frank Simonite (Simonite), Champion (Page), John Simonite (Walker), and Pizarro (Campbell). Mr. James Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, was 2d with Marquis of Lorne (Campbell), Glory (Taylor), Meteor Flag (Lightbody), George Lightbody (Headley), Colonel Taylor (Leigh), Topsy (Kay), Alex. Meiklejohn (Kay), True Briton (Hepworth), Beauty (Traill), Lancashire Hero (Lancashire), Admiral Napier (Campbell), and Smiling Beauty (Heap). Mr. Ben. Simonite, Rough Bank, Sheffield, came in 3d with C. J. Perry (Turner), Prince of Greens (Traill), Metropolitan (Spalding), Frank Simonite (Simonite); a crimson self-seedling in the way of Marquis of Lorne, but darker; John Waterston (Cunningham), Ajax (Horner), Richard Gorton (Simonite), a good pure green-edged flower; Samuel Barlow (Simonite), grey-edged; William Bradshaw (Simonite), Lancashire Hero (Lancashire), and George Lightbody (Headley); and Mr. Turner, Slough, was 4th with Violet (Moore), a very old grey-edged variety; Memnon (Turner), a dark maroon self; Arabella (Headley), white-edged; Clipper (Turner), a good dark purple-maroon self, in the way of Sim's Eliza, but with mealed foliage; Miss Jeffrey (Jeffrey), grey-edged; Pizarro (Campbell), Col. Champneys (Turner), J. C. Perry (Turner), Sir Henry Havelock (Jeffrey), grey-edged; Mrs. Purves (Turner), grey-edged; Peacemaker (Turner), and General Neill (Traill).

For six Auriculas, distinct, the 1st prize went to the Rev. F. D. Horner, for Ruby (Read), dark maroon self; Smiling Beauty (Heap), Catherine (Summerscales), Prince of Greens (Traill), George Lightbody (Headley), and Lancashire Hero (Lancashire); the 2d to Mr. Ben Simonite, for the dark seedling self before mentioned; Prince of Greens (Traill), Metropolitan (Spalding), Frank Simonite (Simonite), Richard Gorton (Simonite), and George Lightbody (Headley); the 3d to Mr. James Douglas, for Smiling Beauty (Heap), Pizarro (Campbell), John Waterston (Cunningham), Topsy (Kay), Alex. Meiklejohn (Kay), and Admiral Napier (Campbell); the 4th to Mr. Turner, for St. Augustine (Cunningham), green-edged; Mrs. Sturrock (Martin), Colonel Champneys (Turner), Omega (Turner), the white-edged variety certificated last year; C. J. Perry (Turner), and a grey-edged seedling; and the 5th to J. T. D. Llewellyn, Esq., Ynisgerwn, Neath, for Earl of Errol (Dickson), green-edged; Colonel Champneys (Turner), Marquis of Lorne (Campbell), Topsy (Kay), C. J. Perry (Turner), and a grey-edged seedling.

For four Auriculas, distinct, the 1st prize went to the Rev. F. D. Horner, for Lancashire Hero (Lancashire), John Simonite (Walker), Ringdove (Horner), a splendid self, intermediate in colour between Turner's C. J. Perry and Campbell's Pizarro, and a seedling; the 2d to Mr. Ben Simonite, for Colonel Taylor (Leigh), George Lightbody (Headley), Frank Simonite (Simonite), and a rich violet-coloured seedling self; the 3d to Mr. James Douglas, for Topsy (Kay), Earl Grosvenor (Gairns), Lovely Ann (Oliver), and George Lightbody (Headley); the 4th to Mr. Turner, for Colonel Champneys (Turner),

Mrs. Sturrock (Martin), Clipper (Turner), and a seedling; the 5th to Mr. R. Dean, Ranelagh Road, Ealing, for Robert Traill (Lightbody), Marquis of Lorne (Campbell), C. J. Perry (Turner), and Duke of Cambridge (Dickson); the 6th to J. T. D. Llewellyn, Esq., for Colonel Champneys (Turner), Alderman Wisbey (Headley), Catherine (Summerscales), and a seedling.

For two Auriculas, distinct, the 1st prize went to the Rev. F. D. Horner, for Smiling Beauty (Heap) and Lancashire Hero (Lancashire); the 2d to Mr. Ben Simonite, for George Lightbody (Headley), and Onwards; the 3d to Mr. James Douglas, for Smiling Beauty (Heap), and George Lightbody (Headley); the 4th to T. E. Lloyd, Esq., Bedford Villa, Woodford, for General Niell (Traill), and Marquis of Lorne (Campbell); the 5th to Mr. Turner, for Colonel Champneys (Turner), and C. J. Perry (Turner); and the 6th to J. T. D. Llewellyn, Esq., for C. J. Perry (Turner), and Inspector (Llewellyn).

One green-edged Auricula.—1st prize to the Rev. F. D. Horner, for Anna (Traill); 2d, J. T. D. Llewellyn, Esq., for a seedling in the way of Dickson's Duke of Cambridge; 3d, Mr. James Douglas, for Lady Richardson (Gairns); 4th, Mr. B. Simonite, for Talisman; 5th, Mr. B. Simonite for Anna (Traill); 6th, Rev. F. D. Horner, for Anna (Traill); 7th, Mr. Douglas, for Apollo (Beeston's); 8th, Mr. B. Simonite, for Prince of Greens (Traill).

One grey-edged Auricula.—1st and 2d prizes to the Rev. F. D. Horner, for Lancashire Hero (Lancashire); 3d, Rev. F. D. Horner, for Samuel Barlow (Simonite); 4th, Mr. Douglas, for George Lightbody (Headley); 5th, Mr. Douglas, for the same; 6th, Mr. Douglas, for Alex. Meiklejohn (Kay); 7th, the Rev. F. D. Horner, for George Lightbody (Headley); 8th, Mr. Douglas, for Alderman C. E. Brown (Headley).

One white-edged Auricula.—1st prize to the Rev. F. D. Horner, for John Simonite (Walker); 2d, Mr. Douglas, for Anne Smith (Smith); 3d, Rev. F. D. Horner, for John Simonite (Walker); 4th, Mr. Douglas, for Glory (Taylor); 5th, Rev. F. D. Horner, for Smiling Beauty (Heap); 6th, Rev. F. D. Horner, for Anne Smith (Smith); 7th, Mr. B. Simonite, for Frank Simonite; 8th, Mr. Douglas, for Anne Smith (Smith).

One self Auricula.—1st prize to the Rev. F. D. Horner, for Pizarro (Campbell); 2d, Mr. Douglas, for Marquis of Lorne (Campbell); 3d, T. E. Lloyd, Esq., for Marquis of Lorne; 4th, Mr. Douglas, for Marquis of Lorne; 5th, Rev. F. D. Horner, for Metropolitan (Spalding); 6th, Mr. R. Dean, for Pizarro (Campbell); 7th, Mr. Douglas, for Topsy (Kay); 8th, Mr. Douglas, for Eliza (Sims).

Fifty Auriculas, including alpine.—1st prize to Mr. Douglas, for a fine collection of stage varieties only, including most of the leading varieties previously mentioned, together with Campbell's Green-edge, Lord Clyde (Lightbody), Lady Sophia Dumaresque, Lady Sale (Smith), Confidence (Campbell), Vulcan (Sims), Prince of Wales (Ashton), Complete (Sykes), Formosa (Smith), and Marie (Chapman); 2d, Mr. Turner, for a collection which also did not contain any alpine, but which was rich in self-coloured flowers, such as Calypho, Royal Robe, and Clipper, all raised by the exhibitor; Marquis of Lorne (Campbell), Mrs. Sturrock (Martin), Prince Alfred (Turner), Pizarro (Campbell), Topsy (Kay), and Eliza (Sims); and amongst other sorts not previously mentioned were Rev. Geo. Jeans (Traill), James Douglas (Turner), President (Simpson), Miss Giddings (Read), Phoebe (Turner), Unique (Dickson), Ensign (Turner), Drake Lewis (Turner), Lady Ann Wilbraham (Traill), and Star of Bethlehem (Lightbody); 3d, J. T. D. Llewellyn, Esq., who included in his collection a few not previously mentioned, including Apollo (Hudson), Miss Headley (Headley), Blackbird (Spalding), Highland Queen (Horsefield), Ellen Lancaster (Pohlman), Pillar of Beauty (Hughes), Garland (Smith), Petronella (Headley), Bright Phoebe (Wyld), and Ne Plus Ultra (Smith); 4th, Mr. R. Dean, whose collection included some remarkable new double flowered varieties, as Emperor, maroon-purple; Majestica, purplish-lilac; Purplea, an intermediate colour between the previous two; Lilacina, and Yellow Prince.

Twelve alpine Auriculas.—1st prize to Mr. Turner, for Mrs. Carter, Dr. Denny, Sensation, Mrs. Llewellyn, Troubadour, Prima Donna, Mrs. Taplin, Selina, Slough Rival, Evening Star, and Unique (all raised by the exhibitor), and Diadem, a rich crimson-shaded flower raised by Mr. Gorton. Of the first-named batch Prima Donna, Unique, and Dr. Denny are exceptionally fine and richly coloured. 2d, Mr. J. Douglas, for Florence, Silvia, and Prince, large dark selfs, and three charming shaded seedlings, one showing a distinct rich red edge, all of his own raising; Beatrice and Selina (Turner), George Lightbody, and Diadem (Gorton), Mrs. Meiklejohn (Meiklejohn), and Mrs. Reed. The shaded seedlings are the produce of a cross between Mrs. Meiklejohn and Gorton's Diadem. 3d, Mr. R. Dean, who had eight of his charming laced varieties, Ovid and Colonel Scott (Turner), and a couple of rich dark seedlings of good form.

Six alpine Auriculas.—1st prize to Mr. Turner, for Mrs. Llewellyn, John Ball, Evening Star, King of the Belgians, a rich-shaded flower; A. F. Barron, edged with rosy-mauve—all of his own raising; and Gorton's Diadem. 2d, J. T. D. Llewellyn, Esq., with Turner's Dolly Vardep, Nimrod, Diana, and Mrs. Llewellyn, Meiklejohn's Mrs. Meiklejohn, and a seedling. 3d, Mr. Douglas, with Florence (Douglas), Diadem, and George Lightbody (Gorton), Beatrice (Turner), a large purple-shaded flower with white centre; Bismarck, and a seedling. 4th, Mr. R. Dean, with all edged flowers of his own raising—Troilus, white-edged; Mrs. Moore, shaded dark-edge; Imogen, pale rose-edge; Chamer, pale flesh-edge; Cymbeline and Duchess of Teck, pale red-edge.

One alpine Auricula.—1st prize to Mr. Douglas, for Gorton's Diadem, in grand form; 2d, Mr. Turner, for

Duchess of Connaught (Turner), a rich reddish-maroon shade; 3d, Mr. Turner, for Unique (Turner), a pale form of Diadem, and very beautiful; and 4th, Mr. Turner, with Susie Matthams (Turner), a beautiful rosy-purple shaded flower.

The premier Auricula selected from amongst the whole of the plants exhibited was the grey-edged George Lightbody (Headley), shown by the Rev. F. D. Horner, who gained the same prize last year with the same variety, which had a truss of nine pipes on that occasion and ten on the present.

Six Polyanthuses.—1st prize to Mr. James Douglas for an unusually strongly grown set of plants, consisting of William IV. (Sanderson), George IV. (Buck), Cheshire Favourite (Saunders), as usual the most refined, President (Hilton), Exile (Crownshaw), and a fine variety named after Mr. Horner, which needs only a richer lacing to make it a perfect flower; 2d, J. T. D. Llewellyn, Esq., for the five first-named sorts in Mr. Douglas' group, and Smith's Formosa; 3d, Mr. R. Dean, for George IV., William IV., Exile, Hufton's Earl of Lincoln, and two promising seedlings.

Two Polyanthuses.—1st prize to Mr. Douglas, for fine examples of Buck's George IV. and Crownshaw's Exile; 2d, J. T. D. Llewellyn, for William IV. and Cheshire Favourite; 3d, Mr. R. Dean, for Bullock's Lancer and a seedling.

One Polyanthus.—1st prize to Mr. Douglas, for Buck's George IV.; 2d, to Mr. George Smith, for his seedling, Duke of Portland, a somewhat clouded flower; 3d, Mr. Douglas, for Bullock's Lancer; 4th, Mr. R. Dean, for Cheshire Favourite.

Six Fancy or Self Polyanthus.—Mr. R. Dean was the only exhibitor in this class, and showed Ambassador, large, sulphur; The Bride, pure white; Buttercup, clear yellow; Prince Charming, flaked; Ealing Crimson, very rich; and Monarch, dark crimson.

One Fancy or Self Polyanthus.—Mr. R. Dean was 1st, with a very fine white seedling; 2d with a large sulphur seedling; 3d with robusta alba, a fine white flower; and 4th with a handsome straw-yellow seedling.

Certificates were awarded to the Rev. F. D. Horner, for Ringdove, a lovely self-coloured flower, intermediate between C. J. Perry and Pizarro; to J. T. D. Llewellyn, Esq., for Grey Friar, a very large grey-edged flower, with a dark purple body colour, and a rather weak tube; to Mr. Turner for alpine A. F. Barron, a rosy-mauve shaded flower; and for alpine Duchess of Connaught, a rich reddish-maroon shaded with rosy-violet.

Royal Botanic: April 23.—For its second spring show the Royal Botanic Society again had the misfortune of most unfavourable weather—cold and dull, with heavy showers of rain in the morning. The show was on the whole a good one, thanks to liberal contributions to the miscellaneous class, without which it must have been poor and thin. The finest feature in the exhibition was a magnificent group of pot Roses, some twenty-seven in number, and including nine much finer plants than the splendid ones shown at South Kensington on the previous day, contributed by Messrs. Paul & Son, the Old Nurseries, Cheshunt. The lot, which took the 1st prize for nine, were the finest in point of cultivation that has ever come under our notice so early in the season, and marvellously well brought out considering the most unfavourable weather for forcing that growers have this season had to contend against. The plants measured from 3 to 4 feet over and the same in height, were good in foliage and freshness, and carried a fine crop of blooms of unexceptionable quality. The varieties were Dupuy Jamin, La France, Victor Verdier, Paul Verdier, Perfection de Montplaisir, a fine yellow Tea; Edward Morren, larger in dimension than those above given; Madame Lacharme, a few of the blooms on which were of unusual excellence in point of size; Madame Victor Verdier, and Madame Thérèse Levet. The remainder of the group mainly consisted of the group shown on the previous day, from which we select for special mention the specimens of Beauty of Waltham, Céline Forestier, Cheshunt Hybrid, Etienne Levet, Souvenir d'Elise, Souvenir d'un Ami, Annie Laxton, and Marie Van Houtte, the fine clear pale yellow Tea. An extra prize was awarded. Messrs. James Veitch & Sons also contributed a small bank of Roses, of small and medium size, but scarcely out enough. Some of the expanded blooms, however, were of an excellent order of merit, amongst them being Madame de St. Joseph, Chas. Lawson, Captain Christy, Baroness Rothschild, La France, and Camille Bernardin. Mr. James, gr. to W. F. Watson, Esq., Redlees, Isleworth, also staged half-a-dozen fair examples, and took the 1st prize in the amateurs' class. Mr. James also took the 1st prize for nine Cinerarias with specimens which quite upheld the character of this unrivalled strain, the plants being of good size and well bloomed, and the flowers of undoubted quality. The most conspicuous varieties were Sarah Winter, a rich rosy-purple, with a white ring round the disc; compactum, a similar type of flower, but larger, and not so dark in colour; Mrs. Bland, a rich deep violet-purple self; Mrs. Beck, deep crimson-magenta, with a narrow white band encircling the disc; Uncle Tom, almost black; and Mr. Winter, a finely reflexed crimson flower. Mr. James also contributed to the amateurs' class for six Azaleas, and came in 2d with medium-sized, well-

flowered specimens of Duchesse Adelaide de Nassau, superbly coloured; Mons. Thibaut, a brilliant red; Belle Gauloise, pink with a white edge, &c.; and the same exhibitor further staged a capital group of Cyclamens. Mr. Ratty, gr. to R. Thornton, Esq., The Hoo, Sydenham, took the 1st prize for six Azaleas with exceptionally well-flowered plants, about 4 feet over, of Baronne de Vriere, Duc de Nassau, Virginalis, Général Todleben, Hortense Vervaene, and Auguste Van Geert. From Mr. Ratty also came excellent single specimens of Imantophyllum minutum and Dendrobium densiflorum. Next to Mr. James in the Cineraria class came Mr. Wiggins, gr. to H. Little, Esq., Hillingdon Place, Uxbridge, with a very neatly-grown lot of plants of his own dwarf strain, and which, while being only about 10 inches high, carry heads of bloom quite a foot in diameter, and of a good decorative quality. The winner of the 3d prize was Mr. Alex. Wright, gr. to G. Brighton, Esq., The Grove, Great Stanmore, who can evidently grow these flowers, but who is unfortunate in having a poor strain. One of his plants, named Allan Bane, was 2 feet high and nearly 3 feet across, with fully opened blossoms measuring 2 inches in diameter, white just tipped with purple, large enough in all conscience, but possessing no other quality to recommend it. Mr. Wiggins also staged six Amaryllis, and took the 1st prize with Hercules, Rembrandt, and Ceres, all scarlet; Princess Dagmar, crimson with a white centre; Hereward, crimson; and Morning Star, white, veined and margined with scarlet. From Mr. G. Wheeler, gr. to Louisa Lady Goldsmid, came a collection of stove and greenhouse plants arranged in a group, a collection of one dozen plants, the only one shown in the class, to which the 1st prize was awarded; six Azaleas, for which he was 3d, and a small collection of alpine, for which he also took a 3d prize. Mr. Turner, of Slough, contributed half-a-dozen Azaleas to the nurserymen's class, and came in 1st with well-flowered plants, about 3 feet high, of Etendard de Flandres, Queen Victoria, and Marie Vervaene, whites; Ferdinand Kegeljan, salmon; Cordon Bleu, rosy-purple; and Duc de Nassau, dark rose. Mr. Turner also sent nine small plants of show Pelargoniums, for which he took a 1st prize; and also a fine group of show and alpine Auriculas, besides a dozen with which he beat Mr. Llewellyn in a class for that number. Messrs. William Cutbush & Sons contributed a neat group of flowering and fine-foliage plants, including amongst the former the pretty lilac-flowered Tremandra hirsuta, the small white Heath-like flowered Leucopogon Richei, various Epacris, Rhododendron, &c.; and from Messrs. James Carter & Co. came a collection of Cinerarias and Spiræas. Messrs. William Paul & Sons, Waltham Cross, contributed eight boxes of cut Roses—a fine lot of blooms, including beautiful examples of Magna Charta, Marie Baumann, Madame Alfred de Rougemont, white; Peach Blossom, Rubens (Tea), a lovely-shaped delicately flesh-tinted flower; Niphetos, Marie van Houtte, Madame Falcot, Red Dragon, fine in colour; and Duke of Edinburgh, &c. Mr. Heims, gr. to F. A. Philbrick, Esq., Avenue Road, Regent's Park, showed a very attractive group of Orchids, included in which were the showy yellow Oncidium concolor, Odontoglossum luteo-purpureum, the pretty miniature Oncidium Cressus longipes, Rollisson's variety of Vanda suavis, Dendrobium macrophyllum giganteum, Vanda coerulescens, the delicious Cattleya citrina, Phalenopsis Schilleriana and P. leucorhoda, Odontoglossum cirrosum, &c. Messrs. Paul & Son, Cheshunt, showed a new Rose, Mabel Morrison, with large broad white petals, but not full enough to make a good flower; and Mr. T. Pestrige sent a collection of small plants of various variegated leaved Pelargoniums.

Of new and rare plants a remarkably fine group was staged by Mr. William Bull, an excellent but smaller group by Mr. B. S. Williams, and a smaller one still by Messrs. James Veitch & Sons, &c. The following certificates were awarded:—Botanical Certificates of Merit to Messrs. James Veitch & Sons, for Asparagus plumosus, a very handsome species from the Cape, introduced about three years ago, and described in our number for April 27 last year; for Croton Hawkeri, a distinct new species, with the stem and leaf-stalks and the greater portion of the leaf creamy-white, margined with pale green at the apex in the form of an arrow; for Kentia McArthurii, a species from New Guinea, with pinnate leaves ending in a broad terminal lobe; for Odontoglossum odoratum, a New Grenadan species, with Hawthorn-scented flowers of a yellow ground colour, heavily spotted with brown; for Odontoglossum Ruckerianum, also a New Grenadan species, figured and described in our volume for 1873, and having white sepals and petals bordered with violet and spotted with brown, and a lip, yellow at the base, and also spotted with brown; for Phalenopsis Parishii, a minute species from Burmah, with small white flowers, and a slate-coloured lip; for Sarcochilus Fitzgeraldi, a minute Australian plant with pale lilac flowers, marked in the centre with rosy lilac, much in the same way as flowers of Odontoglossum Cervantesii,

a pretty little thing; and for *Oncidium Keianstianum*, a novelty in the way of *O. Papilio*, with shining chocolate-brown flowers, relieved with a blotch of yellow at the base of the lip. To Mr. William Bull for *Geonoma concinna*, an elegant pinnate-leaved Palm, with the youngest leaves of a rich dark brown colour; for *Kentia Wendlandiana*, another fine, bold-habited Palm; for *Thrinax barbadense*, a handsome palmate-leaved Palm, with the long slender leaf-stalks marbled with small silvery spots mixed with black spines; for *Phaius Blumei*, a strong growing plant with the flowers pale cinnamon-red, with a large white lip produced on a strong spike; and for *Dendrobium nobile atropurpureum*, a large flowered variety, in which the sepals and petals are shaded with rich rosy-purple. To Mr. B. S. Williams for *Catakidozamia Hopei*, a magnificent cycadaceous plant, introduced from tropical Eastern Australia, and described in our volume for 1865; for *Croton Dormanianus*, a close-growing form with recurved, broad, dark green leaves, with crimson and orange-coloured midrib and venation; for *Croton Henryanus*, a bold, free-growing, large, broad-leaved form, with a broad golden band down the centre, and similarly coloured veins; and for *Dracena superba*, a free-growing, narrow-leaved form, with the older leaves of a dark metallic bronze colour, and the younger ones deep crimson or rosy-crimson. To Mr. H. Parr, gr., Girones Grove, Leatherhead, for *Abutilon King of the Yellows*, a large bold flower very clear in colour; and to Mr. H. Boller, Kensal New Town, for *Echinocactus Pfeiferi*.

Floral Certificates were awarded to Messrs. Paul & Son, Cheshunt, and Messrs James Veitch & Sons, or *Primula platypetala plena*; to Mr. William Bull, for *Coleus Distinction*; for *Coleus Surprise*; and for *Azalea Marvel*, a much improved flower of the *amœna* type, and of a bright rose colour. To Mr. Turner for alpine *Auriculas Unique*, A. F. Barron, Susie Matthams, Duchess of Connaught, and Mrs. Ball. To the Hon. and Rev. J. T. Boscawen, Llamoran Probus, for his seedling white *Rhododendron*, Mrs. Townsend Boscawen. To Mr. Wiggins, gr. to H. Little, Esq., for *Amaryllis Hercules*, a very good scarlet flower. To Mr. B. S. Williams, for *Amaryllis Queen Victoria*, a good white variety with a pale greenish centre; and for the richly coloured scarlet *Tulipa Greigii*; and to J. D. Llewellyn, Esq., for his grey-edged show *Auricula*, *Grey Friar*.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON.
FOR THE WEEK ENDING WEDNESDAY, April 23, 1879.

| MONTH AND DAY | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | | WIND. | | RAINFALL. |
|---------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|---------------------|--------------------|------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 16 years. | Highest. | Lowest. | Range. | Mean for Day. | Dew Point. | Degree of Humidity. | Average Direction. | Sum | |
| April | In. | In. | In. | In. | In. | In. | In. | In. | N.W. to S.E. | In. | |
| 17 | 29.52 | -0.23 | 48.2 | 32.2 | 16.0 | 38.3 | -8.5 | 35.1 | 88 | 0.09 | |
| 18 | 29.72 | -0.02 | 46.3 | 32.7 | 13.6 | 38.6 | -8.4 | 33.2 | 82 | 0.00 | |
| 19 | 29.62 | -0.13 | 53.8 | 30.0 | 23.8 | 40.9 | -6.3 | 33.7 | 76 | 0.00 | |
| 20 | 29.24 | -0.51 | 50.2 | 37.8 | 12.4 | 43.3 | -4.1 | 42.4 | 96 | 0.16 | |
| 21 | 29.33 | -0.43 | 43.8 | 36.6 | 7.2 | 39.8 | -8.8 | 35.8 | 90 | 0.00 | |
| 22 | 29.39 | -0.38 | 50.5 | 32.5 | 18.0 | 40.4 | -7.4 | 34.9 | 81 | 0.00 | |
| 23 | 29.31 | -0.45 | 52.8 | 39.2 | 13.6 | 45.0 | -3.0 | 43.5 | 94 | 0.15 | |
| Mean | 29.45 | -0.31 | 49.4 | 34.4 | 15.0 | 40.8 | -6.6 | 36.9 | 87 | 0.70 | |

April 17.—Generally fine, but frequently dull; heavy showers. Sleet and hail at 10.30 A.M. Cloudless at night. Cold.
— 18.—Fine till noon, then overcast till 8 P.M.; fine after. Cloudless at midnight. Cold.
— 19.—A very fine bright day. Sky generally clear till evening, then cloudless. Cold.
— 20.—Generally dull and wet, though fine at intervals. Unpleasant day. Cool.
— 21.—Overcast, dull, and cold throughout.
— 22.—A dull, cloudy day, fine for short intervals. Slight rain in evening. Overcast at night.
— 23.—A very dull miserable day. Wet. Cool.

N.B.—The mean reading of the barometer for the thirty-six days (March 18–April 23) ending to-day, April 23, was 29.54 inches, being 0.28 inch below the average. The mean temperature of the air for the fourteen days (April 10–23) ending to-day, April 23, was 38°.9, being 7°.8 below the average of sixty years.

LONDON: *Barometer*.—During the week ending Saturday, April 19, in the vicinity of London the readings of the barometer at the level of the sea de-

creased from 29.69 inches at the beginning of the week to 29.49 inches by the afternoon of the 15th, increased to 29.95 inches by the evening of the 18th, and decreased to 29.70 inches by the end of the week. The mean daily readings were below their averages on every day in the week, the mean reading for the week at sea level was 29.67 inches, being 0.11 inch above that of the preceding week, and 0.26 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 58½° on the 15th, to 43° on the 14th and 16th; the mean value for the week was 48°. The lowest temperatures of the air observed by night varied from 30° on the 19th, 30½° on the 14th, and 31¾° on the 13th and 15th, to 33½° on the 16th; the mean value for the week was 31¾°. The mean daily range of temperature in the week was 16½°, the greatest range in the day being 26½°, on the 15th, and the least 9½°, on the 16th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—13th, 36°.9, — 9°.2; 14th, 36° — 10°.3; 15th, 43°.2, — 3°.3; 16th, 36°.7, — 9°.9; 17th, 38°.3, — 8°.5; 18th, 38°.6, — 8°.4; 19th, 40°.9, — 6°.3. The mean temperature of the air for the week was 38°.7, being 8° below the average of sixty years' observations, and 11½° below the value for the corresponding week in 1878.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 128° on the 15th, 126¾° on the 19th, and 108° on the 17th; on the 16th the reading did not rise above 52°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 28° on the 19th, 29° both on the 17th and 18th, and 30½° on the 13th; the mean of the seven lowest readings was 30°.

Wind.—The direction of the wind was variable, and its strength moderately strong.

The weather during the week was (with the exception of the 19th, which was fine) generally dull, very cold, and wintry.

Snow fell on the 13th at 7 A.M., and *hail* and *sleet* fell occasionally during the first five days of the week.

Rain.—The amount of rain, &c., measured during the week was 0.66 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, April 19, the highest temperatures of the air observed by day were 58½° at Blackheath, 55° at Truro, 54¾° at Bristol, and 54½° at Plymouth; the highest temperature of the air at Bradford was 45½°, and at Leeds was 47°; the general mean from all places was 51½°. The lowest temperatures of the air observed by night were 24° at Wolverhampton, 27° at both Truro and Hull, 28° at both Sheffield and Bradford, and 28½° at Cambridge; the lowest temperature of the air at Brighton was 33° and at Norwich and Sunderland was 32°; the mean from all stations was 29½°. The extreme range of temperature in the week was the least at Brighton, Bradford, and Leeds, all about 17°, and the greatest at Blackheath, 28½°; the mean range from all places was 22½°.

The mean of the seven high day temperatures was the highest at Truro and Plymouth, 49°, Bristol and Cambridge, 48½°, and Blackheath 48°, and the lowest at Wolverhampton, 41°, and Bradford, 42°; the general mean from all places was 46°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 29°, Nottingham 31½°, Blackheath, Bristol, and Hull, all 31¾°, and Cambridge and Sheffield, both 32½°; and the highest at both Nottingham and Liverpool, 35½°, and Brighton, 35°; the mean value from all stations was 33½°. The mean daily range of temperature in the week was the least at Bradford, 8½°, and the greatest at Bristol, 16¾°, and Blackheath and Cambridge, both 16½°; the mean daily range from all places was 12¾°.

The mean temperature of the air for the week from all stations was 38°, being 13° lower than the value for the corresponding week in 1878. The mean temperature was the highest at Truro, 40½°, and Plymouth, 40°, and the lowest at Wolverhampton, 33½°, and Nottingham, 36°.

Rain.—The amounts of rain measured during the week were the heaviest at Truro, 0.94 inch, Plymouth, 0.79 inch, Wolverhampton, 0.69 inch, Brighton, 0.67 inch, and Blackheath, 0.66 inch; and the least at Liverpool, 0.13 inch, and Leeds, 0.16 inch; the average fall over the country was half an inch.

The weather during the week was dull, very cold, and wintry.

Snow and *hail* fell occasionally.

SCOTLAND: *Temperature*.—During the week ending Saturday, April 19, the highest temperatures of the air observed by day varied from 57° at Paisley, to 43½° at Aberdeen; the mean value from all stations was 49¾°. The lowest temperatures of the air observed by night varied from 28° at Perth, and 28½° at Edinburgh, to 30½° at Leith; the mean from all stations was 29½°. The mean range of temperature in the week from all places was 20½°.

The mean temperature of the air for the week from all stations was 38½°, being 11½° lower than the value for the corresponding week in 1878. The highest was 40°, at Paisley, and the lowest was 37½°, at Aberdeen.

Rain.—The heaviest falls of rain were 1.14 inch at Edinburgh, and 0.60 inch at Leith; and the least falls were 0.25 inch at Dundee, and 0.32 at Paisley. At Greenock no rain was measured. The average fall over the country was 0.43 inch.

DUBLIN.—The highest temperature of the air was 53½°, the lowest 26°, the extreme range 27½°, the mean 41½°, and the fall of rain 0.42 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

EAST INDIAN PLANTATIONS.—What is the average wages for overseers in East Indian plantations? *Voyageur*.

PARTRIDGE BERRY, MITCHELLA REPENS.—Will you allow me to ask for any information as to where the Partridge Berry, described in your number of April 19, can be got? A. P. [Woolson & Co., Passaic, New Jersey, would doubtless send you a small plant or two by parcel post.]

POPULUS ALBA BOLLEANA.—Can any of your correspondents kindly say where the Silver Poplar, *Populus alba Bolleana*, can be got in England, and oblige? *Camjee*.

Answers to Correspondents.

CINERARIAS: F. & A. Smith. The blooms sent represent a very fine strain of varieties, being large, varied, and richly coloured.

FLOWER BORDERS: C. J. P. In disposing of the materials you name, put Mrs. Pollock and Bijou as the back row on the two sides, then Tom Thumb on each side, then Asters on each side, then *Calceolarias*, then yellow and blue Violets, in alternate patches, on one side; and *Lobelia* on the other.

GENTIANA: *Ignoramus*. Try fresh soil and replanting; and then let it alone.

HENS: *Amateur*. We should think a courteous remonstrance with your neighbour would have the desired effect. We do not know what the law on the subject is.

INSECTS: J. H. The minute white specks on the *Croton* leaves, which cause the young leaves to fall off in quantities, are minute *Acari* closely allied to the red-spider, but they appear to differ from the known species of *Tetranychus* in their slender hind pair of legs. I. O. W.—J. G. M. The beetle is one of the weevils, *Otiorynchus sulcatus*. We fear you can do little in the way of destroying them. They feed at night, and fall down as if dead on the plants being shaken, so that if you can manage to give the stems a smart blow while bent over a sheet you may secure some of them. Or you might try to trap them with *Potato parings*, which, however, must be examined at night.

MAUND'S "BOTANIC GARDEN." *Mr. Niven* desires us to state, as a correction to his printed letter at p. 506, that he finds the price of the work is about eight guineas instead of twelve.

NAMES OF PLANTS: J. C. Kennedy. *Asplenium premorsum*. The Orchids *Dendrobium pulchellum* and *Oncidium altissimum* appear to be correct. Why will correspondents persist in packing specimens sent for examination in cotton-wool, which it is almost impossible to get rid of?—*Constant Reader*. 1. *Andromeda floribunda*; 2, not recognisable; 3. *Escallonia pterocladon*. The Violet appears to be *Marie Louise*. The Neapolitan in a frame would probably be earlier.—C. W. F. We do not recognise the seeds.

RHODODENDRON: Messrs. Ireland & Thomson. The *Rhododendron* is a very handsome one, much like R. *Sesterianum*, which was, if our memory serves us, obtained from the same or a similar cross, *Edgeworthii* × *fragrantissima*. The flowers are very large, six in a truss, pure white, with a faint bar of crimson on ribs of the outer side of the corolla. We have not *Sesterianum* at hand for comparison.

SELAGINELLA: W. C. Leach. Your supposed seedling from S. *Griffithii* is nothing more than S. *Poulterii*, which was raised some years since by Mr. Poulter, after whom it is named.

VERBENAS: J. Creek. They are infested with thrips and green-fly. The remedy is to dip them in some tobacco-water, or other insecticide, or to fumigate repeatedly till the insects are got rid of.

VINES: *Data*. As your Vines are forty or fifty years old, and have had very rough treatment, besides in the case of the early house having been forced for many years, it is pretty evident that they are becoming exhausted or worn out, and the appearance of the berries and leaves bear out this view. Of one thing you may be certain, the warts on the backs of the leaves were not produced or caused in any way by the *Phylloxera*, this form of functional derangement being brought about almost invariably by the maintenance of a too warm and too moist atmosphere during the early stages of the Vine's growth; and that you have not given them air enough is clear from the leaves and berries of "the more healthy Vine" being scaled.

CATALOGUES RECEIVED:—William Caudwell (The Ivies, Wantage), Catalogue of Old-fashioned Florists' Flowers, Polyanthus, and Select Novelties.—George

Gummow (114, Loughborough Road, Brixton, S.W.), Descriptive List of Spring Bedding Plants.—Messrs. Wood & Ingram (The Nurseries, Huntingdon), Spring Catalogue of Plants.—Messrs. Sked, Paddock & Co. (Cleveland, Ohio, U.S.A.), Illustrated Catalogue of Plants.

COMMUNICATIONS RECEIVED.—S. R.—G. M. S.—T. D. M.—J. D.—A. F.—J. R. J.—W. D. P.—J. S.—W. J.—J. M. (thanks).—W. C. S.—W. P. R.—J. T. B.—W. D. F. (next week).—C. L.—F. W. B.—E. O.—S. J.—M. C. C.—J. B. A.—A. Legg.

Markets.

COVENT GARDEN, April 24.

A slight improvement in the trade has made a better clearance of hothouse goods; Strawberries especially commanding improved prices. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 6 0-15 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per lb. | 6 0-12 0 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 1 6-.. |
| Jerusalem, bush. | 6 0-.. | Lettuces, Cabbage, | 1 6-.. |
| Asparagus, Fr. sprue, | | per doz. | 1 6-.. |
| per bundle | 1 6-.. | Mint, green, bunch. | 1 6-.. |
| Eng., per bundle | 7 0-.. | Onions, per bushel. | 6 0-7 0 |
| Fr. giant, p. bun. | 30 0-.. | — young, per bun. | 0 4-0 6 |
| Toulouse, bun. | 4 0-5 0 | Parsley, per lb. | 1 6-2 0 |
| Beans, French, p. 100 | 2 0-.. | Peas, per quart | 1 6-2 0 |
| — broad, per 100 | 1 0-.. | Potatoes, new, per lb. | 0 6-0 9 |
| Beet, per doz. | 1 0-2 0 | Radishes, Fr., bunch | 0 6-.. |
| Cabbages, per doz. | 1 0-2 0 | — New Jersey, doz. | 2 0-.. |
| Carrots, per bunch | 0 4-0 6 | Rhubarb, doz. | 0 6-8 0 |
| — New Fr., p. bun. | 2 6-.. | Shallots, per lb. | 0 6-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Seakale, per punnet | 0 6-.. |
| Celery, per bundle | 1 6-2 0 | Spinach, per bushel | 3 6-.. |
| Chilis, per 100 | 2 0-2 0 | Sweet Potatoes, per lb. | 0 6-.. |
| Cucumbers, each | 0 9-1 6 | Tomatos, per dozen | 2 6-3 0 |
| Endive, Batav. dozen | 1 6-.. | Turnips, p. 12 bunch | 3 0-6 0 |
| Garlic, per lb. | 0 6-.. | — New Fr., bunch | 1 0-1 6 |
| Potatoes:— Regents, 100s. to 13s.; | | Champions, 80s. to 9s.; | |
| Rocks, 70s. to 75s.; Flukes, | | 120s. to 140s. per ton. | |
| Large supplies, and trade heavy. | | | |

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Narcissus, paper- | |
| Arun Lilies, 12 blms. | 3 0-9 0 | white, 12 sprays | 1 0-2 0 |
| Azaleas, 12 sprays | 0 4-1 0 | Pelargoniums, 12 spr. | 1 0-2 0 |
| Bouvardias, per bun. | 1 0-4 0 | — zonal, 12 sprays | 0 6-1 6 |
| Camellias, per dozen | 1 0-6 0 | Primroses, single yel- | |
| Carnations, per dozen | 1 6-4 0 | low, 12 bunches | 0 9-1 6 |
| Cineraria, 12 bunches | 6 0-12 0 | — double white, 12 | |
| Cyclamen, 12 blooms | 3 0-1 0 | bunches | 2 0-4 0 |
| Daffodil, 12 bunches | 2 0-6 0 | Primula, double, per | |
| Deutzia, 12 bunches | 6 0-12 0 | bunch | 0 9-1 6 |
| Eucharis, per doz. | 6 0-18 0 | Roses (indoor), doz. | 1 6-9 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Stephanotis, 12 sprs. | 4 0-12 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Tropæolum, 12 bun. | 2 0-6 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberose, per dozen | 3 0-6 0 |
| Hyacinths, 12 bnch | 4 0-12 0 | Tulips, 12 blooms | 1 0-2 0 |
| Lily of Val., 12 sprays | 1 0-3 0 | Violets, 12 bunches | 0 6-2 0 |
| Mignonette, 12 bun. | 6 0-12 0 | | |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Ficus elastica, each | 2 6-15 0 |
| ardia æthiop., doz. | 9 0-18 0 | Foliage Plants, vari- | |
| Azaleas, per dozen | 18 0-60 0 | ous, each | 2 0-10 6 |
| Begonias, per doz. | 9 0-18 0 | Fuchsias, per dozen | 9 0-18 0 |
| Bouvardias, per doz. | 18 0-24 0 | Genista, per dozen | 6 0-24 0 |
| Cinerarias, per doz. | 6 0-18 0 | Hyacinths, per doz. | 6 0-18 0 |
| Cyclamens, per doz | 9 0-30 0 | Mignonette, per doz. | 6 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Dielytra, per dozen | 9 0-18 0 | Palms in variety, | |
| Dracena terminalis | 30 0-60 0 | each | 2 6-21 0 |
| — viridis, per doz. | 18 0-24 0 | Pelargoniums, per | |
| Erica hyemalis, doz. | 9 0-30 0 | dozen | 12 0-24 0 |
| — ventricosa, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 6 0-12 0 |
| per dozen | 24 0-42 0 | Roses, per dozen | 12 0-42 0 |
| — Wilmoreana per | | Spiræa, per dozen | 6 0-24 0 |
| dozen | 9 0-24 0 | — palmata, per doz | 18 0-45 0 |
| Euonymus, var., doz. | 6 0-18 0 | Tulips, per dozen | 8 0-12 0 |
| Ferns, in var., p. doz. | 4 0-18 0 | | |

SEEDS.

LONDON: April 23.—Owing to the recent unfavourable weather, and the extreme lateness of the season, the seed market continues to exhibit a quiet appearance—the amount of business passing in all descriptions being very small, no change can consequently be noted in values. One result of the unremunerative prices realised this spring for Clover and other seeds will be that, in all probability, so far as this country is concerned, considerably less seed will be saved in the future; the disappointment suffered by English growers over seeds being equal to that sustained by them in respect of corn: indeed, just now all things seem to conspire against the unfortunate British farmer. There is a fair inquiry for grass seeds, and full rates are obtained. Lucerne meets every year with increased attention; its value in making a certain crop as green food for horses and cattle, and further as being one of the best forage plants for withstanding droughts, is more and more recognised. Spring Tares move off on former terms. There is a better sale for Mustard and Rape seed. Canary seed is easier; but He np is rather dearer. There is no variation in Lentils, Blue Peas and Haricot Beans. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

SPECIAL NOTICE.

The admiration universally expressed by readers for the plate "THE PROPOSAL," recently issued through these columns, encourages the greatest confidence on the part of the Manager in introducing the companion picture,

"ACCEPTED,"

which is the same size (21 in. by 15 in.), and even more beautifully executed than the former picture. It is offered to the present readers on the same terms, and those who have not procured "The Proposal" can be supplied upon remitting the extra amount within one week. The pair are declared to be the handsomest and cheapest ever offered.

The British Fine Art Association is also issuing at the same price a very magnificent Steel Plate (size 14½ in. by 19½ in.), entitled

"ERIN'S HOME TREASURES,"

An idea of which may be formed from the following

DESCRIPTION:

"ERIN'S HOME TREASURES" represents the interior of an Irish Cottage, where, seated on a stool, is a comely young Irishwoman nursing her first child, and gazing at it with a face beaming with all the maternal affection which would naturally be lavished upon such A LOVELY CHILD as the artist has so ably depicted: the husband and father sits by the side, and nobody can look upon his happy and manly face without fully realising the correctness of the title, "ERIN'S HOME TREASURES," as shown by the pride and love of the glance he bestows upon the faces of HIS WIFE AND CHILD. The picture is throughout so carefully executed in all details, as portraying the Irish character, that the spectator almost expects to hear the lovable brogue with which the great Boucicault, in his delightful representations upon the stage, has enhanced the attractions of his IRISH characters and endeared them TO ALL NATIONS.

"Accepted."

Coupon 170.

British Fine Art Association.

M

89, Brixton Road, London, S.W.

INSTRUCTIONS.

Any person cutting out either Coupon and writing legibly his name and address on the lines marked can receive a copy of the Engraving upon forwarding the Coupon, together with Post-office Order, 2s. (payable at Charing Cross), or 24 stamps (to pay cost of package, carriage, copyright, &c.), to GEORGE WAY, MANAGER, BRITISH FINE ART ASSOCIATION, 89, Brixton Road, London, S.W., to whom all Post-office Orders must be made payable and Letters addressed. If "The Proposal" is required 2s. may be added, without a Coupon.

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The Pictures will be forwarded with as little delay as possible, and no Copy will be sent WITHOUT A COUPON (which will only be available if received within Seven Days of date of this paper) at less than ONE GUINEA, the lowest price at which it has hitherto been sold.

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CALCEOLARIA FUCHSIÆFOLIA.

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THOUSANDS of HERBACEOUS and ALPINE PLANTS, growing on ground which I am compelled to clear, the land being required by the Great Eastern Railway Company for the purpose of widening their line. I am still offering them at very reduced prices.

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COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF-MOULD, 1s. per bushel.

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Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c.

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supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

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GISHURST COMPOUND.—
Used by many of the leading Gardeners since 1859,
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in solutions of from 1 to 2 ounces to the gallon of soft water, and
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Wholesale by PRICE'S PATENT CANDLE COMPANY
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One teaspoonful of the Florvita to be added to each gallon
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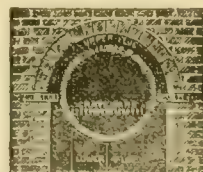
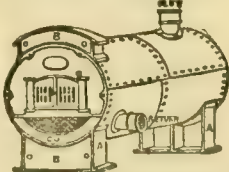
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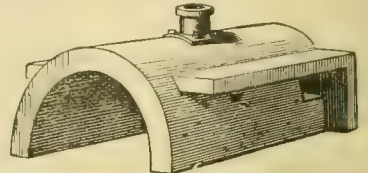
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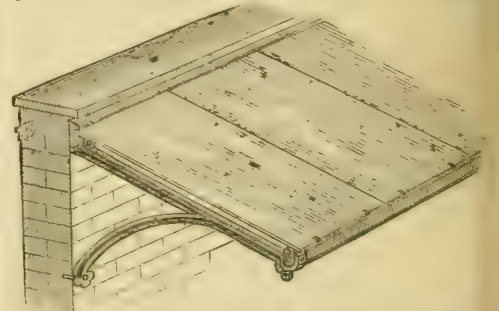
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Will Cut Long and Wet Grass (as well as Dry and Short) without Clogging.

They are especially adapted for Cutting Slopes, Steep Embankments, under Shrubs, and close up to Trees, &c.; and are also extremely light in draught, simple in construction, well made, and not likely to get out of order.

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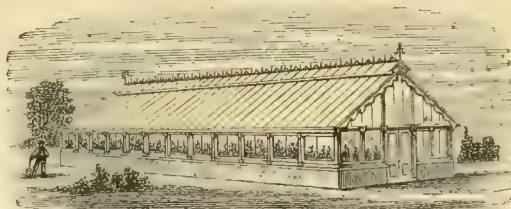
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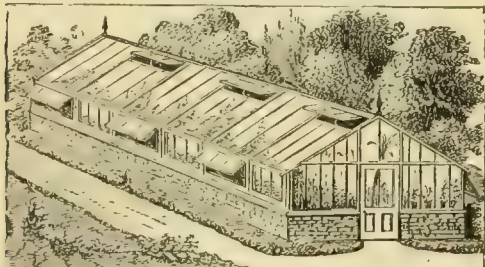
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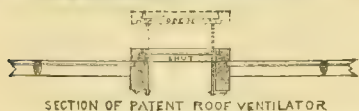
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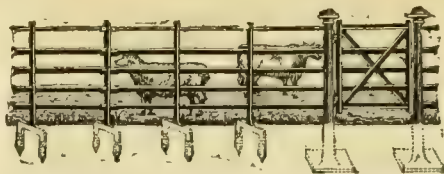
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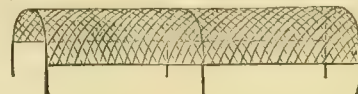
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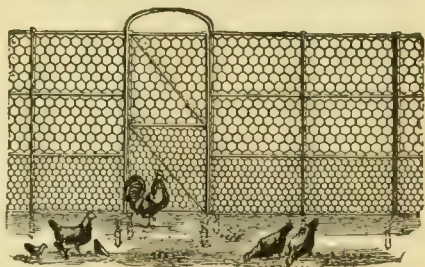
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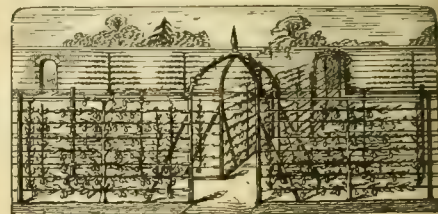
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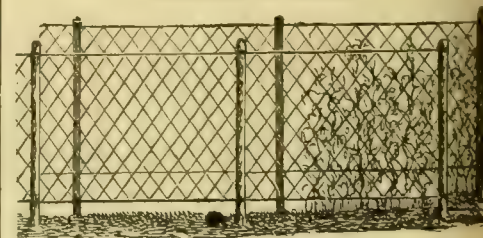
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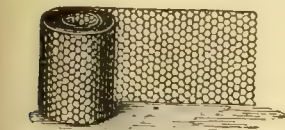
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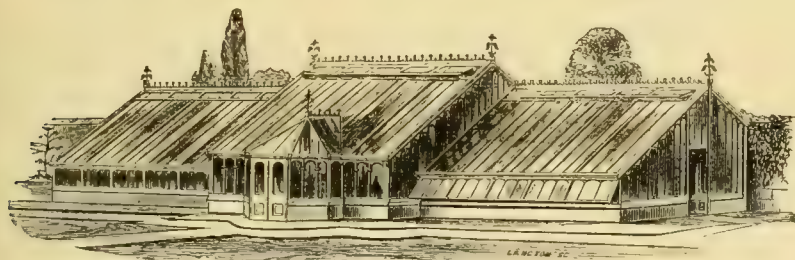
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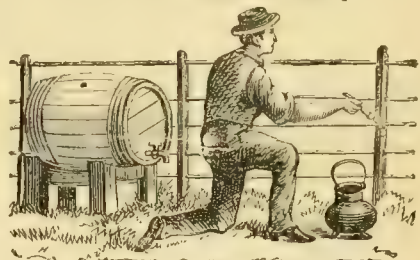


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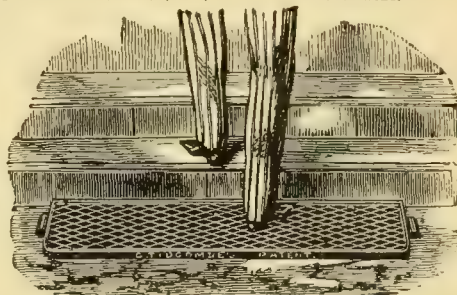
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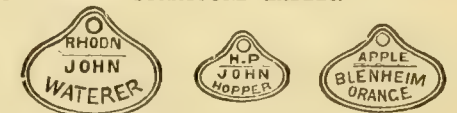
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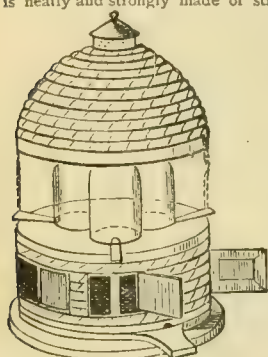


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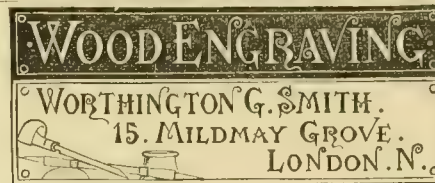
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By THOMAS MOORE, F.L.S., Curator of the Chelsea Botanic Gardens, Co-Editor of the *Gardeners' Chronicle*, &c.; assisted by EMINENT PRACTICAL GARDENERS.

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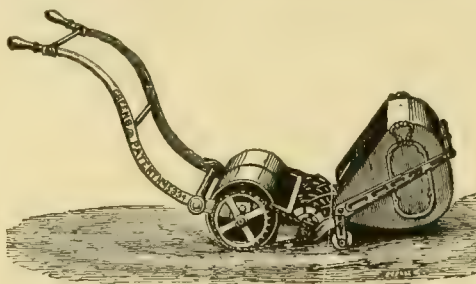
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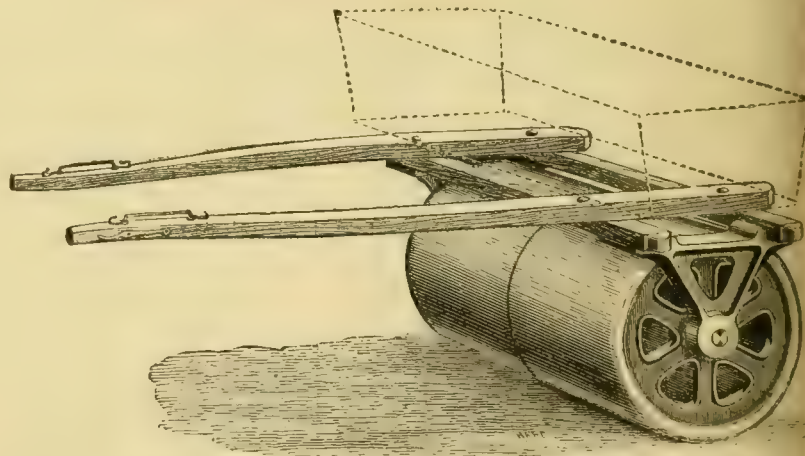
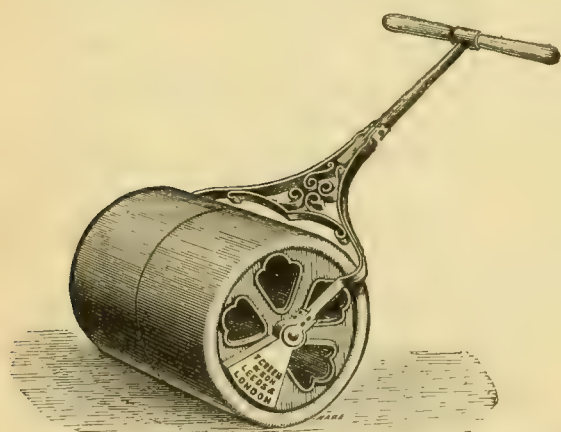
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| 30 | " 42 " ... | 15 | 10 0 | 30 | " 72 " ... | 22 | 0 0 |

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THE GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

Now Ready, in cloth, 16s.,

THE GARDENERS' CHRONICLE
VOLUME for JULY to DECEMBER, 1878.

W. RICHARDS, 41, Wellington Street, Strand, W.C.

THE NEWPORT (Mon.) and COUNTY HORTICULTURAL SOCIETY will hold their Fifth Annual Exhibition, on WEDNESDAY, July 16. A Prize of TWENTY-FOUR POUNDS for 8 STOVE and GREENHOUSE FLOWERING PLANTS (Open). Schedules can be obtained of the

HONORARY SECRETARIES, Town Hall, Newport, Mon.

Horticultural Shows, Season 1879.

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MR. J. C. STEVENS will SELL the above, by order of Mr. F. Sinder, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 7, at half-past 12 o'clock precisely.

On view morning of Sale, and Catalogues had.

Importation of Orchids from Mexico.
MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 8, at half-past 12 o'clock precisely, MEXICAN ORCHIDS, just arrived in fine condition, comprising extraordinary masses of *Lælia autumnalis*, *L. albida*, *Epidendrum vitellinum* majus, *Odontoglossum Rossi* majus, *Cattleya citrina*, *Odontoglossum maculatum*, &c.

On view morning of Sale, and Catalogues had.

Brazilian Orchids.
MR. J. C. STEVENS has received instructions from Mr. R. Bullen, of Lewisham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 8, at half-past 12 o'clock precisely, IMPORTED ORCHIDS, just arrived by R.M.S. "Tagus," from Brazil, all in the best possible condition, including fine plants of *Spathoglottis granifolia*, *Cattleya amethystina*, *Lælia cinnabarina*, *O. ciliatum*, *S. croceus* (true), *Lycaste Harrisoni*, *Scuticaria Hadwenia*, *Burlingtonia decora* picta, a very rare and beautiful species; *Oncidium curvum* (true), *O. Forbesii* (true), very scarce; *Promenaea citrina*, *Oncidium Marshallianum*, *Cattleya Leopoldi*, *C. intermedia*, *C. marginata*, *Miltonia Clowesi*, *Lælia purpurata*, *L. Dayana*, &c.

On view morning of Sale, and Catalogues had.

Importation of Orchids from New Grenada.
MR. J. C. STEVENS has received instructions from Mr. B. S. Williams, of Upper Holloway, N., to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, May 9, at half-past 12 o'clock precisely, a consignment of ORCHIDS, just received from New Grenada, containing a splendid lot of plants of the beautiful *Cattleya gigas*, amongst which will be found some splendid masses. Also a fine lot of *Odontoglossum vexillatum*; collector says that he saw several of these plants in flower, all of which were the deep coloured variety. Also *Oncidium Kramerii*, and a grand lot of *Oncidium Weltoni*, in the finest possible condition; also a lot of fine yellow *Oncidium*, and several plants of a *Maxillaria* with white flowers margined with red; several plants of a *Psephodes*, with white sepals and petals tipped with violet.

On view morning of Sale, and Catalogues had.

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PRELIMINARY NOTICE of an IMPORTANT SALE of PLANTS.

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MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises as above, on WEDNESDAY, May 14, at 12 for 1 o'clock precisely, 20,000 BEDDING PLANTS, 8,000 GERANIUMS of sorts, PYRETHRUMS, 2500 ECHIVERIA GLAUCA, 5,000 ALTERNANTHERAS, 2,000 FUCHSIAS, LOBELIAS, CALCEOLARIAS, named CHRYSANTHEMUMS, DRACENAS, BLECHNUMS, CLERODENDRONS, FERNS, ORCHIDS, Specimen CROTONS, and numerous other STOVE, GREENHOUSE and BEDDING PLANTS.

View any day prior to Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

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Three minutes' walk from Clapton Station, Great Eastern Railway.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, without reserve, by order of R. Simpson, Esq., on the Premises, Mount Pleasant Lodge, Mount Pleasant Lane, Clapton, E., on THURSDAY, May 15, at 11 for 12 o'clock, the whole of the well-grown STOVE, GREENHOUSE, and BEDDING PLANTS, viz., Crotons, Adiantums, Caladiums, Camellias, pyramidal-trained Azaleas, 2 to 3 feet 6 inches; Dracenas, Lapageria rosea, Dwarf Roses; 10,000 Bedding Plants, consisting of 5,000 Geraniums in variety, Alternantheras, Fuchsias, Echeverias, Lobelias, Pelargoniums, Coleus, Iresines, and many other plants; eight capital Frames, Flower Stands, Iron Safe, Gas Lamps, Roller Lawn Mowers, Root Pulper, Chaff Cutter, and a quantity of other effects.

May be viewed the day prior to Sale. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, E.C.

Highly Important Plant Sale, at the Nurseries, Crossmy-Loof, near Glasgow, on TUESDAY and WEDNESDAY, May 6 and 7, 1879.

MR. DAVID MITCHELL, HORTICULTURAL AUCTIONEER and VALUATOR, has been instructed by Messrs. Mackenzie & Moncur, Hothouse Builders, Edinburgh and Glasgow, to dispose of by PUBLIC AUCTION, on the Premises, at the Nursery, Crossmy-Loof, near Glasgow, on TUESDAY and WEDNESDAY, May 6 and 7, at 11 o'clock each day prompt, the whole of the Bankrupt Stock of Mark Walker, consisting of magnificent specimen CAMELLIAS, AZALEAS, PALMS, EUPHARIAS, DRACENAS, ROSES, PELARGONIUMS, &c., with the whole of the PLANT-HOUSES, SHEDS, FITS, and FRAMES (if not previously disposed of by private bargain), VANS, &c.

Catalogues may be had from the Auctioneer, 6, Comely Bank, Edinburgh; Messrs. MACKENZIE and MONCUR, Hothouse Builders, Upper Grove Place, Edinburgh, and St. Andrew's Cross, Glasgow.

6, Comely Bank, Edinburgh, April 25.

The Gardens, Hall Place Mansion, Bexley, Kent.
MR. DANN has received instructions to SELL by AUCTION, on WEDNESDAY, May 7, at 12 for 1 o'clock, on the Premises as above, the following valuable STOVE and GREENHOUSE PLANTS:—9 splendid Free Ferns, 10 specimen Palms, Orchids, valuable Stove and Greenhouse Ferns, including very large Adiantum farleyense, 6 feet over; Davallia formosum, 6 feet over; Adiantum cuneatum, Gold and Silver Ferns, &c.; Dracenas, Crotons, Begonias, Anthuriums, Achimenes, Dipladenias, Caladiums, Coleus, Gardenias, Hibiscus, Oleanders, Eucharis, Camellias, Azaleas, Pelargoniums, 9 large Rhododendrons in tubs, 100 Fuchsias, Callas, and a quantity of Greenhouse Plants; 85 dozen Bedding Geraniums, 60 dozen Lobelias, and a large quantity of various bedding-out plants.

May be viewed the day previous and morning of Sale. Catalogues had of Mr. HICKFORD, New City Chambers, 121, Bishopsgate Street, City; of the Gardener on the Premises; and of the Auctioneer and Land Agent, Bexley, Kent.

Shepherd's Bush.
By Order of the Mortgagee.
The Leasehold Property, known as SIMS' NURSERY, situate at the corner of Willow Vale, on the high road to Acton, and close to the "Adelaide" Tavern. It comprises a handsome Glass Conservatory, 50 feet by 33 feet; Fern-house, Propagating-house, and two smaller Houses, the whole heated by an economical system of Hot-water Pipes; adjoining is a Dwelling house, containing Parlour, four Bedrooms, Kitchen, and Wash-house. Held by lease for a term of 58 years, at the low rent of £60 per annum. The stock-in-trade of Bedding Plants, Ferns, and Exotics to be purchased at a valuation in the usual way.

MESSRS. PRICE AND SON will SELL this valuable LEASEHOLD PROPERTY by AUCTION, at the Mart, Tokenhouse Yard, E.C., on TUESDAY, May 13, at 1 o'clock precisely.

May be viewed daily. Particulars and Conditions of Sale to be had of W. B. BROOK, Esq., Solicitor, 1, New Inn, Strand, W.C.; of E. M. BELOE, Esq., Solicitor, King's Lynn, Norfolk; at the Mart; and at the Auction and Estate Offices, 48, Chancery Lane, W.C.

Highly Important Sale of Stove and Greenhouse PLANTS, FERNS, &c., grown at Demeigh.—In consequence of the Messrs. Fraser having resolved not to exhibit or compete, they have been inducted.

MR. MASSON, AUCTIONEER, to SELL, in the Music Hall Buildings, during the SECOND WEEK in JUNE, their well-known Collection. Catalogues and further particulars, with cards to view, may be obtained from Messrs. FRASER; or the Auctioneer, 115, Union Street, Aberdeen.

FOR IMMEDIATE DISPOSAL, owing to a death in the family, a genuine and lucrative small NURSERY and FLORIST BUSINESS, &c. Long Lease. Incoming £300 to £400 Address ALPHA, *Gardeners' Chronicle* Office, W.C.

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Apply to Messrs. PHILIP D. TUCKETT and CO., 10A, Old Broad Street, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

Fifty Nurseries, Market Gardens, Florist and Seed BUSINESSES to be DISPOSED OF.

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JAS. GARAWAY and CO., Durham Down Nurseries, Bristol.

Verbenas—Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose, and other mixed sorts, good strong spring-cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders. Queen's Road Nursery, Markhouse Common, Walthamstow, Essex; late of Islington Nursery, Park Street, Islington, N.

SPECIMEN PALMS, DRACENAS, &c., to be sold cheap:—

1 Kentia Balmoreana, 1 Dracena lineata, 2 Ptychosperma Cunninghamii, 1 Phoenix tenuis, 1 Dracena Veitchii—fine variety, 1 Livistona sinensis, 1 Yucca aloifolia variegata, 1 Phoenix sylvestris, 1 Sabal umbraculifera, 1 Kentia sapida, 1 Phoenix reclinata, 1 Livistona australis. Handsome specimens, 4 to 5 feet. Apply to W. JACKSON and CO., Nurseries, Bedale, Yorks.

TEA and NOISETTE ROSES in pots, for planting out during spring and summer, or for conservatory decoration all the year round; also new FRENCH and ENGLISH ROSES in pots. The above are a special feature in our Nurseries, and our stock is one of the largest, finest and healthiest in the country. Write for a Pot Rose LIST to EWING and CO., The Royal Norfolk Nurseries, Eaton, near Norwich.

Legion of Honour.
PARIS EXHIBITION, 1878.
We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the peculiar merits of our exhibits at the above exhibition. See *Times* Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON and SONS, The Queen's Seedsmen, Reading, London and Paris.

Bedding Violas and Pansies.
H. CANNELL has a great quantity of the following, and can offer them cheap either in hundreds or thousands:—

| | |
|----------------|-------------------|
| Blue King | Magnific |
| Violet King | Queen Victoria |
| Mulberry | Cliveden Purple |
| Admiral | Duke of Edinburgh |
| Dick-or's King | Celestial |
| Cremona | Chieftain |
| Golden Gem | Bluebell |

The Home for Flowers, Swanley, Kent.

Hardy Florists' Flowers.
THOMAS S. WARE'S SPRING CATALOGUE of the above for the present year is now ready, containing a good list of Novelties, and including selections of choicest varieties of Carnations and Picotees, Chrysanthemums, Delphiniums, Pansies, Phloxes, Pyrethrums, and other families. Free on application.

Hale Farm Nurseries, Tottenham, London.

Established upwards of a Century.
DICKSONS and CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, will be glad to send, post free, on application, their new Descriptive CATALOGUES of FLORISTS' FLOWERS, including early and late Phloxes, Bedding Violas and Pansies, Show and Fancy Pansies, New Primulas, Winter-flowering Zonal Geraniums, and all kinds of Bedding-out Plants.

PYRETHRUMS, Double, strong flowering clumps from ground, in twenty-five varieties, 6s. per dozen, 40s. per 100; smaller roots, free by post, 4s. 6d. per dozen. Now is the time to plant these most beautiful hardy perennials to flower this season. Trade price on application. FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

RICHARD WALKER has no more CABBAGE PLANTS to offer at present. He can supply the following ROOTS:—LEMON THYME and PENNYROYAL, 8s. per 100; SAGE and BLACK THYME, 5s. per 100; SWEET WILLIAMS, best in England, 1s. 6d. per dozen, or 10s. per 100; Seedlings of all best named PICOTEES, 1s. 6d. per dozen, or 15s. per 100; splendid double white ROCKETTS, 2s. per dozen; HOLLYHOCKS, best named sorts, 2s. per dozen; DELPHINIUMS, 1s. per dozen; and all sorts of HERB ROOTS. Cash with orders. Market Gardens, Biggleswade, Beds.

Dahlias, Verbenas, and New Roses.
KEYNES and CO. are now prepared to execute orders for DAHLIAS and VERBENAS, both new and old varieties, of which they have a large supply of fine Plants.

Descriptive priced CATALOGUES free on application. Special quotations to the Trade for large quantities.

The NEW ROSES for 1879 can still be supplied, with good long shoots for working, and the best sorts selected.

Nurseries, Salisbury, May 1, 1879.

CARPET BEDDING.
MENTHA PULEGIUM GIBALTARICUM, 6s. per 100. **SEDUM brevifolium majus**, 10s. per 100. 1 acre elegans, 10s. per 100. **ARTEMISIA STELLERIANA**, 8s. per 100. **LOBELIA compacta**, 6s. per 100. **MESEMBRYANTHEMUM variegatum**, 12s. per 100. **MONEYWORT**, golden-leaved, for spring bedding, 8s. per 100. **GENTIANA ACAULIS**, 8s. per 100.

Send cash, with order, to R. T. PENNETT, Nurseryman, Park Lane, Tottenham.

CENTAUREA CANDIDISSIMA or **RAGUSINA**.—Fine Plants, thoroughly established in single pots, 16s. per 100, 150s. per 1000. Package free.

HERBACEOUS CALCEOLARIAS.—Fine Plants of a splendid strain, established in 5-inch pots, 8s. per dozen. Basket and package, 1s. 6d. per dozen extra.

PELARGONIUMS.—Splendid free-blooming (large collection) varieties, in 5-inch pots, 8s., 12s., and 18s. per dozen. Basket and package, 1s. 6d. per dozen extra.

VERBENAS.—In variety, from stores, 4s. per 100; Fine Plants, established in single pots, 14s. per 100. Package free.

PLANT CATALOGUE free on application.

WOOD and INGRAM, The Nurseries, Huntingdon.

To the Trade.
G. T. ALBERTS and CO. (Successors to the late J. W. Ottolander & Son), Boskoop, Holland, beg to draw attention to their extensive and superior stock of VARIEGATED HOLLIES, the best and most distinct varieties, regular pyramids, transplanted, 2 to 6 feet; WEEPING HOLLIES, Perry's silver and golden margined, 4 to 5½ feet stems. Carriage of all packages is paid to Rotterdam. Particulars and prices of the above on application.

SEEDLINGS, &c.—

HOLLIES, Green, 1-yr., fine, 5s. per 1000.

twice transplanted, 6 to 12 inches, 80s. per 1000.

MAHONIA AQUIFOLIA, 1-yr., 1s. 6d. per 1000.

transplanted, 6 to 12 inches, 8s. per 1000.

LAURELS, Common, 1-yr. rooted cuttings, fine, 12s. per 1000.

Apply to THOMAS PERKINS and SONS, 34, Drapery, Northampton.

CATALOGUES.—His Excellency Pierre Wolkenstein will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

ALTERNANTHERAS, of the following varieties, from stores:—*Amœna*, spatulata, magnifica, paronychioides, amabilis, latifolia, and versicolor; also **LOBELIA BRIGHTON**, and **MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM**, 8s. per 100, 70s. per 1000. Also **MENTHA PULEGIUM GIBALTARICUM**, 8s. per 100; and **NERTERA DEPRESSA**, 20s. per 100.

Terms cash.

WM. BALCHIN, Hassock's Gate Nursery, Keymer, Sussex.

FORTY THOUSAND Dwarf Tea-scented, and other **ROSES**, in pots, at 15s. to 18s. per dozen, or 1s. 6d. per 100.

Extra fine Tea-scented **ROSES**, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen.

Address
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

GERANIUMS, &c., for Bedding.—Strong autumn-struck plants from store pots, of *Vesuvius*, Dr. Lindley, Indian Yellow, Christine, Stella, Tom Thumb and other varieties, 10s. per 100; Madame Vaucher, Crystal Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of Calderdale, &c., 12s. per 100.

HELIOTROPE, Light and Dark, 6s. per 100.

CALCEOLARIA, Golden Gem, 6s. per 100, package free for cash.

CENTAUREA CANDIDISSIMA, autumn-struck, good plants in large 60s, 30s. per 100.

S. BIDE, Alma Nursery, Farnham, Surrey.

ILLUSTRATED CATALOGUE of FERNS. The above, comprising 80 pages of illustrations, synonyms, "Notes on Cultivation," &c., is the most complete Fern List in the Trade, and will be forwarded on application. Postage 2d.

Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.

W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

To the Trade.

MANGEL WURZEL and TURNIP SEEDS. **H. AND F. SHARPE** will be pleased to give special quotations for their fine selected stocks of home-grown **MANGEL WURZEL**, and **SWEDE** and other **TURNIP SEEDS** of 1878 growth, and raised from transplanted Bulbs.

Seed Growing Establishment, Wisbech.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.
THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.

CATALOGUES on application.

Roses, Fruit Trees, &c.

WILLIAM FLETCHER'S CATALOGUE for the present season is now ready, and may be had on application. The stock is very large and most healthy.

The Ottershaw Nursery, Chertsey.

Special Cheap Offer.

TO SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, Jeyes' or Payne's Conqueror. About 20 quarters, Hand-picked, 15s. per bushel, 112s. per quarter. Samples on application to
W. BAILL AND CO., Bedford Road Nursery, Northampton.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.

SANDER AND CO., Seed Growers, St. Albans.

PINUS INSIGNIS.—Very fine, well-rooted, and quite safe plants of this beautiful Pine can be supplied in large quantity, of sizes as under. Now is the best time to plant.

| | s. | d. |
|-----------------------|------|--------------------|
| 12 to 18 inches | 40 | 0 per 100. |
| 18 to 21 inches | 50 | 0 |
| 21 to 26 inches | 75 | 0 |
| 30 to 48 inches | 18s. | to 24 0 per dozen. |

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.

No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.

No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.

A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

Vines—Vines—Vines.



B. S. WILLIAMS begs to announce that his stock of **VINES** is this year unusually fine, and comprises all the leading kinds, including "Alnwick Seedling." For descriptions and prices, see **B. S. W.'s BULB CATALOGUE** for this year.

Victoria and Paradise Nurseries, Upper Holloway, London, N.

The New Plant of the Year.

CALCEOLARIA FUCHSIÆFOLIA. **RODGER, McCLELLAND AND CO.** are now sending out this wonderful plant. For full description see *Gardener* of March 29, which also contains a coloured plate. Price 7s. 6d. each.

We can also offer the following species, all autumn and winter flowering, except the last:—

| | s. | d. |
|----------------------------------|---------|---------|
| CALCEOLARIA BICOLOR | 1 | 6 |
| " HYSSOPIFOLIA | 1 | 6 |
| " LOBATA | 1 | 6 |
| " PAVONII | 2 | 6 |
| " VIOLACEA | 1s. 6d. | and 2 6 |

64, Hill Street, Newry.

Special.

THOUSANDS of HERBACEOUS and ALPINE PLANTS, growing on ground which I am compelled to clear, the land being required by the Great Eastern Railway Company for the purpose of widening their line. I am still offering them at very reduced prices.

Priced LISTS will be forwarded with New Illustrated CATALOGUE, on application.

THOMAS S. WARE, Hale Farm Nurseries, Tottenham, London.

CHEAP ORCHIDS.

Special List of Cheap and Desirable Kinds.



B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of **ORCHIDS**, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

| Each.—s. d. | Each.—s. d. |
|---------------------------------|-----------------------------------|
| AERIDES roseum .. 10 6 | LIMATODES rosea .. 3 6 |
| " <i>viens</i> .. 10 6 | LYCASTE Skinneri .. 5 0 |
| " <i>odoratum majus</i> .. 7 6 | " <i>Harrisonæ</i> .. 5 0 |
| " <i>Lobbii</i> .. 15 0 | MASDEVALLIA Lin- |
| " <i>Fieldingii</i> .. 15 0 | deni .. 15 0 |
| ARPOPHYLLUM gi- | " <i>polysticta</i> .. 5 0 |
| gantemum .. 10 6 | " <i>Harryana</i> .. 7 6 |
| BRASSIA verrucosa | " <i>ignea</i> .. 7 6 |
| major .. 7 6 | MAXILLARIA venusta .. 10 6 |
| CATTLEYA Mendelii | " <i>tenuifolia</i> .. 3 6 |
| (imported) .. 10 6 | " <i>lutea alba</i> .. 7 6 |
| " <i>Aclandiae</i> .. 10 6 | MESOPHIDIUM |
| " <i>citrina</i> .. 3 6 | <i>sanguineum</i> .. 7 6 |
| " <i>Trianae</i> .. 10 6 | ODONTOGLOSSUM |
| " <i>Warszewiczii deli-</i> | <i>Inslayi leopar-</i> |
| <i>cata</i> .. 15 0 | <i>dium</i> .. 5 0 |
| " <i>Warnerii</i> .. 15 0 | " <i>Hallii</i> .. 7 6 |
| " <i>lobata</i> .. 10 6 | " <i>hystrix</i> .. 10 6 |
| " <i>crispa</i> .. 5 0 | " <i>cirosum</i> .. 3 6 |
| " <i>maxima</i> .. 15 0 | " <i>pulchellum majus</i> .. 3 6 |
| " <i>Regnelli</i> .. 15 0 | " <i>Phalenopsis (im-</i> |
| " <i>Mossie</i> .. 5 0 | <i>ported)</i> .. 7 6 |
| " <i>speciosissima</i> .. 10 6 | " <i>Rossii majus (im-</i> |
| " <i>marginata</i> .. 10 6 | <i>ported)</i> .. 7 6 |
| CALANTHE Veitchii | " <i>Alexandree (nice</i> |
| <i>vestita luteo oc-</i> | <i>plants, import-</i> |
| <i>culata</i> .. 2 6 | <i>ed)</i> , from .. 7 6 |
| " <i>rubro oculata</i> .. 2 6 | " <i>Pescatorei (im-</i> |
| CELOGYNE cristata .. 5 0 | <i>ported)</i> , from .. 5 0 |
| " <i>corrugata</i> .. 7 6 | " <i>gloriosum</i> .. 10 6 |
| CYMBIDIUM eburne- | " <i>grande</i> .. 5 0 |
| um .. 15 0 | " <i>Lindleyana</i> .. 3 6 |
| " <i>Mastersii</i> .. 15 0 | " <i>membranaceum</i> .. 5 0 |
| CYPRIPEDIUM bar- | " <i>Cervantesii</i> .. 5 0 |
| batum superbum .. 3 6 | " <i>rubescens</i> .. 5 0 |
| " <i>insigne</i> .. 2 6 | ONCIDIUM aurosum .. 5 0 |
| " <i>spectabile</i> .. 3 6 | " <i>Baueri</i> .. 5 0 |
| " <i>Boxallii</i> .. 5 0 | " <i>sphacelatum</i> .. 5 0 |
| " <i>Pearcei</i> .. 3 6 | " <i>incurvum</i> .. 7 6 |
| " <i>Harrisianum</i> .. 7 6 | " <i>verrucosum</i> .. 5 0 |
| " <i>niveum</i> .. 5 0 | " <i>concolor</i> .. 10 6 |
| " <i>Crossii</i> .. 7 6 | " <i>flexuosum</i> .. 3 6 |
| DENDROBIUM for- | " <i>Papilio</i> .. 7 6 |
| mosum giganteum .. 5 0 | " <i>Krameri</i> .. 5 0 |
| " <i>chrysotus</i> .. 10 6 | " <i>bicallosum</i> .. 7 6 |
| " <i>crataceum</i> .. 3 6 | " <i>cucullatum</i> .. 3 6 |
| " <i>Pierardii</i> .. 3 6 | " <i>pulvinatum</i> .. 5 0 |
| " <i>pulchellum purpu-</i> | " <i>Warnerii</i> .. 15 0 |
| <i>reum</i> .. 3 6 | ORNITHIDIUM so- |
| " <i>Findleyanum</i> .. 10 6 | <i>phronites</i> .. 10 6 |
| " <i>bigibbum</i> .. 7 6 | PHAJUS grandifolius .. 3 6 |
| " <i>nobile</i> .. 3 6 | " <i>albus</i> .. 7 6 |
| " <i>chrysanthum</i> .. 3 6 | PLEIONE lagenaria .. 3 6 |
| " <i>Gibsoni</i> .. 7 6 | " <i>Wallichiana</i> .. 3 6 |
| " <i>densiflorum</i> .. 10 6 | SACCOLABIUM am- |
| " <i>Bensoniæ</i> .. 5 0 | <i>pullaceum</i> .. 5 0 |
| " <i>rhodocentrum</i> .. 10 6 | " <i>Blumei majus</i> .. 7 6 |
| " <i>thyrsoilurum</i> .. 10 6 | " <i>curvifolium</i> .. 7 6 |
| DENDROCHILUM | " <i>giganteum (fine im-</i> |
| <i>filiforme</i> .. 21 0 | <i>ported plants)</i> , .. 15 0 |
| " <i>glumaceum</i> .. 21 0 | STANHOPEA tigrina .. 7 6 |
| EPIDENDRUM vitel- | VANDA tricolor insig- |
| linum majus (im- | <i>nis</i> .. 10 6 |
| <i>ported)</i> , from .. 2 6 | " <i>tricolor</i> .. 10 6 |
| GOODYERA discolor .. 3 6 | " <i>Roxburghii</i> .. 15 0 |
| LÆLIA cinnabarina .. 7 6 | ZYGOPETALUM |
| " <i>elegans</i> .. 21 0 | <i>Makayi</i> .. 5 0 |
| " <i>Dayana</i> .. 10 6 | |

Specimens of the above can be supplied, prices of which will be forwarded on application.

B. S. WILLIAMS.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.



WM. PAUL & SON,
(Successors to the late A. Paul & Son,
Established 1806.)

ROSE GROWERS,
TREE, PLANT, BULB, AND
SEED MERCHANTS.

WALTHAM CROSS,
HERTS.

Adjoining the "Waltham" Station,
Great Eastern Railway.

Inspection of Stock invited.

Priced Descriptive Catalogues free by post.

ORCHIDS.

THE NEW PLANT and BULB COMPANY

Beg respectfully to inform their Friends that their **SPECIAL LIST**, No. 43, is now published, contents as follows:—Colombian, Mexican, Japanese and East Indian Orchids; and the finest representatives from each country, embracing *Odontoglossums*, *Cattleyas*, *Oncidiums*, *Aerides*, *Dendrobis*, *Vandas*, *Ceologynes*, *Cypripediums*, *Pleiones*, *Saccolabiums*, *Lælias*, *Maxillarias*, &c. This List contains both the Prices for Established and Imported Plants, and the Prices range from 2s. 6d. upwards.

CATALOGUES free by post on application.

LION WALK, COLCHESTER.

ENCEPHALARTOS FRIDERICI-GUILIELMI.—Magnificent specimens of this remarkably distinct and handsome New Plant have just been received by Mr. William Bull, in the best possible condition, from South Africa. Sizes and prices on application, or an inspection is invited.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Illustrated Catalogue of Hardy Perennials.

THOMAS S. WARE has pleasure in announcing the issue of the above for the present year, containing New, Rare, and Select Hardy Perennials, with which is combined extensive Lists of Aquatics, Bog Plants, Hardy Terrestrial Orchids, Bamboos, and Ornamental Grasses. Gratis and post-free on application.

Hale Farm Nurseries, Tottenham, London.

NORTH AMERICAN PLANTS—

including Hardy Bulbs, Orchids, Ferns, and Hardy Herbaceous Perennials generally; also Climbers and Small Shrubs, from both sides of the continent, the Rocky and other Mountain ranges, &c. Our new Descriptive CATALOGUE, Wholesale and Retail, is now ready, and will be sent free by post. By far the largest collection in the country. Many rare species never before offered for sale, and some entirely new.

WOOLSON AND CO., Passaic, N.J., United States, America.

To the Trade.

SCARLET RUNNERS and CANADIAN WONDER BEANS.

H. and F. SHARPE can offer the above, of English growth, and very fine samples, at moderate prices.

Seed Growing Establishment, Wisbech.

Cabbage Plants—Cabbage Plants.

W. VIRGO, Womersley Nurseries, can still supply **RED PICKLING PLANTS** at 7s. 6d. per 1000 for cash, all good strong healthy plants.

Remarkable Cover Plant.

RODGER, McCLELLAND AND CO. beg to offer **ELYMUS GLAUCA** at the following low prices. It is nearly blue in colour, grows 3 to 4 feet high, and spreading in all directions, forming so close a tangled mass that no person can walk through it. 5s. to 10s. per 100.

64, Hill Street, Newry.

New Coleus.

THE TWO FOLLOWING are very distinct new types; both have been introduced from the Islands of the South Pacific, and are totally different to anything before in cultivation:—

COLEUS DISTINCTIO, deeply crenated leaves of a bronzy green colour shaded with violet-crimson, the centre of the leaf prettily feathered with creamy yellow, the midrib and veins rosy purple. 7s. 6d.

COLEUS SURPRISE, leaves bright green, centrally banded and feathered with primrose-yellow, the variegation becoming white as the leaves mature; extremely attractive. 7s. 6d.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

NEW CATALOGUE.—For everything that

is new, beautiful and rare, in the tree and shrub way, and for all those things that cannot be procured elsewhere, see above. Free on application.

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

To the Trade.

SEED POTATOS.

H. AND F. SHARPE have still in stock most of the best varieties of **SEED POTATOS**, and are prepared to take reduced prices to clear out. Special offers on application.

Seed Growing Establishment, Wisbech.

DUKE of EDINBURGH STRAWBERRY

(Moffat).—The best Main Crop and Market variety; commands a higher price than any other in Edinburgh Market. Strong, well-rooted runners, 5s. per 100, 1s. 3d. per dozen, post-free. Trade price on application.

TODD AND CO., Seedsmen, Maitland Street, Edinburgh.

Verbenas.

FIFTY THOUSAND now ready for Sale. All good, strong, spring-struck plants, perfectly free from all disease, of Purple King, Scarlet, White, and Pink, 6s. per 100. Twenty other good exhibition varieties, true to name, 8s. per 100. Package free for cash. Also strong healthy Cuttings of the above at half-price: free by post.

S. BIDE, Alma Nursery, Farnham, Surrey.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's **SEED LIST** for 1879.

Extra Strong **SEAKALE**, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

Now Ready.

TWENTY THOUSAND DAHLIAS, in 400 varieties.

Price and CATALOGUE on application to
KELWAY AND SON, The Royal Nurseries, Langport, Somerset.

Roses, Roses, Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.
WM. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, 1s. 5d. per 100. Price to the Trade on application.

THE CHAMPION POTATO.—

Fine samples, for Seed, of this and other leading kinds. Prices on application to
THE LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

Rhododendron Ponticum.

J. J. MARRIOTT has a fine stock of the above, and begs to offer 4-yr. seedlings, 2-yr. budded, at 24s. per 1000; 4 to 6 inches, transplanted, bushy, 7s. per 100, 60s. per 1000; 6 to 9 inches, 9s. per 100, 80s. per 1000. Also 2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000. The Trade supplied.

Highfield Nurseries, Matlock, Derbyshire.

NEW ENGLISH ROSES.—The following twelve new English-raised Roses for 25s., basket and packing free for cash with order:—May Quennell, Mabel Morrison, Robert Marnock, Dean of Windsor, Richard Laxton, John Bright, Mrs. Laxton, Penelope Mayo, Red Dragon, Marchioness of Exeter, Magna Charta, and Lady Mary Keith, all extra fine plants. List of Roses in pots (Tea-scented, new French varieties of 1879, &c.), gratis and post-free.

GEORGE COOLING, Nurseryman, Bath.

New Verbenas for 1879.



MR. WILLIAM BULL is now sending out the following six NEW VERBENAS, which are a Selection made from the handsome Varieties raised by J. F. Mou d. of Pewsey. These Verbenas have attracted considerable attention in the West of England, and a notice of them appeared in the *Gardener's Magazine* of October 10, 1878. They are remarkable for the size and fine form of their flower-pips, their huge trusses, freedom of growth, distinct colours, and profusion of bloom. They are good and desirable, both for bedding purposes and for exhibition.

CLEOPATRA, waxy cream-white, suffused with pink; a fine, round, well-formed flower. 3s. 6d.
CYPRUS, bright, scarlet-crimson, with white eye; very large, finely-shaped pip; immense truss. 3s. 6d.

EARL OF BEACONSFIELD, delicate flesh colour, suffused with magenta-rose; bright centre. 3s. 6d.

HOCARTH, deep velvety crimson, shaded with chocolate; small white eye, surrounded with magenta-purple. 3s. 6d.

LORD SALISBURY, lively plum-colour; a fine flower, of good form; very rich and distinct. 3s. 6d.

VANDYKE, fine deep velvety crimson, shaded with maroon; purplish magenta centre; immense pip and truss. 3s. 6d.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

New Catalogue for 1879.

WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire, will have great pleasure in sending their Descriptive LIST on application. Their stock of Florist Flowers, Bedding and Soft-wooded Plants generally, is surpassed by very few, if any, either in extent or quality, all the newest and best varieties being constantly added to the various classes, and the greatest care is taken to keep the varieties true to name. Another great advantage to purchasers is that none of the plants offered are taken from a warm propagating house and sent off immediately, but are all carefully hardened, and most of them potted off singly, and thereby fitted for transit by rail or post without the slightest injury. A great proportion of the undermentioned are autumn-struck plants, and can be had in pots if required, and all in variety of sorts and colours. All good for exhibition or home decoration.

Our selection. Per doz.—s. d. Our selection. Per doz.—s. d.
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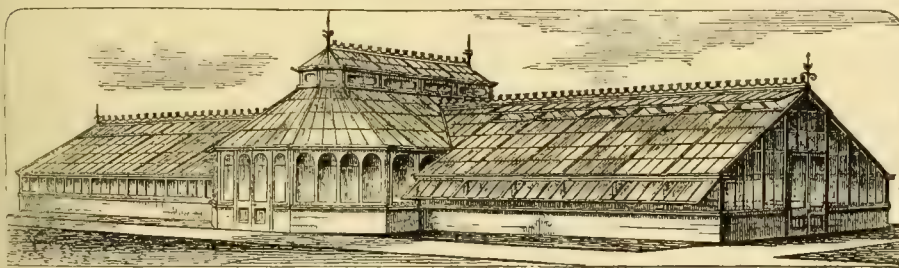
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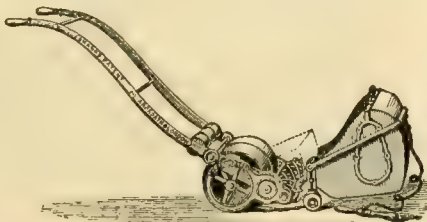
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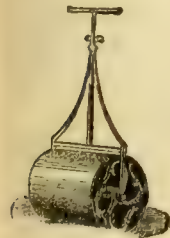


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PRIZE MEDAL
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Finest Mixed,
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SUPERIOR MUSHROOM SPAWN,
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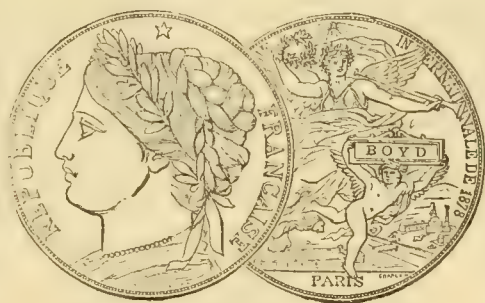
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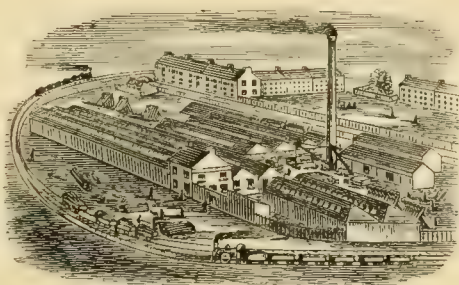
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SATURDAY, MAY 3, 1879.

THE AURICULA.

WHEN at the annual exhibitions of the National Auricula Society, held in London, it is found year after year that the number of exhibitors is limited to some half-dozen persons, one is tempted to inquire in what direction has the supposed renewed popularity of the Auricula been manifested. Certainly, if interest on the part of the public is to be accepted as evidence of popularity it would be difficult to find any flower that attracts greater notice or higher appreciation, but this is not enough. A considerable addition to the present limited list of cultivators would be an undoubted advance, and unless this results the Auricula must soon again fall back into the midst of other comparatively forgotten plants. The very few additions that recent years have brought to the ranks of Southern growers, as judged by the number of exhibitors, have in enthusiasm and liberality of cultivation made up considerably for sparseness of numbers, but it brings as little credit to the gardening community as it does to the ranks of the amateurs of leisure in horticulture that so few, so very few, have taken to the cultivation of what is admittedly the most beautiful of all our hardy spring flowers.

The Auricula proper may well be said to possess for gentlemen of moderate means who love flowers just those elements of attraction that are found by many others of diverse tastes in the collections of high-class pictures, books, sculpture, or even Orchids—they can never become abundant, or common, or, in fact, vulgar. There must at all times be an element of selectness about their cultivation, and the owner of a fine collection of the best kinds must at all times be an object of respect and almost of envy amongst his fellows. To those whose inclinations are combined with pecuniary means the cultivation of choice Auriculas possesses some attractions: they are ever (that is, if well-grown) increasing in value, and are therefore a safe and perchance a paying investment. A man's immediate heirs may therefore regard a mania for collecting and growing Auriculas with complacency. The Auricula appeals to higher sentiments, however, than those of the pocket; its associations with the past are greater than those, perhaps, of any other florist's flower, for it is doubtful whether, excepting perchance the gold-laced Polyanthus, there is found in all the children of floriculture any other genus in which the varieties grown a couple of generations since are yet not only existing but cherished and exhibited.

Students of vegetable evolution may find in a study of the Auricula something worthy their attention when its progenitive powers are under consideration. The slowness with which new kinds are produced, even though the seed be saved from the very best sorts, and the almost if not entire absence of actual improvement in the flower that has characterised new introductions, seems to point to the fact that in the best older kinds the climax of perfection has been reached, that a point has been gained beyond which it would seem impossible to pass. Further than this, every raiser has remarked the tendency on the part of the seedlings to show degenerate tendencies, some of the progeny being altogether

rubbish and utterly valueless. In this respect the gold-laced Polyanthus would seem to be in a similar position. Seedlings raised from the best kinds entirely fail to produce any number of even average merit; one or two at the most may be passable, whilst a large proportion are unworthy a place in any garden border. The best modern kinds, and these are "best" only in a very limited sense, are obtained by breeding upwards from robust kinds of moderate merit that indicate possible advance in the progeny. How far removed the best of new kinds are from Lancer, Cheshire Favourite, or Prince Regent it needs the most casual comparison only to make obvious; and it is by a study of these comparatively small but refined flowers that we are enabled to see how wide a field is there open to the enterprising breeder who may strive to excel them.

It offers a curious exemplification of the comparative rarity of Auriculas in gardens that numbers of first-class gardeners are almost ignorant of the properties of a show Auricula, and are unable to recognise the points that constitute quality, or even distinguish the diverse sections of show and alpine. It is almost marvellous that good though inferior kinds of Auriculas are not widely grown in cold frames for greenhouse, conservatory, or house decoration in the spring, where they would yield excessive pleasure to the ladies and gentlemen for whose delight gardeners cater, and present variety in ordinary house decorative material that is sadly wanting. Amateur horticulturists who may desire to embark in Auricula cultivation will do well to take the alpine section as a commencement, and when success has been found in these hardier and perhaps more easily grown kinds, the choicer section may be taken in hand, even if none be grown for exhibition.

There are other pleasures to be looked for than is found in the excitement of the exhibition competition. Throughout the whole year there is an interest and pleasure incident to the cultivation of Auriculas that simply reaches its climax at the blooming period, therefore there is a large fund of enjoyment provided for the grower, even though not a plant is placed on the show-table. There is, however, in the show competition a spur to higher cultivation that is not only not to be despised, but which is almost essential to the production of perfect specimens. The Auricula, whatever its section, needs all possible attention; it must be a thing of engrossing interest, and it will be invariably found that the most successful grower will be he whose loves are few, and whose energies are most closely concentrated.

The alpine Auricula has one undoubted merit that does not so closely attach to its show brethren. There is to the grower and to the raiser a wider field open for improvement, and that such improvements are being rapidly effected is emphatic testimony as to its future. Some of the more recently raised shaded flowers quite eclipse the dark selfs, of which we have seen enough. There is a charm and beauty about some of these newer kinds that place them on a high pedestal; still there is room for improvement; and the fact that such is the case, and that the alpine section seed freely and are productive of really improved kinds, will doubtless stimulate many.

The introduction of a new section of alpine Auriculas under the designation of "laced" flowers opens up a fresh field of interest in this favourite plant. When, as has been shown, interest in a section of plants must be largely regulated by the extent of improvement in quality that may be looked for, there is special reason for anticipating considerable popularity for this new "laced" section. Originating through careful selection from the showy Continental border kinds that have size, robustness, and coarseness of quality in excess, they have

had to be "fined down" to elegance and neatness, and the most recently raised flowers show that this is being rapidly accomplished.

It is a curious fact in relation to the Auricula—and applies more forcibly to it than perhaps to any other show flower—that size is an element always in antagonism with quality. Further it is an element by no means desirable. The laced flowers show the most elegant combinations in flowers below medium size, and wherever the same markings are allied to size there refinement is lacking. Persons ignorant of the florist's requirements in an Auricula invariably fall into ecstasies over a huge showy flower, and marvel that the smaller and to them less pretentious flower, should be preferred. There is just as much room for educating the human eye in relation to the properties of flowers as there is room to refine coarse flowers to meet the requirements of the exhibition table. Laced flowers give from seed a large proportion of good and true progeny; this is an undoubted advantage, and to those who may desire to embark in their cultivation for exhibition it is well to point out that when the blooms of the best kinds are slightly increased in size, the lacing is produced as clearly defined as is seen in a Cheshire Favourite Polyanthus—the ground rich and full of body, the centre a bright gold, the truss erect, compact, and well displayed, the stem short, and the plant of neat growth. Then will be found something that may well take a high place in the laced section. The Auricula field is wide and open—there is abundant room for numbers of new and enthusiastic cultivators. X.

New Garden Plants.

ODONTOGLOSSUM OLIGANTHUM, *Rehb. f.**

It was in the year 1855 that Dr. Lindley began to give me undescribed Orchids, "not asking me just to name them," as he said, in a diplomatic style, but "leaving it to me whether I might like to do so." Amidst those I found a curious (not at all beautiful) *Odontoglossum*, sent from Guatemala by the late Mr. Ure Skinner. I think there are two specimens kept in Dr. Lindley's collection, and two I obtained as my share, and that was all I had seen in my life, till after an interval of twenty-four years the plant came in a box sent by Messrs. Veitch in March last. I recognised my old acquaintance at first sight. The pallid shining pseudobulb is almost fusiform, transversely two-angled, with two blunt low ribs in the middle of each side, 0.05 m., 0.02 m. The leaves, as many as three, according to Mr. Harry Veitch's kind information, are linear ligulate acute, 0.2 m. long, 0.01 m. wide. The peduncle, almost a span high, is acipitous, and bears one to three flowers, standing a little distant (that number is reached in the best specimen kept in the Lindleyan collection). Bracts not equalling half the stalked ovary. The flower gives at a distance the impression of an enlarged flower of *Oncidium uniflorum*, but as soon one looks nearer to it one sees a considerable difference. It is equal to a flower of *Odontoglossum Krameri*. The sepals and petals are ligulate, blunt, reflexed, nearly sepia-brown, with some yellowish area inside on the ground, and over the base of petals there are a few sepia-brown dots in the yellowish area. The lip has two angles at base, a short isthmus, a broad reniform anterior lacinia of richest yellow, with a brown border to the basilar part, and some brown spots on the limb of anterior reniform part. A rising keel on base has four blunt lobules in front, forming a quadrigeminous body. There is a resupinate short retrorse angle at each side of the base, and a few brown small spots are to be found around. The trigonous column has a broad semi-ovate auricle, with two brown blotches on each side of stigmatic hollow. Botanically the plant is rather

* *Odontoglossum oliganthum*, *Rehb. f.*—Pseudobulbo fusiformi acipiti obtusangulo; carina obliqua gemina longitudinali utrinque; foliis in pseudobulbo geminis seu ternis linearibus acutis; pedunculo acipiti plurivaginato apice usque trifloro, intermediiis nucis refractis; bracteis spathaceis ovaria non æquantibus; sepalis tepalisque ligulato-oblongis obtusis; labellio basi utrinque minute angulato, isthmo mediocri; lacinia antica reniformi biloba; carina a basi medium versus, ibi abrupta quadrigemina papulosa; angulo supino retrorso utrinque; columna trigona alis semiovato-quadratis conspicuis.—*Odontoglossum oliganthum*, *Rehb. f.*, in Seemann's *Bonplandia*, iv., 1856, 321. Sepala et tepala brunnea basi ima flava et brunneo guttula, principie tepala. Labellum saturate flavum maculis brunneis intra marginem lacinie antice ac in ima basi ac in alis columnæ flave.—Guatemala. Skinner (vid. v. c. a dom. Veitch). *H. G. Rehb. f.*

interesting. An amateur Orchidist need not lose his peaceful sleep from sorrow at not possessing the plant. *H. G. Rehb. f.*

ART IN THE GARDEN.*

FEW persons interested in tasteful gardening, whether on a large scale or merely in a small suburban garden, are unaware of the complete transformation the public gardens of Paris have undergone within the last quarter of a century; for those who have not had an opportunity of visiting the French capital may have seen a great deal of the best of it in these columns, and especially in Mr. William Robinson's *Parks and Promenades of Paris*. When Napoleon III. ascended the throne he found the gardens of the large towns of France, particularly those of Paris, in a very wretched condition, and to him, in a great measure, is due the development of the style of artistic gardening now prevalent in France and which is now extending to other countries. The larger provincial towns soon imitated Paris in reforming their old parks and gardens, and in forming new ones of a more or less imposing character. Numbers of French private parks and gardens, too, were successively remodelled or laid out.

The results of this general revival of pleasure gardening are of two kinds, namely, the improvement of a certain style of landscape gardening, and the practical education of a new school of landscape gardeners. Now, however much opinions may differ respecting the merits of the modern French style of gardening as a whole, there is almost universal agreement that French landscape gardeners have made a great advance in the art, especially in effective planting. Naturally the carrying-out of such vast undertakings as the transformation of the Bois de Boulogne and the Buttes Chaumont, &c., into ornamental parks, afforded those engaged excellent opportunities for perfecting their practical knowledge and developing any artistic abilities they might possess. The creative genius must have some means of realising its ideas; and it is only by actively exercising the creative powers that the artist attains proficiency. In practice it is often found necessary or desirable to abandon some of the features of an original conception, inasmuch as their production mars the harmony and beauty of the whole.

Again, time alone can efface some of the blemishes of a new work, and teach the practitioner what to avoid and what to modify in future designs. Unlike the painter, the landscape gardener has seldom an opportunity of testing his work as he proceeds, hence his knowledge must include the prospective element. This remark applies with especial force in cases where the landscape gardener has to deal with a treeless area of unpleasing conformation. Where trees exist, and the natural conformation of the ground is of a pleasing or picturesque character, his task is comparatively an easy one. Already some of the defects, as well as the merits of the modern French style, have become apparent, and have been avoided in the later designs of some of the leading men of the profession. Conspicuous amongst this number is the author of the book bearing the above title.

Mr. André offers in this book the results of many years' practical experience, both at home and abroad, and it contains a large selection of models illustrating his matured judgment in matters relating to good taste in the details and general effect of a design. He does not pretend that he has been wholly uninfluenced by the general tendencies of the period, but he claims to have pursued an independent course, commending what is good, and condemning what is bad, wherever it exists, without fear or favour. The book is large—too large for convenience; though, after a careful examination of its contents, it is difficult to decide how its bulk could have been kept down. It is printed in a large bold type on excellent paper, with very ample margins, and the illustrations are very numerous. A smaller type, lighter paper, and fewer illustrations would have made a smaller book it is true, but at a sacrifice of beauty and utility. Fortunately, the author, after careful deliberation, de-

* *L'Art des Jardins. Traité Général de la Composition des Parcs et Jardins*. Par Edouard André. Ouvrage accompagné de onze planches en chromolithographie et de 520 figures dans le texte. (A General Treatise on the Formation of Parks and Gardens. By Edward André. Eleven chromolithographs and 520 woodcuts. Large 8vo. Pp. 888. Paris: Masson, 1879.)

cided not to make a folio or album of it, and limited the illustrations, as he states, to those required for the elucidation of the text without regard to the embellishment of the work. A useful review is that which affords the reader a fair notion of the contents of a book, without giving undue prominence to accidental errors or to what the writer regards as faults, which is as hurtful as unqualified praise is objectionable. Let us then examine the contents, or at least some portion of them.

The whole treatise is divided into two parts, in twelve chapters, chapters 1—7 being historical and theoretical, and the remainder treating of the practical operations of landscape gardening. The first chapter (pp. 3—19) is devoted to the "Gardens of Antiquity;" the second (pp. 20—68) to the "Gardens from the Fall of the Roman Empire to the Seventeenth Century;" the third (pp. 69—90) to "Landscape Gardens in General, and the Development of the Present Style in France;" the fourth (pp. 91—103) to "Aesthetics;" the fifth (pp. 104—119) to the "Sentiments of Nature;" the sixth (pp. 120—183) to the "General Principles in the Formation of Gardens;" the seventh (pp. 184—202) to the "Division and Classification of Gardens;" the eighth (pp. 203—300) to "Planning, Estimating, &c.;" the ninth and tenth (pp. 301—751) to the "Execution of the Works;" the eleventh (pp. 752—835) to "Descriptions of Examples of Parks and Gardens, classified according to their purpose;" and the twelfth (pp. 836—873) to "Useful and Ornamental Buildings and Accessories, and an Enumeration of the Principal Public and Private Gardens in the World."

From the brief space allotted to the consideration of antique gardens, and indeed to the historical portion generally, it will not be expected to contain much new matter, and this is the case. This part could very well be spared, and is probably regarded by the author more in the light of an introduction leading up to the present period, than as an original contribution to the literature of this branch of the subject. The figure of the plan of the Tuscan villa of Pliny the younger, at p. 16, is puzzling. It purports to be the one constructed by Castell, in 1728, from ancient documents, and reproduced by Meyer in his *Lehrbuch der schönen Gartenkunst*; but it is totally unlike the plan given in Castell's original work. In the sketch of the history of French gardens Mr. André betrays a certain amount of affection, for the grand works of Le Nôtre, and denies that they are deserving of the unqualified condemnation bestowed upon them by some writers, though he would not have them reproduced. Well! who would like to destroy those curious remnants of what may be called the topiary period in England, such as exist at Levens Hall and Elvaston Castle? * The chapter on landscape gardens leads up to a climax that may disturb the equanimity of some English readers, who have fondly believed that landscape gardening was purely English, and originally conceived and carried out in this country. No, the French anticipated us, even in landscape gardening, at least so Mr. André asserts. He quotes passages from Milton's description of the garden of Eden in his *Paradise Lost*; he refers to the writings of Bacon, Addison and Pope, and to the actual labours of Kent, concluding with an extract from Mason's poem, *The English Garden*, to the effect that Bacon was the prophet, Milton the herald, and Addison, Pope and Kent the champions of modern gardening and true taste. "But," he adds, "unfortunately all this enthusiasm was thrown away, for France, not England, gave birth to landscape gardens."

He then proceeds to explain that Charles Rivière Dufresny was the originator of this "peaceable revolution." He was born in Paris, in 1648, and his grandfather was a son of *la jardinière d'Auget*, called *la belle Jardinière*, who was a favourite of Henri IV. It would occupy too much space to reproduce the particulars here, but Dufresny anticipated Milton and Kent, "having actually carried his ideas into execution about the time when Milton's *Paradise Lost* was published, and while Kent was yet in his cradle." Traces of his work still exist at Poissy. However, landscape gardening made slow progress in France, whilst England, Mr. André admits, placed herself at the head of the movement. He says: "During this period, England, whatever the source whence she drew the taste for natural gardens, whether from the

ancient poets translated and commented by her authors, whether from the gardens created in France by Dufresny, placed herself at the head of the movement." This is certainly a very artless way of stating the case, Mr. André, but pray say why not the same suggestion with regard to Dufresny's obligations to the ancients? On getting away from this question, the author gives an interesting sketch of the progress of the art, both in France and England, which leads up to the development of the present style in France. So much of this is familiar to the readers of the *Gardeners' Chronicle* that it may be passed over, especially as it is intended to dwell more fully on some other points in a subsequent number.

(To be continued.)

DR. REICHENBACH.

HENRY LOUIS REICHENBACH, whose death we lately recorded, was born at Leipsic, January 8, 1793, and was the eldest son of the Corrector J. F. J. Reichenbach, of the Gymnasium (Grammar School) at Thomana. The lad was influenced by his father's friends, the Lipsian celebrities, John and Romanus Hedwig, by Capreux, and by his uncle Barthel, the latter of whom was his instructor in drawing from Nature. The Battle of Leipsic occurred while he was pursuing his medical studies (1813). The wounded, some of whom were lain in the churches, were attended to by him. He himself succumbed to an attack of hospital fever, and was the only one of a set of young medical men who recovered: all his companions died. He became Doctor of Philosophy in 1815, of Medicine in 1817, Professor Extraordinary of Natural History in 1819. In 1820 he was called to Dresden as Professor of Natural History, attached to the Academy for Military Surgery. He was appointed Director of the Botanic Garden, which he had to organise, and Inspector and ultimately Director of the Museum of Natural History. There he lived till last March, having been pensioned on full pay in 1874, but retained the Directorship of the Botanic Garden—a very exceptional case.

Reichenbach's family in former times were robbed of their possessions in Bohemia, owing to their adherence to the Hussite creed, and fled to Saxony, one of the members being the Stadtschreiber and ultimately Bürgermeister of Wittenberg, and who received into his house the fugitive nun, Catharina von Bora, when she was married to Dr. Martin Luther, the reformer.

The subject of our note was a very energetic and successful teacher—one of the first who delivered lectures on natural history, as early as 1832, to the general public. Some of these lectures he had to repeat, notwithstanding the unusual size of the hall wherein he spoke. He was one of the last Professors who taught systematic botany and zoology at the same time. His chief botanic works are the *Flora Germanica Excursoria*, *Icones Florae Germanicae*, and *Plantae criticae Europe*, works evincing great judgment and unwearied labour.

His great aim was to promote the study of natural history in schools, and he had several strong discussions on the subject with the schoolmasters addicted to the old exclusively classical régime. A cordial acknowledgment of his successful activity was evinced in the circumstance that twenty years ago his bust was placed with those of five others on the front of the building of the "Realschule" of Neustadt, in the Königstrasse, Dresden. Reichenbach was an eager promoter of the Horticultural Society called "Flora," whose founder he was. He had the great satisfaction to see, before his death, his old desire fulfilled, the Gartendirector Krause, his excellent successor in the directorship of the society, having obtained a garden for the Flora Society through the generous munificence of King Albert of Saxony.

The greater part of the collections kept in the Zwinger Museum—invaluable treasures of botany, zoology, and geology—were lost, with a part of his private property, in the fire of May 6, 1849, lighted by a savage mob. Reichenbach displayed wonderful energy in restoring the collections, being aided in so doing by the presents of his personal friends. The mineralogical gallery was saved by the presence of mind of his son, Henry Gustav, who was instrumental in stopping the fire by obtaining a supply of water with the aid of the military forces, after having broken a hole through a wall.

It was very much to be regretted that he was involved in the presidency of the society for the

publication of valuable memoirs, called the Leopoldine Academy; the last ten years of his life were quite absorbed by the disagreeable task that devolved on him as "director ephemeridum"—the substitute of the absent President. In 1876 he was deprived of the power to walk, from a fall on the ice.

The greatest satisfaction of his life was his quite exceptional position in connection with the two botanist Kings of Saxony, Frederic Augustus I. and II., the latter of whom was his pupil, and with whom he made numerous excursions. During one of these both were captured on the Bohemian frontier, they having no papers or passport. The whole of his life was specially devoted to the promotion of natural history, and nobody could have prosecuted this task with a better will and in a more ardent manner than he. *H. G. Rehb. f.*

CAMELLIAS AND CAMELLIA CULTURE.

(Continued from p. 525.)

ON THE GROWTH OF CAMELLIAS IN POTS AND TUBS.

It is only in large greenhouses or conservatories that Camellias can be planted-out with advantage; the system of growing them in pots and tubs is therefore more generally adopted. With this end in view the first thing to provide is a good stock of suitable soil. It is not easy to make plain in writing what that soil should be. The terms loam and peat are very indefinite when brought to the test of practical cultivation. We have found Camellias do well in some sorts of loam (light, porous, and sandy), with the addition of leaf-mould; and we have found them do well in peat alone that was sandy and rich in fibre and decayed vegetable matter. Our present practice is to grow them in a mixture of loam and peat, with the addition of small quantities of leaf-mould and sand:—Six-twelfths loam, three-twelfths peat, two-twelfths leaf-mould, one-twelfth sand. These materials should be collected and mixed together twelve months before required for use. The loam and peat should be chopped fine, but not sifted, and after the whole is well mixed together the heap should be turned over three or four times during the year that it may be benefited both by the winter's frosts and the summer's sun.

Camellias should be turned out of their pots or tubs once a year to ascertain if the drainage is perfect, the roots in a satisfactory state, and to see if any of the pots or tubs are so full of roots that the plants require repotting with more space. If larger pots are not wanted it may be well to remove a portion of the bottom and top soil—so much as can be taken away without causing a serious deprivation of roots—replacing the old and washed soil with new; and here, as on all occasions when dealing with plants in pots or tubs, taking care that thorough drainage is secured by placing plenty of rubble in the bottom of the pots or tubs.

With regard to the season of repotting, some recommend the month of March, just before the new growth commences, but we have found repotting at this season unfavourable to the setting of flower-buds, resulting in the formation of wood-shoots rather than flower-shoots. It is our practice to repot early in September, when the flower-buds are set and sufficiently hard not to be injuriously affected by the process. At that season the plants are or should be out-of-doors, under a north wall or fence, and here they may remain for a month (early in October), when they may be conveyed to their winter quarters under glass. It is important when repotting or transferring a plant from a small pot to a larger one to ram the new soil firmly around the old, in order that the new soil may approach the old in solidity, for if only loosely pressed the water at all subsequent periods will pass through the loose soil alone, leaving the old or central soil untouched. Although we have not given this in our answers to questions on the unsatisfactory state of Camellias as a cause, we are not sure that some of the annoyances cultivators are subject to may not be attributed to the looseness of the outer circle of the soil in plants which have been repotted.

Let us assume, then, that the plants have been examined as to the state of their roots and are placed in their winter quarters. Whether they have a house to themselves, which is desirable, or a house in common with other plants, we proceed to follow up

* See *Gardeners' Chronicle*, vol. ii., n.s., pp. 264, 265, and 591.

the treatment favourable to their development. Throughout the autumn and winter months abundance of air should be given night and day except in frosty weather, only so much heat being maintained as shall exclude frost. The house should be kept scrupulously clean, and the plants should be looked over, with water-pot in hand, every second day, that they may not suffer from drought, but of course only such as are dry should be watered. A moderately moist state of the soil is desirable till the plants begin to flower, when an increased supply of water should be given in the shape of weak liquid manure. It is probable that, without forcing, a few of the early-flowering sorts and forward plants, will begin to flower in December. From this time the flowers will increase in quantity up to the middle of March, and decrease henceforth till the beginning of April, when the flowering will be over, and the plants begin to grow.

When growth commences, heat and moisture should be increased, but the increase should be by opening the house late and closing early, rather than by the use of strong fire-heat. Not only should an abundance of water be given to the roots during the period of growth, but the plants should be syringed freely both morning and evening. When growth ceases, more air may be gradually given to harden the newly-formed shoots till all possible air is admitted night and day by the middle of June, when the plants may be removed to the north or shady side of a wall or hedge, there to spend the months of July, August, and September. When the plants are in flower, as also when growing, a slight shade is desirable, in the former case to protect and prolong the flowering, and in the latter to prevent the young leaves from being blistered by the sun. To this end tiffany or scrim fixed inside the house answers perfectly, and a good substitute for these may be found in painting the glass inside with milk.

The proper watering of the Camellia is a cardinal point in its successful cultivation, and here we meet with one of those points which the practical man knows well how to deal with, but which it is extremely difficult to convey to the uninitiated by writing. The most we can do is to say, water freely with weak liquid manure during the flowering and growing season, from January to May, and be careful not to give too much water during the season of comparative rest, from June to January. Still, during this latter period, the soil must not be allowed to become what gardeners term dry, or foliage and flowers will alike suffer.

When the plants are removed from the house, to be placed out-of-doors, the smaller sizes may be tied out, and the branches of the larger ones drawn into such positions as may seem desirable, by drawing them downwards or side-ways, fastening the ligatures of bast to the strong side branches or the main stem. We do not advocate much tying for either small or large plants, but a stick here and there, and the occasional drawing aside of a branch may be done in such manner that the contour of the plant is improved, without introducing an objectionable formality.

PRUNING.

With regard to pruning there is a diversity of opinion as to the season at which it should be performed with the greatest advantage. So long as the plants retain their health and symmetry it is unnecessary to prune them at all; but if they lose it, this is one means by which either may be restored. September is in our opinion the best month for pruning; if done at that season the dormant eyes to which we are looking for the formation of new growth become well stored with food by the time the new growth commences, and stronger and sounder shoots are the results. But then by pruning in September you may have to cut away the flower-buds and thus the season's bloom is sacrificed. If the flowers cannot be spared, prune in March immediately after the flowering is over, before the new growth commences. It is best, if possible, to restrict the pruning to wood of the previous year's growth, as it is often difficult to induce the eyes to push into shoots from old wood.

Camellias have their enemies in the shape of aphids, bug, and scale. Aphids may be kept under by the use of tobacco-smoke, and bug and scale may be destroyed by brushing the parts where they post themselves with paraffin. Cleanliness in all operations here is a preventive which pays well in the long run, and no serious injury is likely to occur when it is properly attended to.

ON THE PLANTING-OUT AND CULTIVATION OF CAMELLIAS IN THE CONSERVATORY.

Perhaps we may say without fear of contradiction that the Camellia is the handsomest of conservatory plants. The finest examples in this county (Hertfordshire) with which we are acquainted are at High Leigh, near Broxbourne, the seat of R. Barclay, Esq. A short time ago we made a visit to see these Camellias. The trees are all planted-out in the conservatory, and although the time for catching them at their best was already gone we nevertheless saw enough to form an opinion as to their appearance when at the height of their splendour, and the extreme vigour and healthy aspect of their foliage spoke volumes for the skill of Mr. Dover, who has charge of them. Some of the best plants may be enumerated as follows:—Lady Hume's Blush, 15 feet high by 12 feet through, thought to be possibly the finest plant of this variety in the country; alba plena, 17 feet high by 12 feet through; elegans, 20 feet high by 10 feet through, the flowers were still lingering here in quantity, and combined with the naturally effective foliage of this variety, rendered especially so by good cultivation, presented a sight of grandeur seldom surpassed in the plant world; La Innocenza, 12 feet high by 12 feet through, a fine white Camellia second only to alba plena.

The collection, which comprises, we think, eight plants, also includes two fine plants of the variety variegata (one of them 18 feet by 10 feet), and an alba plena 12 feet by 12 feet, which carried this year 3000 buds, two-thirds of which were thinned-out before flowering time, leaving the tree to carry 1000 blooms. In a previous year 600 blooms were cut off this plant one morning. The plant of elegans above alluded to was estimated to have between 3000 and 4000 buds, of which about 1000 were left to be developed into flowers. Mr. Dover appears to have no secret in their cultivation: he considers soot and cow-dung in solution to be the best manures, and agrees thoroughly with the idea that watering Camellias is a most important and critical matter. Pruning he does about the end of March or early in April before there is much young growth, and he does not scruple to cut back heavily when the symmetry of the plants or other causes require it. He has proved that Camellias, when operated upon at the proper season, will take the knife as freely almost as the common Laurel. One of these gigantic plants had been removed from one part of the conservatory to another about a fortnight before our visit, Mr. Dover judging that as he did not care whether it flowered or not next season, it would remove then with greater safety and more favourably for a good growth than at any other time. It must be said, however, to be an experiment, and we trust one that will answer. These trees are all pyramidal in shape and most beautifully filled in and trained so that not a leaf is out of its place, the whole forming a dense even unbroken surface of the deepest green.

When planted out in the conservatory, whether for forming pyramids in the beds or borders, or for training against the walls, the Camellia is generally but one of a series of plants whose wants have to be studied and supplied. As, however, all the plants likely to be placed there flourish most in a well-drained soil, it is important to secure thorough drainage at the outset. In preparing for planting the soil should be excavated from the beds and borders to the depth of 3 feet, and if the surrounding soil or subsoil be wet, pipes should be led from the bottom to communicate with the drains outside. Six inches at the bottom should be filled up with old bricks, rubble, or coarse gravel, over which a layer of turf should be neatly and firmly laid to prevent the fine particles of soil from working into the interstices of the drainage. Now it is almost certain that the different plants chosen for the conservatory will require different soils, and to meet this want is a point of practical importance. First mark out the position of each plant, and then pack the soil in squares of about 3 feet of a suitable nature to each. We have already described the soil we consider best for Camellias when treating of pot plants, and the same materials may be used here, but in a coarser state. Plants of large size should be planted, and when transferring them from the pots or tubs into the ground it will be well to disentangle and spread the outside roots, working a portion of the finer soil amongst them. The soil should be trodden firmly around the old ball of earth, and when the plants are fairly set the earth should be thoroughly soaked with water from a fine rose water-

ing-pot. September is perhaps the best month for planting, but it may be done at any time excepting when the new growth is in course of development. If planted in September and once well watered, little further watering will be required till the flowers begin to expand, although a daily syringing of the leaves for the first fortnight afterwards will be likely to prove serviceable. A slight shading here, as elsewhere, is desirable during the periods of flowering and growing, but as other plants in the house may not require this, the Camellia should be attended to individually. Warmth and syringing are also required from the time the new growth commences till it begins to harden, in order to secure a full crop of flowers the succeeding year. The buds once set an abundance of air should be given and partial shade still maintained. The season of flowering will depend much on the temperature of the house. As the conservatory is usually managed they will appear in gradual succession from December to March.

The Camellia is a capital wall-plant, thriving well planted out in shaded situations with little light either in the greenhouse or conservatory. *William Paul, F.L.S., F.R.H.S., Paul's Nurseries, Waltham Cross.*
(To be continued.)

WILLIAM MUDD.

WE are sorry to have to record this week the death of Mr. William Mudd, the curator of the Botanic Garden at Cambridge.

He was born about the year 1830 in the neighbourhood of Bedale, in Yorkshire. His early education was a very poor one. Whilst still young he was placed in the garden of the late Joseph Pease, Esq., for many years M.P. for South Durham, at Southend, Darlington. Here, under Mr. Pope, he had a good practical horticultural training, and when he was about twenty-one he married, and took charge of the garden of the late T. Richardson, Esq., the founder of the great bill-broking firm of Richardson, Overend & Gurney, at the country house which he erected at Great Ayton, in Cleveland. At Great Ayton there is a boarding-school belonging to the Society of Friends, the teachers of which at that time took great interest in natural history, and had got together a good collection of books and specimens. Through association with those connected with this school Mr. Mudd was influenced very beneficially, and he set to work with great energy to remedy the defects of his early education. He interested himself especially in botany, and made long excursions, sometimes alone, but often in company with one or other of the teachers of the school, through the different districts of Cleveland. The result of these explorations is reported in Mr. J. G. Baker's *North Yorkshire*, published in 1863. Finally, Mr. Mudd bought himself a good microscope and concentrated his attention, so far as botany was concerned, upon the lichens. Cleveland is a country of well-watered low hills, composed of rocks of a great variety of structure, and near Ayton a band of basalt runs through the sedimentary beds. The district is therefore very rich in cryptogamic plants, and for lichens is one of the best collecting grounds in Europe. By hard personal work in collecting, often rising in summer in the early morning and making a long trudge over the moors before his work in the garden began, and by correspondence with such men as Leighton, Arnold, Salwey, and Lorbalestier, he got together a very fine collection of lichens, and made dissections and careful descriptions in detail, including drawings and measurements of the spores of nearly all the British species. His *Manual of British Lichens*, published at Darlington in 1861, accompanied by three fasciculi of 100 specimens each, contains a full description of all the species and varieties then known in Britain, with figures of the spores of 130 species, illustrative of the genera. If any one will look through this, remembering that it is the production of a man who had to educate himself after reaching mature life, and who at the time that he was engaged upon it was working hard with his hands for twelve hours a-day, and keeping a wife and family upon a wage of something like 25s. a-week, he will see that the book is really a wonderful monument of energy and perseverance. Unfortunately Mr. Mudd worked so hard while he was engaged on this book that his health was seriously injured, and his eyes in particular were so much affected, that when it was finished his doctor took his microscope away from him, and would not restore

it for many months. Soon after this the curatorship of the Botanic Garden at Cambridge fell vacant, and when he became a candidate for the vacant post his botanical qualifications, combined with his long practical experience in garden management, pointed him out at once as a very suitable person to occupy it. Of his work at Cambridge, the writer of this present notice knows very little. From the time that he went there, he seems to have given up his interest in lichens and in British botany, to have turned his attention more in the direction of physiology, and to have spent a great part of his leisure in giving private lessons to students. My own feeling, speaking as a member of the botanical public, and as one who knew him well during the botanically active middle period of his life, is one of disappointment that so little—in fact, absolutely nothing—was heard from him from Cambridge in the way of contributions to the botanical or gardening journals, or the *Proceedings* of the Horticultural or Linnean Societies, of which latter he was elected an Associate in 1868. He worked most diligently for many years when placed in circumstances where he had very few advantages, and his friends hoped for great things from him when he was transferred to a more favourable position—a hope that now can never be realised. *J. G. B.*

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

(Continued from p. 431.)

- LÆLIA*, Lindl., Gen. and Sp. Orch., p. 115. About twenty species, dispersed from Mexico through the West Indies to Brazil. Reichenbach refers them to *Bletia*.
- L. acuminata*, Lindl., Bot. Reg. 1841, Misc. 42, t. 24; Bot. Mag., t. 4905; Gard. Chron. 245, 415, 1841; 341, 1843. Guatemala, Costa Rica.
- L. albidia*, Batem., Bot. Reg. 1839, Misc. 4, t. 54; Bot. Mag., t. 3957. *L. discolor*, Mart. et Gal. Mexico, 7500 ft. Gard. Chron. 208, 1868; 271, vii., 1877, vars.
- L. anceps*, Lindl., Bot. Reg., t. 1751; Bot. Mag., t. 3804. Mexico.—Var. *Barkeriana*, Lindl., Bot. Reg., t. 1947. Var. *Dawsoni*, Gard. Chron. pp. 254, 1079, 1873; 488, ii., 1874. Mexico.
- L. autumnalis*, Lindl., Bot. Reg. 1839, t. 27; Bot. Mag., t. 3847. Batem. Orch. Mex. and Guat., t. 9. *Bletia autumnalis*, Llav. et Lex. Mexico.
- L. flava*, Lindl., Bot. Reg. 1839, Misc. 143; Gard. Chron. 1872, 774. Mexico.
- L. furfuracea*, Lindl., Bot. Reg. 1839, t. 26; Bot. Mag., t. 3810. Mexico, 7500 to 8500 feet.
- L. majalis*, Lindl., Bot. Reg. 1844, t. 30; Batem. Orch. Mex. and Guat., t. 23. *Bletia grandiflora*, Llav. et Lex. B. speciosa, H.B.K. *Cattleya Grahami*, Lindl. Mexico.
- L. peduncularis*, Lindl., Bot. Reg. 1841, Misc. 10, 1845, t. 69; Gard. Chron. 1845, 839. Mexico, Guatemala.
- L. rubescens*, Lindl., Bot. Reg. 1840, Misc. 25, t. 41. Mexico, Nicaragua.
- L. superbiens*, Lindl., Bot. Reg. 1840, Misc. 87; Batem. Orch. Mex. and Guat., t. 38; Bot. Mag., t. 4090; Gard. Chron. 391, 1844. Mexico, Guatemala.
- L. violacea*, Rehb. f., Bonpl. ii., p. 95. Mexico, Central America.
- L. Wendlandi*, Rehb. f., Walp. Ann. vi., p. 431. Guatemala.
- LEPANTHES*, Sw. Act. Scient. Soc. Ups. vi., p. 85; Fl. Ind. Occ., p. 1555. About forty species, extending from Mexico to Peru and Jamaica; numerous in Cuba.
- L. avis*, Rehb. f., Xenia, i., p. 144, t. 50, ii. Mexico.
- L. blepharistes*, Rehb. f., Beitr. Orch. Centr. Am., p. 92. Costa Rica.
- L. elata*, Rehb. f., Beitr. Orch. Centr. Am., p. 91. Costa Rica.
- L. erinacea*, Rehb. f., Bonpl. iii., p. 225. Costa Rica.
- L. horrida*, Rehb. f., Beitr. Orch. Centr. Am., p. 91. Costa Rica.
- L. leucopogon*, Rehb. f., Beitr. Orch. Centr. Am., p. 95, t. 9. Costa Rica.
- L. Liebmanni*, Rehb. f. MSS. Mexico.
- L. Lindleyana*, Erst. et Rehb. f., Xenia, i., p. 149, t. 50, iii. Costa Rica.
- L. ophioglossoides*, Sw. Fl. Ind. Occ., p. 1551; Lodd. Bot. Cab., t. 442. Mexico.
- L. pardipes*, Rehb. f., Beitr. Orch. Centr. Am., p. 96. Costa Rica.
- L. pristidis*, Rehb. f., Linnæa, xxii., p. 820; Xenia, i., t. 50, i. Mexico.
- L. Schiedeii*, Rehb. f., Linnæa, xxii., p. 820. Mexico.
- L. tipulifera*, Rehb. f., Beitr. Orch. Centr. Am., p. 91, t. 12. Costa Rica.
- L. tridentata*, Sw. Fl. Ind. Occ., p. 1561. Mexico.
- L. Turialvæ*, Rehb. f., Bonpl. iii., p. 225; Beitr. Orch. Centr. Am., t. 10. Costa Rica.
- L. Wendlandi*, Rehb. f., Beitr. Orch. Centr. Am., p. 91, t. 9. Costa Rica.
- LIPARIS*, Rich., Orch. Eur. 30, fig. 10. A large genus, containing probably upwards of one hundred species, widely dispersed in temperate and tropical regions, but most numerous in tropical Asia.
- L. alata*, Schweid., Otto and Dietr. Allg. Gartz. 1842, p. 293. Mexico or Guatemala. (Bateman.)

- L. arnogglossophylla*, Rehb. f., Bonpl. 1856, p. 217. "New Spain."
- L. bituberculata*, Lindl., Bot. Reg., sub. t. 882. *Cymbidium bituberculatum*, Hook., Ex. Fl., t. 116. Costa Rica.
- L. elata*, Lindl., Bot. Reg., t. 1175. Mexico or Guatemala. (Bateman.) Of doubtful origin.
- L. elliptica* (Sturmia), Rehb. f., Linnæa, xxii., p. 833. Mexico, West Indies.
- L. (Malaxis) Galeottiana*, Rich., Ann. Sc. Nat., 3 série, iii., p. 18. Mexico.
- L. (Malaxis) Lindeniana*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 18. Mexico.
- L. Wendlandi*, Rehb. f., Beitr. Orch. Centr. Am., p. 98. Costa Rica.
- LOCKHARTIA*, Hook., Bot. Mag., t. 2715. About fifteen species, ranging from Mexico to Ecuador, and through the West Indies to Brazil.
- L. amœna*, Endr. et Rehb. f., Gard. Chron. 1872, p. 666. Costa Rica.
- L. elegans*, Hook., Bot. Mag., t. 2715. *Fernandezia elegans*, Lodd., Bot. Cab., t. 1214. Veragua to Columbia and North Brazil.
- L. micrantha*, Rehb. f., Bot. Zeit. 1852, p. 768; Xenia, i., t. 40, fig. 8, 9. Veragua, Columbia.
- L. mirabilis*, Rehb. f., Xenia, i., p. 100, t. 40, fig. 10, 11. Veragua.
- L. (Erstedii) Rehb. f.*, Xenia, i., p. 100, t. 40, iii. Costa Rica, Venezuela.
- L. pallida*, Rehb. f., Xenia, i., p. 102, t. 39. Panama.
- L. verrucosa*, Rehb. f., Hamb. Gartenzeit. 1859, p. 53; Ref. Bot. ii., t. 76. *Fernandezia robusta*, Batem., Bot. Mag., t. 5592. Guatemala.
- LYCASTE*, Lindl., Bot. Reg. 1843, Misc., p. 14. About twenty-five species. From Mexico to Peru and the West Indies.
- L. aromatica*, Lindl., Bot. Reg. 1843, Misc., p. 16. *Maxillaria aromatica*, Grah., Hooker, Ex. Fl., t. 219; Bot. Reg., t. 1871. *Colax aromaticus*, Spreng. Mexico.
- L. candida*, Lindl., Paxt. Fl. Gard. ii., p. 37, fig. 151. *L. brevispatha*, Kl. Central America.
- L. chrysoptera*, Morr., Ann. Gand, p. 232. Mexico.
- L. cochleata*, Lindl., Paxt. Fl. Gard. i., p. 126. Mexico.
- L. consobrina*, Rehb. f., Bot. Zeit. 1852, p. 669. Mexico(?)
- L. crinita*, Lindl., Bot. Reg. 1844, Misc. 41. Mexico.
- L. cruenta*, Lindl., Paxt. Fl. Gard. i., p. 126. *Maxillaria cruenta*, Lindl., Bot. Reg. 1842, t. 13. *M. Balsamea*, Rich. Guatemala.
- L. Deppei*, Lindl., Bot. Reg. 1843, Misc., p. 15. *Maxillaria Deppei*, Lodd., Bot. Cab., t. 1612; Bot. Mag., t. 3395. Mexico.
- L. Dowiana*, Endr., Gard. Chron. n.s. ii. 1874, p. 194. Costa Rica.
- L. lasioglossa*, Rehb. f., Gard. Chron. 1872, p. 215; Bot. Mag., t. 6251. Guatemala.
- L. leucantha*, Kl., Allg. Gartz. 1850, p. 402; Ref. Bot. ii., t. 102. Costa Rica.
- L. Skinneri*, Lindl., Bot. Reg. 1843, Misc., p. 15; Batem. Orch. Mex. and Guat., t. 35; Bot. Mag., t. 4445; Gard. Chron. 1844, p. 86. Guatemala.
- L. tricolor*, Kl., Allg. Gartz. 1852, p. 85. Guatemala.
- MACRADENIA*, R. Br., Bot. Reg., t. 612. About six species, inhabiting Guatemala, Cuba, Guiana, and N. Brazil.
- M. Brasavolæ*, Rehb. f., Walp. Ann. vi., 697. Guatemala.
- MASDEVALLIA*, Ruiz et Pav., Fl. Per. Prod., p. 122, t. 27. Probably 100 species, extending from South Mexico to Peru, Brazil, and the West Indies.
- M. attenuata*, Rehb. f., Gard. Chron. 1871, p. 834. Bot. Mag., t. 6273. Costa Rica.
- M. cupularis*, Rehb. f., Beitr. Orch. Centr. Am., p. 93. Costa Rica.
- M. floribunda*, Lindl., Bot. Reg. 1843, Misc. 114; Gard. Chron. viii., 1877, p. 616. *M. myriosigma*, Morr. *M. Galeottiana*, Rich. Mexico.
- M. gracilenta*, Rehb. f., Gard. Chron. n.s. iv., p. 98. Costa Rica.
- M. Harryana*, Rehb. f., Gard. Chron. 1871, p. 1421. *M. Lindenii*, André, Ill. Hort. xvii., t. 42; Bot. Mag., t. 5990. Central America, New Grenada.
- M. lata*, Rehb. f., Gard. Chron. n.s. vii., p. 653. Central America.
- M. Lindeniana*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 17; Gard. Chron. 1873, p. 1079. Mexico.
- M. Livingstoniana*, Rehb. f., Gard. Chron. n.s. iv., p. 290. Panama.
- M. Reichenbachiana*, Endres, Gard. Chron. n.s. iv., p. 257. Costa Rica.
- M. triaristella*, Rehb. f., Gard. Chron. n.s. vi., p. 226; Bot. Mag., t. 6268. Costa Rica.
- M. Wagneana*, Lindl., Bot. Mag., t. 4921. Central America.
- MAXILLARIA*, Ruiz et Pav., Fl. Peruv. Prodr., p. 116, t. 25. About 120 species, abounding from Mexico to Peru, less numerous in the West Indies, Brazil, and Guiana.
- M. acervata*, Rehb. f., Bonpl. iii., p. 217. Costa Rica.
- M. acanthia*, Rehb. f., Bot. Zeit. 1852, p. 858. Costa Rica.
- M. acutipetala*, Hook., Bot. Mag., t. 3966. Central America.
- M. atrata*, Rehb. f., Beitr. Orch. Centr. Am., p. 31, t. 6. Guatemala.
- M. aurantiaca*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 25. Mexico.
- M. brachypus*, Rehb. f., Bot. Zeit. 1852, p. 731. Guatemala.
- M. brachyglossa*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 24. Mexico.
- M. cæspitifica*, Rehb. f., Linnæa, xli., p. 73. Costa Rica.

- M. Camaridium*, Rehb. f., Hamb. Gartenzeit. 1863, p. 547. *Camaridium ochroleucum*, Lindl., Bot. Reg., t. 844. Costa Rica.
- M. concava*, Lindl., Bot. Reg. 1844, Misc. 102. Guatemala.
- M. cruenta*, Lindl., Bot. Reg. 1842, t. 13. Guatemala.
- M. ctenostachya*, Rehb. f., Gard. Chron. 1870, p. 39. Costa Rica.
- M. cucullata*, Lindl., Bot. Reg. 1840, t. 12. Costa Rica.
- M. curtipes*, Hook., Ic., t. 384. Mexico.
- M. elatior*, Rehb. f., Walp. Ann. vi., p. 532. *M. triangularis*, Lindl. Guatemala.
- M. elongata*, Lindl., Paxt. Fl. Gard. iii., p. 69, fig. 264. Costa Rica.
- M. Friedrichsthalii*, Rehb. f., Bot. Zeit. 1852, p. 858. Nicaragua.
- M. Galeottiana*, Rich., Ann. Sc. Nat., 3 série, iii., p. 24. Mexico.
- M. glumibracteata*, Rehb. f., Hamb. Gartenzeit. 1863, p. 11. Costa Rica.
- M. graminifolia*, Rehb. f. *Isochilus graminifolius*, H.B.K. i., p. 340, t. 78. Mexico or Guatemala according to Mr. Bateman's list. Peru and Ecuador.
- M. heraldica*, Rehb. f., Bot. Zeit. 1852, p. 763. Guatemala.
- M. inaudita*, Rehb. f., Beitr. Orch. Centr. Am., p. 76. Costa Rica.
- M. Lindeniana*, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 24. Mexico.
- M. luteorubra*, Rehb. f., Walp. Ann. vi., p. 539. *Camaridium luteorubrum*, Lindl. *Isochilus grandiflorus*, Lindl. Guatemala or Mexico, according to Mr. Bateman's list, but origin doubtful.

(To be continued.)

THE EPACRIS.

YOUR correspondent "R. M.," writing on the *Epacris* at p. 506, asks for a list of sorts and colours. We grow at our Barnet nurseries upwards of 12,000 of this splendid and valuable plant in over fifty varieties, and we add a list of varieties, of which those marked thus * we consider to be the best.

We have had this season a mass of bloom, every spike or particle of growth being literally covered with well-developed flowers. Some growers prefer the strong tall-growing varieties, such as the forms of *hyacinthiflora*, and no doubt, for size of individual spikes and flowers these are the best, but the tall, spindly-growing sorts we do not consider so useful as the compact growing sorts, which throw up double the number of spikes and also set bloom more freely, such as the varieties introduced by Mr. Story, viz., *Model*, *Mont Blanc*, *Butterfly*, *Sunset*, *racemosa*, and others.

For decorating, either for cut flowers, table, or conservatory work, what is better or prettier than the *Epacris*? It deserves a more prominent position than is given to it, and ought to be in every plant-house. No plants are easier to cultivate, treating them precisely in the same manner as *Ericas*, using a good rich peat and a fair proportion of sand, and giving plenty of pot-room.

Varieties.

- | | |
|---|--|
| * <i>alba</i> odorata, white, scented | * <i>Lady Panmure</i> , white |
| * <i>Ardentissima</i> , crimson | * <i>laevigata</i> , white |
| * <i>Atleana</i> , rose and white | * <i>lineata</i> , rose, pink tipped |
| * <i>Butterfly</i> , carmine and white | * <i>Lowii</i> , red, white tipped |
| * <i>campanulata</i> , lilac-rose | * <i>magnifica</i> , rose |
| * <i>carinata</i> , carmine-scarlet | * <i>miniata</i> , rosy-red, white lip |
| * <i>Copelandii</i> , scarlet | * <i>splendens</i> , rosy-red, |
| * <i>coruscans</i> , dark red | white lip |
| * <i>delicata</i> , rose and white | * <i>Model</i> , rose |
| * <i>densiflora</i> , rose and white | * <i>Mont Blanc</i> , white |
| * <i>Devoniana</i> , crimson | * <i>Mrs. Pym</i> |
| * <i>Eclipse</i> , scarlet and white. | * <i>multiflora</i> , red and white |
| * <i>Fireball</i> , deep scarlet | * <i>nivalis</i> , white |
| * <i>fulgens</i> , red | * <i>palliva</i> , flesh |
| * <i>grandiflora</i> , red and white | * <i>picturata</i> |
| * <i>rubra</i> , red and white | * <i>Queen Victoria</i> , white |
| * <i>hyacinthiflora</i> , rose | * <i>racemosa</i> , carmine |
| " * <i>carinata</i> , carmine | * <i>rubella</i> , purplish rose |
| " * <i>campanulata</i> , white | * <i>rubra superba</i> , red |
| " * <i>fulgens</i> , scarlet | * <i>salmonia</i> , light salmon |
| " * <i>rosea</i> , rose | * <i>sunset</i> , purplish red |
| * <i>igneus</i> , rose | * <i>The Bride</i> , white |
| * <i>impressa</i> , rose | * <i>variegata</i> , rose and white |
| " * <i>carnea</i> , deep pink | * <i>Vesta</i> , white, pink lip |
| " * <i>coccinea</i> , scarlet | * <i>Vesuvius</i> , scarlet |
| * <i>Kinghornii</i> , carmine and white | * <i>Viscountess Hill</i> , scarlet |
| * <i>Lady Alice Peel</i> , salmon and white | * <i>Waltoni</i> , flesh |

We have exhibited this season most of the above sorts at the London spring shows. *Wm. Cutbush & Son, Highgate and Barnet.*

CHANCE COMBINATIONS. — What singular and beautiful effects are produced now and then by chance combinations. Strolling through the pleasure-grounds at Kew the other day the eye rested on a lovely contrast of colour—shall we call it, with Mr. Whistler, a harmony or a symphony in green and red? In any case the effect must be transient, for it was produced by the reddish flowers of the Red Maple, *Acer rubrum*, and the tender green of the young leaves of the Larch. The mixture was exquisite.

CHAMÆCYPARIS NUTKAENSIS.*

THIS Cypress has been in cultivation in this country over a quarter of a century, a period sufficiently long to prove its worth as an ornamental evergreen. Those who have observed it in all stages of its growth up to plants 25 to 30 feet in height, will agree with me in considering it one of the most suitable for general cultivation in these islands. In any ordinary soil that is not too dry—though it grows freely in dry sandy soils in which others of its class would starve—it is a fine free-growing tree, and though dusky in colour when contrasted with the rich green of *C. Lawsoniana* this is to a certain extent counterbalanced by its superior habit and its adaptability to certain positions and conditions of life. Just a little too formal in the early stages of growth (generally considered a point of perfection rather than a defect in these times), but afterwards more open and natural in the arrangement and disposition of its branches—in this condition it forms a fine sentinel-like object in a park. From personal observation I can testify that none of the other Conifers endure so well the smoke-charged atmosphere of our cities. Though both ornamental and useful at all stages of growth, still it is not so

every second or third pair of marginal leaves; ultimate branchlets ranged consecutively on the anterior base and distichously alternate from below the middle of the points of the branchlets, straight and on the same plane, subimbricate, and, owing to the shape and disposition of the leaves, subtrigonal and rather stout, cast off when five or six years old. Leaves in opposite pairs decussating, surface and marginal (when approximate) of nearly the same length, the base of one pair opposite the base of the free points of the other, more or less imbricate, greater part adnate entire; on the upper surface of the branchlets, or next the light, dull glaucous green, or where chafed, dark glossy green; on the under surface of the branchlets, or away from the light, pallid glaucous green; stomatose on both surfaces (stomata scattered, few and only observable with the aid of a lens), and during at least the current year the thin free edges of one slightly but obviously overlap those of the opposite leaf—a peculiarity which readily distinguishes this plant from all the other members of the genus; stem-leaves oblong-acuminate, mucronate, pungent, never exceeding three-quarters of an inch in length, greater part adnate, their free points extended and subpatulous, rough, and striated, and with one medial and two lateral sub-transparent resin ducts on the convex or somewhat flattened back, functionless during the second and entirely cast off at the close of the third year (as compared with those of the branchlets their life is a fast one, and naturally shorter); branch-leaves shorter, their free points

point $\frac{1}{8}$ inch long, which on the upper scales is straight and erect, on the others slightly incurved. Seeds 2—3 usually three, to the scale, ovate, conical, compressed smooth, and light brown, margined with a membranous light brown wing, which is widest and pointed centrally narrowing to the point and base.

Cotyledons two, exceptionally three, linear, flattened pointed, $\frac{3}{8}$ inch long, $\frac{1}{8}$ inch wide. Leaves on stem of seedling 1—2 years old, in alternating whorls of four, on the branches in whorls of three, and on the branchlets opposite, squarrose, close placed, shortly decurrent, their free points flattened and horizontally extended from $\frac{3}{8}$ to $\frac{5}{8}$ inch long by $\frac{1}{16}$ inch wide, stomatose, and with a medial linear gland on the under side. After this the plant becomes more diffuse, and the leaves, though still juvenescent and somewhat acerose, gradually assume the adult disposition and shape.

C. n. variegata, Hort.—There are two distinct plants cultivated under this name, the one compact, the other of a loose flowing habit, both being characterised by a portion of their branchlets being flaked with white.

C. n. aureo-variegata, Hort.—Variegated much in the way of the foregoing, but with greenish gold.

C. n. nana compacta.—This form is very compact, of an oblong-oval form, and it will probably attain to about 10 feet in height. As such, and being hardy, it will prove a useful forecourt garden plant. Unlike the typical form, it is easily rooted.

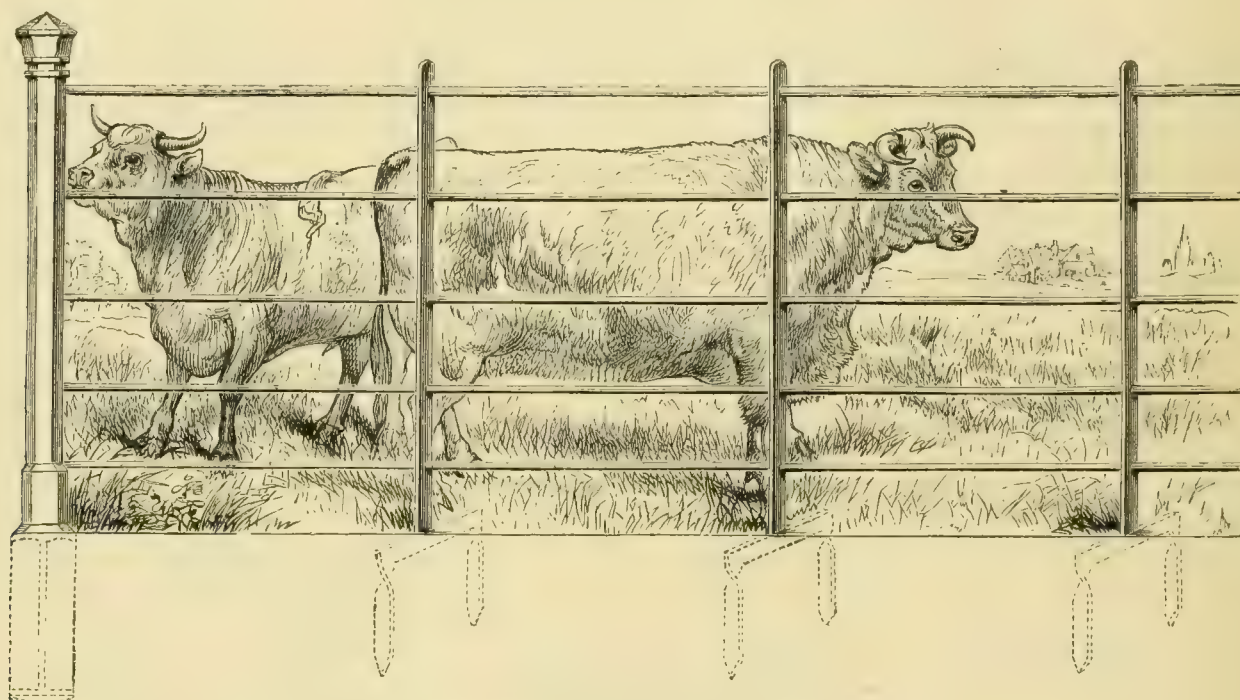


FIG. 77.—HURDLES FOR CATTLE FENCING. (SEE P. 561.)

commonly planted as some other species. This is chiefly owing to the comparatively high price of plants, consequent on the difficulty commonly experienced in propagating it. Still it is within the reach of all, and if fairly well suited as to soil, being hardy enough to exist and thrive in the coldest localities in Britain, it is certain to give satisfaction.

A large tree with a spreading head and straight stem up to 100 feet in height, and frequently 4 feet in diameter at the base. Under cultivation its form is elegantly conical, branched to the ground, compact or open, with all the extremities either recurved or decidedly pendulous. The bark formed during the last eight or nine years is soft, dark-coloured, smooth, and shining; when older it breaks up and flakes off, and is thereby kept thin.

The growth of the stem is usually from left to right (as seen by the trend of the marginal pairs of leaves), by which the branches are disposed irregularly round it. Branches divaricate, spreading outward and upward, and again recurved at the tips, narrow (not frond-like), subterete, springing from the axil of one of every second, but generally from the axil of the third or fourth pair of marginal leaves (thus similar to the *Arbor-vitæ*), their growth usually from left to right; primary branchlets distichous, alternate, narrow, frond-like, rather long, flexible, and pendulous, springing at an acute angle from the axil of one of

straight, but otherwise the same as the stem-leaves; leaves of the ultimate branchlets closely imbricate, subrhomboid or ovate-pointed or obtuse, keeled, with an oblong, linear, depressed, scarcely transparent gland on the back of those covering the upper and under surfaces of the branchlets, remaining on for five or six years, and only cast off with the branchlets.

Flowers monœcious, male aments solitary, terminating the weaker ultimate branchlets, straight, oval obtuse, $\frac{1}{8}$ inch long, $\frac{1}{16}$ inch wide, or nearly twice the diameter of the branchlets, composed of 12—16 anther-bearing bracts in opposite decussate pairs; bracts ovate-acute, entire, pale greenish-yellow; anthers, 2—4, pale yellow.

Female aments solitary or subaggregate, terminating the shorter, stronger branchlets, usually anterior to those on which the males are borne, composed of 4—6 bract-scales in pairs, decussating; bract-scales elongate, obtuse, subentire, spreading, hoary on the upper surface; ovules 2—3, usually three on each of the scales.

Cones annual, subglobose, slightly compressed, greatest diameter about $\frac{1}{2}$ of an inch, of the colour of the leaves before maturity, dark brown or black on the lower, and light brown on the upper half when mature, composed of 4—6, generally four, seed-bearing scales on a depressed axis, the lower four fused together at their base; when four scales compose the cone, the lower pair are ovate-pointed, the upper pair compressed, truncate, or when six scales compose the cone they are subquadrate on the exposed surface and cuneate at base, all convex, and raised in the centre into a narrow flattened

It is indigenous to North-west America between the 44th and 57th degrees of latitude, and has been found on the banks of streams in the Cascades of Oregon, probably not further south than Mount Jefferson (Newberry, Cusick), at Nutka Sound, Observatory Inlet, and on the Island of Sitcha (Mertens, Barclay); it may yet be found further north and east on the mainland.

The timber of this tree is white and soft. It differs from the other species in having as a normal condition yellow anthers; in the thin free edges of the adnate base of one leaf slightly but obviously overlapping those of the opposite leaf, but this only applies to leaves not more than one year old, and from those species whose growth is strictly lateral, in that their branchlets are frondlike, inasmuch as on the internodes of the stem at all seasons, and on the branchlets towards the close of the growing season, there are from one to four pairs of marginal leaves (in the axils of which no branchlets are developed).

The male aments usually attain to their full size before Christmas, and are very conspicuous throughout the winter, but they are frequently injured by frost, which may possibly account for the fact of the plants seldom maturing seed.

Cuttings of it, as compared with those of other species, root with difficulty.

If grafted on *C. Lawsoniana* the scions unite readily,

* Spach, *Hist. des Vég. Phaner.*, vol. xi, p. 333 (1842). Parlatore, in *DC. Prod.*, xvi., pl. 2, 465. Syn. *Cupressus nutkaensis*, Hook. *Fl. Bor. Am.*, vol. ii., p. 62; *Gord. n. Pinetum*, ed. 2, p. 94. *Thuopsis borealis*, Hort. *Curr. Conif.*, p. 113.

but only to result in death in a year or so. It does better on *Juniperus communis* and *virginiana*. So that, barring the fact of its union by grafting for a little time with *C. Lawsoniana*, the doctrine of a sap relationship existing between the members of a genus, though in a general way faithfully supported by the union by grafting of one species of Conifer with another is, I fear, only indifferently strengthened by the foregoing facts. *Geo. Syme.*

IRON AND WIRE FENCING.

WE have received from Messrs. J. B. Brown & Co., 90, Cannon Street, E.C., a copy of their new price list of iron fencing, wire netting, &c., which, on account of the manner in which it has been produced, seems to demand a fuller acknowledgment than we can, as a general rule, accord to trade catalogues. We note with pleasure the evident desire on the part of the firm to assist in the elevation of the standard of trade literature—a pleasing change which has made rapid strides during the last few years, and especially in connection with the trade lists and catalogues connected with horticulture and agriculture.

As a sample of the illustrations in the list before us, we annex two which Messrs. J. B. Brown & Co. have kindly placed at our service. Fig. 77 illustrates a sample of the wrought iron hurdles

Florists' Flowers.

AURICULAS: WHAT TO AVOID.—Our failures teach us, as do our successes; and it is well they should occasionally fall to our share, as they serve to indicate certain methods or modes of action or lines of practice that if persevered in will almost surely result in disaster. The truth of this is felt in all departments of human life, and the gardener and his peculiar work form no exceptions to the invariable rule.

I had read in books and heard it said many a time that at the end of the year, when the Auricula (for aught we know to the contrary) may be said to be least active—when, indeed, it appears to subside into a sleep, while the old year is gathering itself to its fathers, and the new year is throwing off its swaddling clothes—that the plants being at rest, but little water should be used, and then only just sufficient to keep the foliage from becoming flaccid. Such was the state to which I had reduced my Auriculas and Polyanthuses by the middle of December last. Then came with one swift sudden blow the severe frost, more or less severe in its duration, but continuous through its changes of degree, and fearing to give any water while the air was frosty it was withheld until the end of February. When the thaw came it found my plants dry almost to the core of the ball, with the

sible to have too much of what writers have termed a "good thing" in the way of keeping the plants dry in winter. It may be said the winter has been an exceptional one; but there is never any knowing when we may have a severe and prolonged spell of frost, and for the future I shall risk the chances of wet about the roots of Auriculas, and keep them fairly well moistened during winter. Such authorities as Mr. Douglas of Loxford Hall, and Mr. John Ball, Mr. Turner's Auricula grower at Slough, condemn the practice of allowing the plants to become too dry in winter.

Let us look for a moment at the converse of what has been set forth in the foregoing sentences. Some seedling show Auriculas of inferior merit, but yet of the show class, were turned out of pots in July, and planted out on a border fully exposed to the weather. It was a retentive and rather stiff piece of soil, but though the frost came, the rain descended and the snow fell, scarcely a plant failed, and they are now flowering freely, only that the birds in what seems to be a kind of sportive wantonness, pluck out the pips, as they also do those of a bed of Polyanthuses hard by.

Mr. J. T. D. Llewelyn, who has had to do battle with the white mould on the roots of some of his Auriculas, informs me that it appears to make the most rapid headway on plants that have the soil dry about the roots. In turning out my Auriculas I found a spot here and there where the soil was driest; it

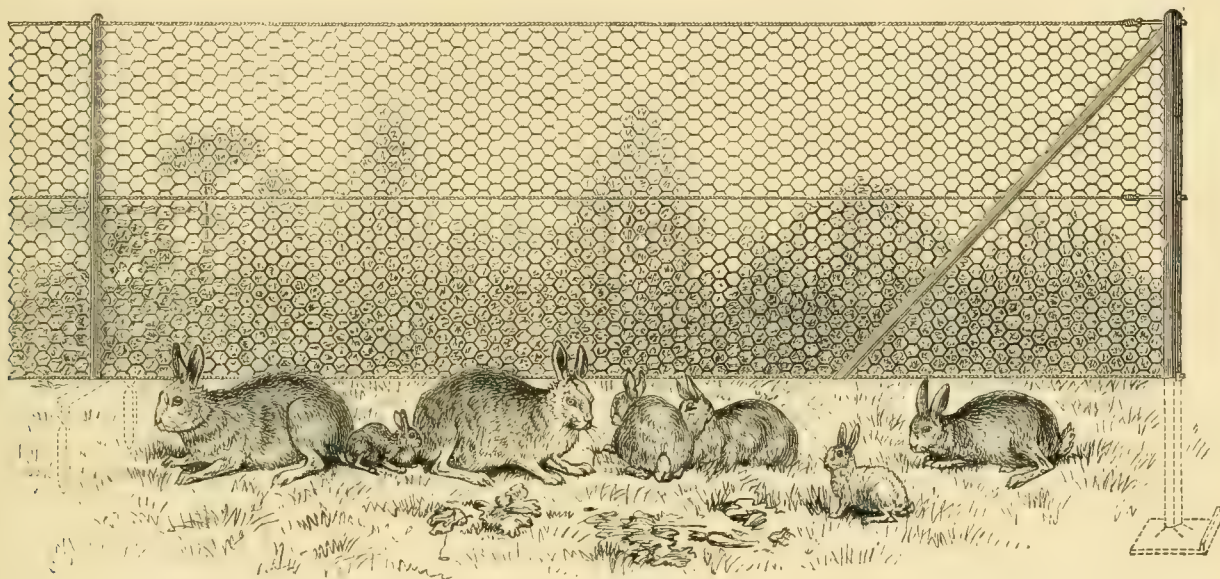


FIG. 78.—GALVANISED WIRE-NETTING FOR RABBIT FENCING.

which the firm recommend for fencing-in heavy cattle, and which are 3 feet 9 inches high and 6 feet long, the top bar three-quarters of an inch in diameter, the under bars five-eighths of an inch in diameter, and the end uprights $1\frac{1}{2}$ inch by three-eighths of an inch in thickness. Next to the hurdles come examples of continuous round and flat bar fencing and strained iron and wire fencing, for light and heavy cattle, and a good roadside fence, behind which is seen a portrait of Mr. Stratton's famous Shorthorn heifer "Icicle," which took high honours at the Smithfield Club show last year. Fig. 78 illustrates the improved galvanised $1\frac{1}{2}$ -inch mesh wire netting, used as a fence against rabbits, and which is 3 feet high, fixed to three galvanised seven-ply strand wires with iron standards 9 feet apart. For the Queensland, Australian, and New Zealand trade the firm manufacture a 3-inch mesh netting, 4 feet high, for enclosing sheep, and keeping out kangaroos and wallabies—the pests of the flock-masters in those countries; and that such netting is largely coming into use is attested by the fact that 150 miles of it have lately been sent out by this firm alone.

principal feeding roots that in the autumn had coiled themselves round the inner surface of the pots literally shrivelled up, not paralysed by frost but by drought. This drying process, pushed to the extent to which it was in the case of my own plants, proved positively injurious, there was a loss of energy and time—both serious matters in a late season when a general tardiness prevailed, and an exhibition in the third week in April loomed in the future.

It was not till I had soaked each plant in a pail of water that moisture penetrated to the centre of the balls, and when this was done the feeding roots curled round the balls rotted away, and, worse than that, the dry rot spread upward, reaching nearly to the surface of the soil and jeopardising the safety of several valued plants. It was only by turning them out, cutting away the decaying parts, and repotting in small pots, that they were saved. As soon as the newly formed roots near the surface got to work, and the usual top-dressing was applied, then the plants became active, but nearly all have flowered late, and the pips of some are only just opening.

Polyanthuses and alpine Auriculas suffered more than the show Auriculas. What in autumn were strong plants of the latter have scarcely flowered at all; and on turning two or three out of the pots, the only living roots were young ones put forth this spring. Polyanthuses are very dwarf in growth; and where they did make headway, the foliage is attenuated, the trusses small, and the poor pips. It is thus pos-

was carefully picked out and utterly destroyed, and the plants being re-potted and kept moist, I have not seen any further trace of it, nor does it appear on the roots of any plants where the soil was kept well moistened.

Therefore it is that our failures suggest valuable teachings, and experience, which is always a most useful mentor, indicates changes in the details of practice necessary for the well-being of plants. It is by recording failures as well as successes that growers are enabled to guide each other along the best paths that lead onwards to the most ample and complete knowledge. *R. D.*

THE AURICULA.—There are some growers of the Auricula—nay, some very old fanciers—who have a notion that it is a difficult plant to manage; and it seems almost as hopeless a task to get the old stagers to believe that this is a fallacy as it would be to attempt to get the weather regulated according to the requirements of unsuccessful growers. With the latter the wretched season, or the wretched weather, is a stock subject for grumbling about. It is never right as it ought to be for them or their plants, being either too hot or too cold, too bright or too dull; and as if the difficulties of getting the plants to grow at all under such deplorable conditions were not enough, their cup of misery is filled to overflowing by a continual warfare with the Auricula aphid—a combat in which the downy pest usually has the best of it. But

SCOTTISH PANSY SOCIETY.—The thirty-fifth annual competition of the Scottish Pansy Society will be held in the Calton Convening Rooms, Waterloo Place, Edinburgh, on Friday, June 27.

it is time this continual wailing about the weather was dropped. The months of March and April always have been fickle and changeable, and no worse for Auricula growers than for the cultivators of any other class of plants. I heard of one grower last week who lost his entire collection—killed, as he said, by frost; but this was quite impossible. The frost in the British Isles is never so intense that this hardy alpine can be injured by it. Our own plants, of all sorts and sizes, were in cold frames until the last week in March, and over one hundred plants were in the cold frames until the date of the Auricula exhibition, and these were at their best at that date.

The fact is, Auriculas are like other plants; they require attention all the year round; they must be potted at the right time, and in a careful manner, and must not be coddled at any time. It is now time to re-pot; and let the compost be decayed turfy loam, leaf-mould, and rotten cow or stable manure. Do not over-pot; place the large plants in 4-inch or 5-inch pots, and the smaller sizes in 3-inch. Drain the pots well, and place some moss or fibre over the crocks. See that the plants do not suffer for want of water at the roots at any time. I do not like to see them too dry, even in winter. They take most kindly to a cool shady place in summer, and the frame-lights should be removed from them entirely, except when it rains, or in a gale of wind.

One pleasing feature of the national exhibition last week was the very large attendance of visitors. We may hope that this will prove a fresh stimulus to the culture of the Auricula. In your report last week one or two points of interest were but slightly noticed; one was the high quality of the old Auriculas. Colonel Taylor in green edges was in perfect condition; one in the collection of fifty plants from the garden of J. T. D. Llewelyn, Esq., would have been placed first in its class had it been shown there. Freedom, with its slightly angular paste, has yet a pure green edge, although no one can grow it but Mr. Horner. Mr. Simonite's Richard Gorton is evidently a seedling from Prince of Greens, which must be seen again before judgment can be passed upon it. Anna (Traill), is said to be an improved Freedom, but in growth it is distinct, as well as in flower. In grey edges the constancy and refinement of George Lightbody is not yet equalled. Alexander Meiklejohn was certainly very attractive; its broad silvery grey edge and black body colour are its strong points. Grey Friar, from J. T. D. Llewelyn, Esq., is quite distinct from any Auricula known to me, and is worthy of a place in the most select collection. Samuel Barlow and William Bradshaw, from Mr. Simonite, are certainly distinct and good flowers, although they must take a place lower than Lancashire Hero. In white edges, Walker's John Simonite, if not so constant as Smiling Beauty, has certainly a much purer white edge; it will long hold a leading place. Taylor's Glory was in good condition; it also has a very pure white edge. Lee's Earl Grosvenor never was shown finer; its edge is of the purest white, and its only fault a slight scattering of meal on the body colour. Anna Smith was well shown; this has also a very pure edge, but the flowers are wanting in shape, and the body colour breaks through the outer edge is of the petal. In selfs, Topsy, Pizarro, Lord of Lorne, C. J. Perry, Meteor Flag, and Eliza, were the best. Ringdove (Horner) is quite new, and has the roundest paste of any. In alpins the improvement is very marked. Mr. Turner, of Slough, exhibited the best collection that has ever been seen; his new shaded edged flowers, from which Duchess of Connaught and A. F. Barron were selected as the best, are very beautiful; and they are hardy enough to stand in the open garden through our severest winters. *J. Douglas.*

Forestry.

HEDGE-PLANTS.—The subject of hedges is so vast and important that I think it well again to refer to it. Though the Thorn or Quick is decidedly the best hedge as a fence against animals of all kinds, yet there are situations and soils in which Thorn hedges will not succeed, though well adapted for hedges of some sort in other respects. In bygone days, when underground drainage and even surface drainage was little known or practised in this country, the common mode of hedge planting was to lay up a very high and broad mound or ridge of earth of various dimensions and plant a double hedge upon the top of it. This system had the advantage of affording well-prepared or at least turned over and loosened soil for the roots of the plants to draw nourishment from, and at the same time kept their roots dry and perfectly clear of water. This was the mode adopted by the Romans, who

planted several hedges of considerable extent in Scotland, the remains of which are still to be seen in several districts, and in some cases constitute even yet tolerably good fences. [!] Such hedges do not appear to have been much cut or pruned, but if they had been so, and a fair amount of attention paid them, they would probably have still been alive and excellent fences at the present day. The common Thorn in suitable soil is a very long-lived plant, and as a hedge when the ground is suitable it would probably live longer than as a tree unpruned or cultivated. Next to Thorn hedges that of Beech is most common and useful. It possesses some points of superiority over the Thorn, such as thriving in lighter soils, and living in such to a much greater age than Thorn. It also affords much better winter shelter than Thorn does, being indeed in that respect as good as an evergreen, for the Beech tree grown as a hedge retains its old leaves till the new ones displace them, which in severe exposures is a great boon for shelter. In exposed districts, when stones cannot be procured, and when land cannot well be afforded for planting shelter belts, nothing is more commendable than Beech hedges; and when the soil is deep, dry, and light, they may be grown to a great height, thereby affording shelter of the very best description.

As already stated, the Beech is too soft and inviting to browsing animals, to admit of its being planted alone in many places where it would, as a shelter, be most desirable to have it. Rather than lose the advantage of Beech shelter, what should be done is, to run one or more Bessemer steel wires upon a line of posts, put in temporarily or otherwise, according to the time the field is to be under pasture, and when the field is again ploughed up the temporary wire fence may be removed, and the ground ploughed closely up to it. The Beech hedge as a general roadside fence has probably no rival, and is sufficiently strong and durable to withstand the temporary injury sustained by animals driven along the roads.

The Elder or Boor-tree, from its rapidity of growth, cheap and easy culture, and distastefulness to animals of probably all kinds, is of considerable importance as a hedge plant in certain places, and especially on sea exposures. Its culture and management is very easy and simple. It grows readily from cuttings of one year old stuck into the ground, and the hedge thus raised must be pruned at least twice in the season. I have seen some very useful hedges of Elder formed by first allowing the plants to become as strong as net stakes, cutting them over about 4 feet high, and running one or more fencing wires throughout the length of the fence, and threading it through in such a way that, when drawn tight, it catches hold or presses against the growing supports. The advantages in this case are, that no fence posts are required, and the wire will last a great number of years, and form, as it were, a sort of backbone to the hedge.

The Sea Buckthorn (*Hippophae*) is an excellent hedge plant for certain situations, and is highly commendable for situations severely exposed to the sea. It grows in soils of the poorest description, is easily cultivated by cuttings or from seed, and it bears pruning as a hedge—which is an essential point—as well as the common Thorn or Beech.

The Holly, though probably forming the most beautiful fence of any, and sufficient to resist cattle of all kinds, except, perhaps, the goat or deer, which bark and destroy it, is, however, too fastidious of soil, and also too choice of situation, and unless both soil and situation highly favour its growth it is of no use attempting its culture.

The Buckthorn (*Rhamnus*) is well adapted for tops of turf banks and luxuriates in sandy soil, too light for most other plants except perhaps the Beech. It grows very compact, and nearer to the sea than any other hedge plants do.

The Willow, though essentially different from all the above-named hedge plants in many respects, yet possesses special merits of its own, and it is adapted for soils and situations where the others will not succeed. For flat soft meadow ground or spongy flow-moss it is well adapted, and will form both a fence and shelter, if treated somewhat like the Elder, though it is rather preferable as a shelter plant, and for adorning otherwise bleak and bare districts of country. It is easy and simple of propagation, all that is needed being simply to cut shoots of branches or suckers young or old (the young wood is best), stick them into the ground at least 9 inches, and cut them over frequently in order to thicken the hedge. The variety of

Willow will depend upon the soil and exposure, but of all others the goat and mountain Willow varieties are best.

Whins or Furze have long been in cultivation for fences, and possess merits of their own of considerable importance. They grow readily from seed, and should be sown in spring or autumn. Spring I find to be the best season, as thereby they gain considerable strength before the winter sets in, which if sown in autumn they could not do. The principal thing to attend to in the culture of Whin hedges is that of cutting or pruning so as to do the work at the proper season of the year, which should be as soon after the flowers are faded as possible, so that the plants may again recover their growth before winter sets in. The worst things attending Whin hedges are the necessity of a mound of earth to grow them upon which very speedily attracts rabbits, to the annoyance and destruction of trees or crops in the neighbourhood; and their liability to die out periodically, and from various causes, such as frost, lodgments of snow, &c.

Besides these there are other hedge-plants, such as Privet, Arbor-vitæ, Yew, Sloethorn, Brier, Berry, &c., chiefly adapted for pleasure-grounds, garden fences, and suchlike.

Many planters prefer mixing hedges with different species of plants, as Thorn and Beech, Thorn and Brier, Crab-apple and Buckthorn, &c. Though this is often done, and I have also practised it, yet there appears no important advantage gained by the system, but, on the contrary, considerable evils arising from it, as the best and most serviceable hedge-fences after all are those consisting of but one kind of plant. *C. Y. Michie, Cullen House, Cullen, Banffshire, April 28.*

Garden Operations.

FLOWER GARDEN, ETC.

Surface-stirring amongst growing plants is one of the most important operations in the art of cultivation, and it should at all times be diligently followed up whenever the surface has become consolidated by atmospheric conditions. That it is highly beneficial to the plants will be sufficiently obvious to any careful observer who will contrast the appearance of the plants a few days after the operation with their previous growth; it conduces also to the keeping down the seedlings of weeds, and besides acting beneficially on the growth it imparts a fresh appearance to the beds and borders, which is far more pleasing to the eye than battered-down surfaces. No opportunity, therefore, when the soil is sufficiently dry, should be omitted for performing this necessary operation, both on the mixed borders and amongst the beds of spring flowering plants, which should now be advancing into beauty. I do not think that I have ever seen the Hyacinths in the open air come finer than this season; the advantages also of deep planting, as I formerly recommended, have been very obvious, as they have developed large and sturdy trusses just out of the ground, and have, therefore, been better able to withstand the variations of weather to which they have been subjected, some of which have been very trying. I may add that there is no doubt of the very great superiority of imported bulbs over those retained from former years, even when treated under the most favourable conditions, which in the ordinary course of cultivation they are not, because their places are required for summer bedding plants before the roots are properly ripened, hence they have to be lifted and plunged in sand or other material to go to rest, and this violent treatment generally involves a loss of a third part of the bulbs; the remainder are useful enough for secondary and detached beds, and for patches in the mixed borders and in warm sheltered nooks in the shrubberies, but are not to be depended upon for effect in geometrical arrangements. Any arrears of seed sowing amongst hardy annuals should be seen to at once; these late sowings will flower well on to the end of summer, when their places can be filled up with reserve plants of Asters and such-like. The general stock of the different varieties of biennials and perennials for next year's flowering should be very soon sown. I prefer sowing them in drills, and rather thin, to avoid the necessity for pricking out; where circumstances compel thicker sowing, pricking out becomes indispensable. Amongst the rest do not forget to sow a good collection of the charming dwarf Scabious: I saw some beds of it last year which astonished me by the brilliancy and variety of their colours, and no place should be without a bed of them. Brompton Stocks and Wallflowers, particularly the German varieties, have suffered much from the severe winter, but I find that the plants pricked out before the final transplanting are best able to

resist the extreme variations of weather we have experienced, and the sowing, which must be made soon, should be performed with reference to these requirements. Where Violets are required for potting purposes no delay should now take place in securing strong cuttings of the Czar, Neapolitan, and Lee's Victoria class, and planting them in well-prepared beds of a compost which is rather stiff than otherwise and not too rich, or an abundant foliage and paucity of flowers will result. The Czar and Victoria from this planting will produce fine blooms in the autumn; the planting of the general stock for spring flowering may be deferred for a fortnight or so. The process of hardening off all sorts of tender plants intended for bedding-out and sub-tropical garden purposes will now require very particular attention; the mistake of exposing them too much before the tissues have become hardened is often made at this time, when the plants crowd each other in every department and the gardener is frequently very much puzzled to know what to do for the best to get the stock into the proper condition for planting out. It is just at this season that portable frames about 6 by 4 and covered with stout canvas are so very useful, the plants being sheltered from cutting side winds by half-inch Pine boards set up on edge at the required distances, and supported temporarily by short pointed stakes driven in on each side; these are soon put down and soon taken up, and being required only for a short time may be placed on any piece of ground vacant for the time required. The canvas-covered frames being placed on at once, the necessary exposure during the day is secured with little trouble by lifting every alternate frame on to its next neighbour in the morning and replacing it at night, and the next day reversing the process. Planks of 1 foot wide will serve for dwarf-growing plants, but taller ones will require a width of 18 inches or so. Of course these are only temporary aids where glass-covered pits are not sufficient for all hardening purposes, and many of us know by experience that such is seldom the case. Attention to the propagation of any plants of which the stock is deficient, must be immediate, and the potting off of struck cuttings diligently followed up. Cuttings of *Mesembryanthemum cordifolium variegatum* may still be inserted if necessary, but the propagation of so useful a plant should never be left to the eleventh hour. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

Pruning and nailing being now finished, everything in the way of prunings should be cleared away at once, if not already done, as nothing looks worse than a lot of dead sticks lying about under the trees when the blossoms and fresh young leaves appear. The best way of getting rid of that and all similar rubbish is to make a fire of it, and thereby convert it into valuable manure, besides affording a good opportunity of charring turf or burning clay if required. Any arrears of mulching or pricking up of the borders that still remain to be done should receive immediate attention, and all grafting should now be finished forthwith. The clay about the grafts that were put on a few weeks ago will require attention in the way of filling up the cracks where such occur, and they will occur plentifully unless the clay has been nicely covered with moss or something else to keep it uniformly moist. Careful attention must be given to disbudding, and at the same time a sharp look-out had better be kept for caterpillars, maggots, greenfly, or any other vermin that are known to infest fruit trees in the early stages of growth. Trees that were badly infested last year will be pretty sure to suffer in a similar way this season, unless vigorous measures were taken to rout out the insects in the autumn and early winter months, when that can be done effectually without detriment to the trees. Very mild means must be applied now, however, if we wish to avoid injuring the trees as well as the crop. All mixtures of a soapy character are more or less dangerous to use upon very young foliage, and the same may be said of every other kind of remedy unless great caution is used in applying it. Even clean water should not be thrown upon the trees with too much force while the leaves are very young and tender. A bad attack of aphides of any colour is disastrous in its effects upon fruit trees at this early season of the year, unless the matter be taken up in good earnest and the insects destroyed before they cripple the trees and ruin the crop. In such circumstances it will be well to try a weak mixture of tobacco-water upon a single branch or so of the part infested until the requisite strength is found for killing the insects without hurting the trees, and after that to follow up with a more general application, repeating it at frequent intervals until every trace of the enemy disappears. Maggots are commonly found upon Apricots, Cherries, and Plums, and less frequently upon Pears and Apples; and as they have a way of rolling themselves up in the foliage they are not difficult to find. Their early destruction is of first-rate importance, as they soon disfigure and spoil both crop and tree if left to themselves. The leaves

should be unfolded and the maggots picked out and destroyed. This requires a little patience, but it is a far preferable plan to picking off maggots and leaves altogether, as is sometimes done, as that is simply to destroy the foliage ourselves instead of allowing the insects to do it. *F. Harrison, Knowsley.*

FRUIT HOUSES.

VINES.—Although the weather is still cold we have a decided improvement, and Vines in all stages of growth have been greatly benefited by increased ventilation and early closing with sun-heat in lieu of incessant firing, which has been absolutely necessary to maintain the minimum temperatures. As a rule excessive firing produces red-spider in abundance, particularly on Vines that are carrying full crops of Grapes through the most trying stages, and as these troublesome insects spread with alarming rapidity, the usual remedies in favour must be applied and vigorously followed up without delay. When driven to extremities some growers apply the syringe, but in the most careful hands the application of water is liable to damage the bloom. Sponging the foliage is a tedious operation, but if taken in time the Vines may be kept in good health until after the crop has been removed, and as future crops depend upon the preservation of the foliage, early attention to this work is imperative. Having taken time by the forelock, a careful examination of the internal borders must be made, and if at all dry a liberal application of tepid liquid manure will be found a powerful supplementary antidote. In old houses and wooded districts the small spinning spiders are frequently troublesome, and cause great annoyance to growers who pride themselves on faultless finish, by travelling over the berries before the bloom is thoroughly set. To keep these in check a constant disturbance of their haunts in summer and a careful cleansing of the structure in winter are items worth looking after. Grapes now colouring fast will require abundance of warm air by day and night with plenty of moisture on the paths, walls, and mulching. Gradually reduce the night temperature as they approach ripeness, and keep the atmosphere dry and cool where they have to be kept any length of time. Follow up the daily routine in succession and late houses, and keep stopping, tying, and thinning well in hand. Fertilise Black Morocco, Muscats, and other shy-setting kinds every fine day when the temperature has reached the maximum, having removed the greater part of the surplus bunches prior to their coming into flower. To have Gros Colmar thoroughly ripe and fit for use before Christmas, the fruit should now be setting in what is termed a mid-season or early autumn-house, as this variety takes more water and requires a longer ripening period than any Grape we have in cultivation. Newly planted Vines may now be well mulched and liberally supplied with water as a means of keeping the roots near the surface. Follow former directions with regard to training, and allow all laterals to make free growth until every part of the trellis is covered. As the season advances the laterals from the base upwards to the bud to which it is intended to prune may be kept closely stopped in, but the old leaves must be carefully preserved. *W. Coleman, Eastnor.*

MELONS.—Sunless days (with few exceptions), with chilling east and north-easterly winds and low temperatures at night are, and have been for some time past, the prevailing characteristics of the weather, thus rendering it very unfavourable for forcing of every description, and, moreover, rendering the consumption of fuel almost equal to that of mid-winter. But, notwithstanding these adverse circumstances, Melons are progressing satisfactorily. In the early house—with us a hot-water pit—the fruits are now approaching maturity, thus necessitating a somewhat drier and more airy atmosphere in order to ensure highly flavoured fruit. With this object in view a little air should be left on at night, inasmuch as pent-up air is antagonistic to the high-flavours and colouring of fruit in general. Let the usual stopping, thinning, and ventilating of the plants, syringing, &c., be attended to as recommended in former Calendars. *H. W. Ward.*

CUCUMBERS.—Add some more soil to the hillocks in successional-houses where necessary, and, should the roots appear through the surface of the bed in the early houses, a couple of inches of a mixture of two parts light loam and one of short well-decomposed stable-dung can be added as a top-dressing with considerable advantage to the plants. This operation should be repeated as often as the roots push through the surface of the bed in which the plants are growing, each top-dressing imparting renewed vitality to the plants. These will now, as a matter of course, require liberal supplies of water to the roots, but where the plants are growing in dung frames this operation should be performed about mid-day, at all events sufficiently early in the day for the plants—the foliage—to become dry before night, otherwise without the assistance of fire-heat mildew would, in all probability,

be troublesome. The thinning, tying, and stopping of the shoots will require daily attention, otherwise the plants would soon become overcrowded, which would be a state of things to be avoided, inasmuch as the growth made under such unfavourable, unskilled treatment would be flabby and long-jointed. Let all decayed portions of wood and leaf be removed forthwith as soon as they are noticed, as they detract from the neat appearance and health of the plant. Superfluous fruit, which will now be showing abundantly, should also be removed daily. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

The chief things requiring immediate attention in this department are the Azaleas that were got early into bloom, which, as they fade and lose their beauty, should be picked over so as to free them of all seed-pods, nothing tends to bring on exhaustion so rapidly as to allow these to remain on and ripen. Although Azaleas are very accommodating, and will, if well watered, keep in good health in the same pots for years, they, like most other things, are greatly benefited by a small annual shift, the new soil they get by it affording them a fresh impetus, which enables them to make stronger growth, and as a natural result larger and more perfect flower-buds. Some years ago a few cultivators of these plants used to mix a certain quantity of loam with the peat, but experience has since proved that it is far better to use the latter alone, and even to divest it of a portion of its earthy matter instead of adding to it. Judging from the very fine specimens produced by those who adopt the latter course, there can be no question that Azaleas, as well as most other hard-wooded subjects having similar hair-like roots, greatly prefer the more fibry material to feed on, which being the case, it is always advisable when chopping the peat up, or pulling it to pieces, to cast aside the finer portion, which if laid by, comes in for such things as Achimenes, Gloxinias, and others of that class which are not quite so particular. Next in importance to that of securing and making use of good peat, is that of adding sufficient clean sharp silver sand to insure its perfect porosity, for without this the best soil, even with the most careful watering, is almost certain to become sour and inert. In potting it should be borne in mind how difficult it is to moisten a hard compact ball of earth, unless the new soil placed around it be well compressed, and the only way to do this effectually is to ram it in by means of a flat blunt-pointed stick, which used dexterously unites the whole as it were in one solid mass, in which the plants get quickly to work.

It often occurs with young beginners and others who have not had much experience in potting, that they keep the ball so high, and fill the pots so full, as to render it impossible to give sufficient water at any one time to permeate the whole body, the result of which is, that the centre soon becomes dust-dry, and when once peat gets into this state it is a difficult matter to get it in a healthy moist condition again. The only certain way of doing so is to immerse the pots in a tub or other vessel of water for a few hours, or let them remain till such time as air-bubbles cease to rise from the soil, for so long as these make their escape there is a dry part somewhere, but plants so treated should be stood where they can drain quickly after, or the excess of moisture will entail a loss, or endanger some of the roots. Azaleas when making their growth are greatly assisted by having a strong moist heat, which may be afforded by closing early in the afternoon, and giving a heavy syringing, a course of treatment that is highly congenial, and one that is a sure preventive against red-spider.

The old plan of drying off the tubers of Cyclamens after blooming is now being abandoned, and a more rational course pursued, so that instead of carrying only a few flowers each, they produce them by the hundred, and make a magnificent display. This satisfactory state of things is attained by growing them on either in a pit or frame, where they are kept watered or syringed, or by planting them out and treating them in the same way, but unless they have been properly hardened and prepared for the change, the weather at present is too cold to expose them. The great thing with these is to maintain the foliage in a fresh, healthy condition as long as possible, in order that it may perform its allotted functions by assisting in secreting and storing up sufficient organisable matter to produce plenty of bloom another year. The fact that the flowers are formed so long before they are seen is a matter too frequently lost sight of by many, and such things as the above-named, Lily of the Valley, Spirea, &c., get so crippled immediately after forcing as to be of little or no further service after. If space can only be spared to keep them under glass and grow them on for a time they amply repay the extra care and attention, as do all hardy subjects that have been brought on in heat, and have young tender foliage just forming. Solanums, the berries of which are now falling, should be pruned back at once, and started in a little warmth, *J. Sheppard.*

THE

Gardeners' Chronicle.

SATURDAY, MAY 3, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| TUESDAY, | May 6 | Sale of Plants, at the Cross-my-Loof Nursery, Glasgow, by David Mitchell (two days). |
| | | Sale of Greenhouse and Bedding Plants, at Waterer's Nursery, Tottenham, by Protheroe & Morris. |
| WEDNESDAY, | May 7 | Sale at Hall Place Gardens, Besley, by Mr. Dann. |
| | | Sale of Imported Orchids, at Stevens' Rooms. |
| THURSDAY, | May 8 | Sale of an Importation of Brazilian Orchids, at Stevens' Rooms. |
| FRIDAY, | May 9 | Sale of Imported Orchids from New Grenada, at Stevens' Rooms. |
| SATURDAY, | May 10 | Norfolk and Norwich Horticultural Society's Spring Show. |

THE cultivators of COFFEE in Mysore and Ceylon will have rejoiced over the perusal of the opening paragraph of an article which appeared in a recent number of the *Indian Agriculturist*,* to the following effect:—"The death-knell of the Coffee leaf-fungus, *Hemileia vastatrix*, is, we think, sounding, and this great scourge of the Coffee planter has, after so many years of unchecked reign, at last been firmly grappled with." The subject of this death-knell thus exulted over is the parasitic fungus which for some years has proved so destructive in Coffee plantations, and which to botanists is known as *Hemileia vastatrix*, figured in these columns by Mr. BERKELEY, in 1869, p. 1157. It is always a source of gratification when such pests as Hop mildew, Potato disease, and Coffee leaf disease are successfully contended with, and we can pardon a tendency in interested parties to halloo before they are quite safe out of the wood. The reason for this elation in the present instance is the publication of a report by Mr. D. MORRIS, Assistant Director of the Botanic Gardens, Ceylon, on the results of experiments carried on at the Wallaha Coffee estate in January, 1879. From this report it is concluded that the disease may be stamped out by adopting the sulphuring process, as recommended by Dr. COOKE, at a sufficiently early period. Although, when sulphuring was first recommended to be tried, the planters manifested but little desire to experiment in that direction, yet now they will probably devote both money and labour to achieve the eradication of an undoubted scourge. Mr. MORRIS divides the life history of the Coffee fungus into three stages, in the first of which a thin network of very delicate threads spreads over the under-surface of the leaves, and insinuates itself into the tissues through the stomata, especially in damp weather. The filaments in this stage are so minute that it takes nearly 40,000 of them placed side by side to cover an inch, hence they can only be detected by means of the microscope. The second stage consists of the fungus established within the tissues of the leaves in which the threads become thickened, and the cell-contents of the leaf are gradually absorbed to sustain the parasite. The third stage is that in which the clusters of orange sporangia burst through the cuticle, and appear again at the surface, and all the mischief of which it is capable has been accomplished. From Dr. THWAITES' report in 1874, and more recent observations by Mr. ABBAY, it will be seen that secondary spores are produced in chains, not unlike those of the common blue mould, and these minute spores, very much smaller than the ordinary spores, are capable of being readily disseminated and widely diffused, whereas the primary sporangia are large and not readily distributed over very wide areas. The very rapid spread of the disease may rather be accounted for, Mr. MORRIS considers, by means of the distribution of these very minute secondary spores, the germination of which constitute probably the

thin filamentous coating alluded to as the first stage of the disease.

Any successful effort to eradicate the disease must be directed to its earliest stages, and hence we find that the course recommended is the application of sulphur to the leaves at the period when the external filamentous mycelium is developed.

"If during the months of February, March and April, advantage be taken of the heavy dews to apply sulphur to every part of the Coffee trees and on the ground, its value as a specific for leaf disease ought to be apparent during the coming crop time. From the experiments carried on at Wallaha it is evident that when sulphur comes in contact with the filaments and spores it completely destroys their vitality, and if carefully applied cannot fail to lessen the severity of the next season's attack." *Morris' Report.*

As an additional measure it is proposed, as preferable to collecting the fallen leaves at the end of the season, that coral lime should be freely applied, in a dry powdery state, "as soon as possible after it has left the kiln," not only over the stems and branches of the trees, but especially over the withered leaves lying on the ground. This quicklime destroys all the spores with which it comes in contact, and aiding in the decomposition of the withered leaves on the ground, prevents the danger of subsequent infection.

This is, in effect, the method of procedure which the report advocates; and if these two plans are followed out—of sulphuring the trees when the early stage of the disease makes its appearance, and treating the fallen leaves and ground with quicklime at the close of the final development of the fungus—it is confidently believed that the disease may now be stamped out. The whole process commends itself as so reasonable that we feel no doubt of its ultimate success if persevered in, but there must be no half measures; the sulphuring must be taken in time, and thoroughly done, without any compunctions as to waste of sulphur or cost of labour; and, in order to dispose of the spores which are sure to be developed to a limited extent for a few years, in spite of sulphur, the fallen leaves must be rendered innocuous by the use of lime. This latter will not be altogether a useless addition to the soil. Of course there will be some planters who will not at first avail themselves of these suggestions; it was so when similar methods were recommended for dealing with the Hop disease; but when proved to be practically successful such dissentients will speedily diminish, and the danger will only be a temporary one of estates on which nothing is done becoming centres of infection, since the most incredulous will have to be convinced against their will. If Mr. MORRIS' very sensible advice is followed, loyally and perseveringly, we have no doubt that the predicted consummation will be realised, and therefore we endorse the quotation with which we commenced, that "the death-knell of *Hemileia vastatrix* is, we think, sounding, and this great scourge of the Coffee planter has, after so many years of unchecked reign, at last been firmly grappled with."

— DENDROBIUM NOBILE.—This grand old Indian Orchid is now so largely grown, and its merits are so highly appreciated, that no song of praise is required from us while introducing into our columns such a portrait of the plant (fig. 79) as appears on the opposite page, and which Mr. SMITH has prepared from a photograph kindly sent to us last month by OSMOND F. WAINWRIGHT, Esq., Rushton, Kettering. The plant is 5 feet 6 inches high, has 147 flowering pseudobulbs, and on March 7 bore 1200 fully expanded blossoms—a perfect picture of loveliness, of which its cultivator may indeed feel proud.

— HARDY PRIMULAS AT CHISWICK.—Among the hardy Primulas Mr. BARRON has this year bloomed at Chiswick there is one, raised from seed obtained from Sikkim, which closely resembles the Himalayan *P. purpurea*, excepting that the flowers are of a

decidedly deeper hue of colour than anything we have yet seen; and there is more of red or magenta in the hue of the blossoms. This and *P. cashmeriana* are both good additions to our hardy Primulas; and unlike the somewhat delicate *P. capitata* introduced a short time since, they appear to be robust like *P. denticulata* and its allies, and the charming *P. rosea*. The latter is so novel and winsome that it will do much in the way of creating a taste for the cultivation of the many fine forms of the hardy Primulas which culminate in the fine new types of *Primula cortusoides amena*.

— THE TEMPERATE HOUSE AT KEW.—It is always a matter for surprise when visiting this house that more gentlemen have not imitated, even if on a smaller scale, this noble house. Once constructed the cost and trouble of maintenance is little compared with an ordinary conservatory, while the effect is greatly superior. Just now this house is specially worth a visit. The noble Araucarias, stately Cordylines, and superb Tree Ferns, are in fine condition, some making their new growth. The green of the foliage, which at some seasons is apt to be monotonous and sombre, is now enlivened by the brilliancy of the Acacias and Camellias. The Rhododendrons are well nigh over, but the bud-scales of the opening leaf-shoots are almost as beautiful as the flowers. The most showy among the Acacias are *A. longifolia*, *A. Riceana*, *A. pycnantha*, *A. verticillata*, and *A. leprosa*. Mr. PEACOCK'S succulents in the Octagon look to great advantage. By the way, how long is this fine building to remain uncompleted?

— THE UTILITY OF BEES.—A great bee-master, the Reverend M. SAUPPE, in Lückendorf, makes the following calculation, intended to prove the eminent agricultural and economical importance of the rearing of bees:—Of each of the 17,000 hives to be met with in Saxony 10,000 bees fly out per diem—equal to 170 millions—each bee four times, equal to 680 millions, or, in 100 days, equal to 680,000 millions. Each bee, before flying homeward, visits fifty flowers, therefore the whole assemblage has visited 3,400,000 millions of flowers. If out of the ten only one flower has become fertilised, 340,000 millions of fertilised flowers would be the result. Supposing the reward for the fertilisation of 5000 flowers to be one German pfennig, the united bees of Saxony have obtained per annum a sum of 68 million pfennige = 680,000 marks (£34,000 sterling). Each hive represents in this way a value of £2 sterling.

— MUSCARI.—There are several species of this genus now in flower at Kew, not forgetting the old Starch Hyacinth, *Muscari moschatum*, and Starch Hyacinth *M. botryoides*; *M. Sczovitzianum*, with flowers of a pale porcelain-blue; *M. compactum*, a relatively large-flowered species with very dark blue, almost black flowers; *M. Pinardi*, with cylindrical flowers of a cobalt-blue margined with white, one of the finest of all; *M. Heldreichii*, remarkable for its subglobose urceolate flowers, blue margined with white; and *M. micranthum*, as its name implies, a small-flowered form.

— COLOUR IN LEAVES AND THE SUNLIGHT.

Though the delinquent sun may be said to have got somewhat in arrears in the matter of necessary service, and the spring is one of the most deficient in solar light and heat we have had to endure for years past, yet flowers take on their summer hues, and leaves their striking colours. This was especially illustrated in the case of the charming variegated Pelargoniums shown by Mr. THOMAS PESTRIDGE, of the Boston Park Nursery, Brentford, at the meeting of the Royal Horticultural Society on the 22d ult. Not in the case of one or two varieties only, but in the case of several, the leaf colours were as vivid and definite as in the height of summer. Gardeners and others looked on and wondered how in such an uncongenial season this came about; and yet there is no mystery about it, nor are any nostrums applied to gain the desired end. There are airy, light, warm, and dry houses devoted to the culture of this particular section of Pelargoniums, the right sorts of cuttings are taken in autumn, they are properly grown during the winter, they are never over-potted, which is a common fault with growers of these pictorial plants; they have the soil-bed fitted for their well-being, and the plants may truly be said to feel comfortable and always at home. It is no wonder such plants find a ready sale and

* The *Indian Agriculturist*, March 1, 1879.

fetch good prices in the London markets, and they are as sturdy and compact in growth as the most fastidious could desire.

— BORAGES AND THEIR ALLIES.—These make a show even thus early in the season. First of all there is the singular and elegant *Trachystemon orientale*, known also under the name of *Borago orientalis*, *B. cordifolia*, *Nordmannia cordifolia*, and *Psilostemon*

and size the stem-leaves are amplexicaule, sparingly but coarsely hairy, oblong-obtuse in form. It is a native of Georgia, the Caucasian provinces, and Northern Persia. *Arnebia echioides* is similar, but even finer, its yellow flowers being spotted with purple. *Symphytum grandiflorum*, also called *S. ibericum*, has the general appearance of most of the species of the genus, but has tubular primrose-yellow corollas four or five times longer

hairs. It is widely distributed in Southern Europe and Siberia. *P. saccharata* and *P. s. alba* are other nearly allied forms. These, with others less striking, may be seen in the herbaceous ground at Kew at the present time.

— WEATHER MAXIMS.—“Where the wind is on March 25,” says the rural weather prophet, “there will it remain until midsummer.” The wind



FIG. 79.—DENDROBIUM NOBILE, AS FLOWERED AT RUSHTON, KETTERING. (SEE P. 564.)

orientale. This is a very old plant in gardens, but too little known. Its thick creeping rootstock is apt to make itself objectionable in the border, and its large rough leaves look coarse in such a situation, but nothing can be more elegant than its erect, pyramidal, loose, many-flowered panicles of pale blue flowers, with recurved segments, projecting stamens, and white centres. The plant is a native of Roumelia, and the provinces to the south and west of the Black Sea. It is an admirable plant for the sides of woodland walks. *Nonnealutea* has, as its name implies, primrose-yellow flowers, like those of a *Symphytum*; in shape

than the deeply divided calyx, of which latter the lobes are linear-oblong. *Symphytum caucasicum* is a tall-growing species, with soft, not rough and bristly hairs, as in most of the congeners; stem-leaves decurrent, flowers in terminal panicles, tubular, funnel-shaped, blue and red—a very ornamental plant for the back of the herbaceous border. *Pulmonaria officinalis* and *angustifolia*, with their spotted leaves and blue flowers, are old friends; less known is *P. mollis*, a rather taller species, with unspotted, softly hairy, elliptic-lanceolate leaves and large red flowers, whose calyces are covered with thick-based black

was in the east on that eventful date, and there, with the exception of very short intervals, it has remained since. “A peck of March dust is worth a king’s ransom,” says the proverb. Kings do not require ransoms in these days, except they are monarchs of some barbarian nations, hence perhaps the indifferent estimate in which March dust is now held. During that month dust was scarce, if not valuable. Duke ARANZA, in TOBIN’S comedy of the *Honeymoon*, tells of his wife that “For the first fortnight, ruder than March winds she’ll blow a hurricane.” The winds of the past March, though cold, were not so rude or

as was JULIA's temper, and flying dust was a rarity. "The next, perhaps," continues the Duke, "like April, she'll wear a changeable face of storm and sunshine;" and in this simile we find a fair representation of our past month, excepting perhaps that storm has rather exceeded the sunshine. "April showers bring forth May flowers," exclaim the garden-loving children; but our April showers have been storms of snow and of heavy cold rains; they have presented little in common with those gentle warm downpourings, alternated with lovely gleams of sunshine, that exhibit Nature in her most pleasing aspect, smiling through her tears. Let us hope that April, when the period of storm and cold is past, may like JULIA, "break glorious as unclouded May, and where the Thorns grew bare the spreading blossoms meet with no lagging frosts to kill their sweetness." Such a prospect is delightful and cheering. Truly our ancient weather maxims are worthy of preservation, if only for the hope they create when seasons are churlish and gloomy.

— THE PRESENTATION PORTRAIT OF MR. MARNOCK.—We understand that Mr. T. B. WIRGMAN'S portrait of Mr. ROBERT MARNOCK has been accepted at the Royal Academy, and is well hung in the centre of the lecture-room. The portrait is considered a most excellent one, both by artists and those who know Mr. MARNOCK. Our readers will remember that this is a presentation portrait offered to Mr. MARNOCK by a number of admirers of his work as a landscape gardener.

— SAXIFRAGES.—In the newly constructed rockery in the centre of the herbaceous ground at Kew several species are now in flower, such as *S. flagellaris*, a low growing species with relatively large yellow flowers and long runners like those of a Strawberry; *S. Rocheliana*, of tufted habit with white flowers; *S. valdensis*, in dense compact hummocks of grey foliage with white flowers; *S. oppositifolia*, with purple flowers, &c. The art of constructing a rockery at once suitable for the home of plants and agreeable to the eye seems to be difficult of attainment. That at the end of the herbaceous ground might serve as a model, as also that at Chiswick.

— BATH AND WEST OF ENGLAND SOCIETY.—At the approaching meeting at Exeter, June 2 to June 6 next, the Hon. and Rev. J. T. BOSCAWEN, the Steward of the Horticultural Department, offers a cup of the value of £10 10s. for the best Orchid in a group of any number. Unsuccessful candidates need not despair, for if their exhibits are of merit it is probable that the cup will be supplemented by other honoraria.

— THE MACARTNEY ROSE.—This beautiful plant has suffered severely this winter, but it is satisfactory to find about London that it is breaking from the old wood—it is crippled but not killed.

— ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER.—The National Horticultural Exhibition, under the auspices of the above Society, will be opened by the President, the Earl of DERBY, on Friday, the 30th inst., at 2 P.M., and at 5 o'clock on the afternoon of the same day a dinner will take place in the Hulme Town Hall, a building about 1 mile from the gardens, at which the noble Earl will take the chair. We look upon this exhibition as an outcome of the International Show held in London in 1866, a great show having been held in Manchester the following year, and which has been repeated ever since. £1000 has been distributed annually in prizes, which have always—and this is a most important matter—been paid on the last day of the Exhibition.

— ADONIS VERNALIS is one of the most showy of spring-flowering plants. Its cut foliage, cut into linear threads, and its large yellow flowers, render it quite a first-class plant for the front of the herbaceous border.

— LOST, STOLEN, OR STRAYED.—At the Auricula show held at South Kensington last week, Mr. J. T. D. LLEWELYN of Ynisgerwn, Neath, exhibited a flowering plant of a yellow Primula, collected by him on the Alps of Switzerland, but which at the close of the show could not be found. As it is believed that it was taken away unintentionally

in the hurry of packing up by some one who must have found out the mistake when they got home, we mention the circumstance in the hope that it will be returned either to Mr. LLEWELYN, or to Mr. BARRON, the superintendent of the gardens. The exhibiting card was initialed "J. T. D. L."

— SANGUINARIA CANADENSIS.—There are few more lovely flowers than this. Its pairs of glaucous pinkish leaves, between which uprises a flower-stalk bearing a pure white star-shaped flower $1\frac{1}{2}$ inch in diameter, render it at once one of the most singular and beautiful flowers of the season. One great defect it has, the petals are so very caducous that a touch suffices to shatter them.

— MUSHROOM CULTURE.—In the last issued number of the *Journal of the Central Horticultural Society of France* M. DUCHARTRE recalls some old observations of Dr. LABORDETTE, who succeeded in growing some "magnificent" Mushrooms by simply sowing the spores on a plate of glass covered with sand and kept moist. Having in this manner obtained the spawn, he sowed it in a cellar in a bed composed of about 10 inches of sand and gravel, then a layer of mortar rubbish 4—5 inches thick. The bed so formed was watered with a solution of nitrate of potash (saltpetre), in about the proportion of 30 grains to a gallon of water to each square yard. With reference to these observations we refer our readers to our columns (1861, p. 966, and p. 1091, and again in 1864, p. 123), where our valued correspondent, "M. J. B."—than whom no higher authority can be cited—throws doubt upon the story, fortifying himself with the opinion of Dr. NYLANDER that the story was a myth. Dr. NYLANDER repeated the experiments of M. LABORDETTE, but with no results, and he came to the conclusion that the spores of the Mushroom will not germinate till they have passed through the stomach of some graminiferous animal.

— OROBUS VERNUS, and especially its variety cyaneus, form beautiful ornaments in the herbaceous border at this season and are not strangers in the greenhouse; their elegant foliage, dwarf habit, and blue or pink pea-shaped flowers render them very attractive.

— FRUIT PROSPECTS IN KENT.—Nothing definite can be said as to the coming fruit crop in the Kentish plantations. So far as can be seen no injury has been as yet done to any kind of fruit trees or bushes. All buds and bloom have been kept well back by the protracted winter, and there is every appearance of at least an average amount of blossom in its due season. *Agricultural Gazette*.

— NEW PRIMULA SINENSIS.—Mr. BULL sends us leaves and flowers of a new strain of *Primula sinensis*, quite different from any of the forms already in cultivation. The leaves are of the palmatifid type, but the edges, instead of being simply toothed, are toothed and curled or crispate, which gives them quite a distinct appearance, like those *Malva-crispa*. The flowers are white, with a greenish-yellow eye, semi-double, the margins of the corolla minutely and prettily cut into fine sharp teeth. We learn that this new form reproduces itself true from seed.

— BEGONIA ROEHLII.—We have received from Mr. E. BENARY, of Erfurt, some flowering specimens of this new Mexican Begonia, which show it to be a very ornamental species of perfectly distinct character. It has thick fleshy stems, and large one-sided leaves, which are veined beneath with red, while the rich crimson flowers grow on longish peduncles each supporting a short-branched dichotomous inflorescence, which in the bud state is enclosed by large coloured bracts. The bright colour and compact arrangement of the flowers renders them attractive. M. BENARY states that it was sent to him a few years ago by M. ROEHL. This year it has seeded freely for the first time, and plants raised in April were by September 20 inches high and very strong. The leaves are alternate, 10 inches long by 6 inches in breadth, of a dark green colour. "The buds of the inflorescence appear in October, and resemble an opening Pæony; they are enveloped in a dark red spathe, and rapidly expand into a beautiful umbel of large size composed of luminous deep red flowers. In

a temperate-house this fine species blooms freely and in uninterrupted succession until March. The flowers will be found of great utility for bouquets, if not too caducous."

— DORONICUM CAUCASICUM.—Among spring flowering hardy herbaceous plants this takes high rank, its bright yellow flower-heads, $1\frac{1}{2}$ inch in diameter, serving to enliven the garden when flowers are scarce. *D. macrophyllum* is a less known but much superior plant, with corymbose not solitary flower-heads. The lower leaves are on long sheathing stalks, the blades cordate, coarsely toothed, the upper leaves are sessile, amplexicaul, oblong-acute. The whole plant is nearly glabrous, but the flower-stalks and scales of the involucre are glandular hispid, the latter are linear lanceolate, prolonged into long points half as long as the yellow ray florets. It is a native of the Caucasus.

— ALPINE FLOWERS AT YORK.—Having experienced during the last few days a little warmer weather the alpine flowers have opened freely, and are now so numerous that it is difficult which to mention. Below we give a list of kinds seen in bloom on Messrs. BACKHOUSE & SON'S rockery:—

| | |
|--|--|
| <i>Ranunculus anemonoides</i> | <i>Androsace carnea</i> , A. brig- |
| <i>Muscari He dreichii</i> , M. para- | <i>antica</i> , A. Vitaliana, A. sar- |
| <i>doxa</i> | <i>mentosa</i> |
| <i>S. danella alpina</i> , S. montana, | <i>Arabis rosea</i> |
| S. minima | <i>Dondia Epipactis</i> |
| <i>Draba gigas</i> , D. ciliata, D. | <i>Primula ciliata purpurea</i> , P. |
| <i>Maiveana</i> , D. glacialis | <i>puleveriana</i> , P. <i>Elbbsiana</i> , |
| <i>Saxifraga caryophylla</i> , S. flag- | <i>P. pubescens</i> , P. <i>nivalis</i> |
| <i>ellaris</i> | <i>Orris vernus</i> |
| <i>Daphne rupestris</i> | <i>Eubretia græca superba</i> |
| <i>Anemone ranunculoides</i> , A. | <i>Erythronium giganteum</i> |
| <i>vernalis</i> , A. <i>apennina</i> , A. | <i>Calcha leptosepala</i> |
| <i>apennina v. blanda</i> , A. <i>pul-</i> | <i>Helleborus colchicus</i> |
| <i>satila</i> | <i>Pulmonaria azurea</i> |
| <i>Sanguinaria canadensis</i> | <i>Gentiana araulis</i> |
| <i>Rhododendron lapponicum</i> | <i>Scillas</i> , various kinds |

— PRUNUS TRILOBA is now in bloom on one of the walls at Kew. It is one of the most beautiful spring-flowering shrubs we have—quite hardy, with flowers like those of a double Peach, and botanically interesting as having several carpels instead of one only.

— THE PINETUM AT KEW.—The planting of the Pinetum at the end, and on the south side of the lake at Kew, is showing rich promise of the fine effect that will in a few years be produced by massing the Piceas, &c., in groups along the edge of the water, in contrast with the adjacent deciduous trees. The arrangement is mainly geographical, but with such fine subjects to deal with the requirements of artistic grouping can scarcely fail to be complied with.

— THE ROYAL AGRICULTURAL SOCIETY'S EXHIBITION AT KILBURN.—The show to be held in July next promises to be the most interesting ever held under the Society's auspices. At a meeting of the Finance Committee of the Mansion House Fund on Monday, it was reported that already 24,002 feet of shedding have been applied for by 651 exhibitors, of which area 5683 feet are in respect of machinery in motion, 2220 feet for seeds and models, and the remaining 16,000 feet for ordinary exhibits. Over £13,000 is offered in prizes, including £4000 by the Mansion House Committee, and the ground, which is centrally situate at Kilburn, is being rapidly prepared for the exhibition. The total expenditure is estimated at £40,000, and the object of the Mansion House Fund is to assist the Royal Agricultural Society in defraying a portion of the costs of the site, in offering additional prizes, and generally in affording practical co-operation with a view to making the exhibition a great success.

— VERONICA HULKEI.—This is a plant which we have not yet seen at a flower show, but it is one that is so elegant that we commend it to all who have to furnish greenhouses or conservatories. It is a shrubby New Zealand species, with small ovate coarsely-toothed leaves, and tall erect loose pyramidal panicles of lilac flowers. It may be seen in No. 4 house at Kew just now.

— TENANT FARMERS' ALLIANCE.—On Monday last a meeting was held at the Westminster Palace Hotel, to consider the desirability of bringing about a union between the English, Scotch, and Irish agriculturists and land reformers, and the establishment of an association having in view the better representation of tenant-farmers in Parliament, and the

amendment of laws which impede the progress and prosperity of agriculture. Members of Parliament representing English, Scotch, and Irish constituencies and a few well-known agriculturists were present. Resolutions settling the bases of union were unanimously passed, and the question of a public conference in London was discussed.

— **ODONTOGLOSSUM VEXILLARIUM.**—There is now a grand sight at Mr. BULL's nursery in the shape of a bank of *Odontoglossum vexillarium*, with something like 300 expanded flowers, some of them the highest and richest coloured varieties that have ever been introduced, the whole forming one of the most charming sights that could possibly be seen in *Odontoglossums*.

— **THE ARRIVAL OF THE NIGHTINGALE AND THE CUCKOO.**—The cuckoo was first heard at Moor Park, Rickmansworth, on the morning of Sunday, April 20, and the nightingale in the evening of the 23d ult.

— **PTERIS SERRULATA MELTONIENSIS.**—We are requested to state that Mr. CLARKE, gardener to Lord HASTINGS at Melton Constable, received a vote of thanks at the last meeting of the Floral Committee for exhibiting a specimen of this plant, which award, we should add, is merely one of courtesy to the exhibitor, and as such conveys no indication (as a Certificate does) of the opinion of the committee as to its merits. On this account we do not undertake to notice all, or indeed any, of such awards, nor indeed is it possible for us to notice all the awards made at this or any other Society.

— **THE WEATHER.**—From the report issued by the Meteorological Office for the week ending April 28, we learn that the weather was generally cloudy and changeable, but finer during the latter part of the week than at its commencement. Thunderstorms occurred at many of our southern and midland stations on the 26th and 27th. The temperature was again below the mean, the deficit ranging from 2° in "Ireland, S.," to 6° in "Scotland, E." The highest day temperatures were below 50° in many places during the early part of the week, and as low as 40° at Durham on the 24th, the thermometer subsequently rising, and that maxima for the week occurring in most places either on the 26th or 27th, but the highest readings were at that time very slightly above 60°. Some night frosts observed over Great Britain during the early part of the week. The rainfall was a little more than the mean in most districts. Rain was most prevalent during the first few days, but a heavy local fall accompanied a thunderstorm at Roche's Point on the 27th. The wind continued northerly or easterly during the early part of the week, but shifted to the south or south-west on the 25th, north-easterly breezes returning on the 27th, and still prevailing at the close of the period. Winds light or moderate in force generally.

— **PRESENTATION TO A GARDENER.**—On April 16 Mr. HUMPHRY, late gardener to C. F. KEMP, Esq., Fox Bush, Hildenborough, and now in the service of Mrs. LADE, Nash Court, Faversham, was presented with a marble timepiece by his friends as a token of respect towards a good friend and neighbour.

— **HUNTS HORTICULTURAL SOCIETY.**—The annual flower show of this Society will be held on Wednesday, July 9, in the grounds of the Priory, Huntingdon.

— **SOUTHGATE HORTICULTURAL AND COTTAGE GARDEN SOCIETY.**—The annual show of this Society will be held in the park of J. DONNITHORNE TAYLOR, Esq., Grovelands, Southgate, on July 5.

— **THE SOUTH ESSEX FLORICULTURAL SOCIETY.**—The next exhibition of this Society will be held on June 12.

— **GARDENING APPOINTMENTS.**—Mr. R. B. LOWE, for some years foreman to Mr. RUFFETT, Panshanger, Herts, has been appointed gardener to Earl BROWNLOW, at Belton House, Grantham, Lincolnshire. — Mr. BOWLER, formerly gardener at Coombe House, Kingston-on-Thames, has been appointed gardener to CHARLES COMBE, Esq., Cobham Park, Surrey. — We may also state, though rather late in the day, that Mr. H. PARR, late gardener at Harrow Weald Park, Stanmore, has succeeded Mr. MCCORMICK as gardener at Giron's Grove, Leatherhead, Surrey.

Home Correspondence.

Daffodils.—I have now in my garden fifty-six varieties of *Narcissus*, mostly from Messrs. Barr & Sugden, but there is no single-flowered form amongst them to which the common double Daffodil seems to correspond. Mr. Barr refers it to the Trumpet Major of catalogues, which he names the single *Telemonius*, and tells me that the single and double forms grow together on the banks of the Arno. Mr. Barr is well known to be one of the best authorities about Daffodils; but how is it that in the common Daffodil the colours of the crown and perianth are quite distinct, whilst in the Trumpet Major they are so nearly uniform? It is common enough about here to see the common garden Daffodil growing in fields and orchards in company with the ordinary wild Daffodil, though perhaps neither of these are native there. There is an old single Daffodil which I recollect nearly fifty years ago, but which I very seldom see now, which comes much nearer to the common double Daffodil in variety of colour. I saw it in a cottage garden last year, and obtained a few bulbs. The flower I send is stunted, not larger than *Pseudo-Narcissus*, but I am convinced that it is a larger form, and distinct from it. If Mr. Barr sees it he will probably have a name for it. It seems to increase fast, but is shy of flowering. I may add that I have given up all hope of producing a double flower of *N. Pseudo-Narcissus* from a single-flowered bulb. I send the best flowers I can produce in my garden from the wild bulbs. I believe that Mr. Barr is right in saying that of the large-crowned Daffodils no double form ever reverts to a single flower, and no single form becomes double without reproduction from seed. I send the nearest approach to a single flower in the ordinary double Daffodil which I can find. The Tenby Daffodil is another single form of *Narcissus* which has been lately mentioned in your journal. It has grown wild at Tenby for many generations, and is distinct from any form I have obtained from catalogues. I cannot find it mentioned in Mr. Baker's monograph of the genus *Narcissus*. I had a few bulbs sent to me by post from Tenby, when in flower, about six years ago, and they have now quite stocked my garden. It seems to take kindly to any soil, flowers very freely, and (except *N. nanus*) is the earliest in flower. The individual flowers are more durable than those of any variety I have. The one enclosed has been in flower for more than four weeks. I think it the best of the old single-flowered varieties for ordinary garden decoration. *C. Wolley Dod, Edge Hall, Malpas, April 28.*

Vegetable Products of South Manchuria.—Mr. Bradford has been so good as to transmit to Kew specimens of the products referred to in the last number of the *Gardeners' Chronicle* (pp. 537, 538). I am able to add a little more information with respect to them. The Basil which yields Hemp-seed oil is, I have no doubt, from a comparison of the seeds, *Perilla ocimoides*. It is called by the Japanese "Ye-goma," and the oil obtained from it is used by them in the manufacture of oiled paper, whether for decoration or for useful purposes, as waterproof coats, &c. The paper itself is made from *Broussonetia*. The Indigo-plant is certainly *Polygonum tinctorium*. The Kew Museum already possessed samples of all the plants sent amongst those collected in North China by Mr. Bickford; but specimens of the *Perilla* oil and *Polygonum indigo* are still desiderata. *W. T. Thisseton Dyer.*

Soluble Phenyle (p. 535).—May I ask a few lines to correct an accidental error which appears at p. 535 of the *Gardeners' Chronicle* for April 26, with regard to the proportion of soluble phenyle used in sowing Clover seed. It should not be "38 tablespoonfuls," but about a third of that amount. Twelve to sixteen tablespoonfuls was the amount used with six quarts of water; a little more or less would be quite immaterial; and in gardening operations minuteness of spoonfuls can hardly be reckoned on, excepting when applied by skilled hands; but the large amount named might be injurious, and I give the quantity in words at present to avoid possibility of pen or print going astray. *O.*

The Yew as Poisonous to Cattle.—During the time I have been here three cases have occurred, two of them under my personal notice, and both of them in the month of April. In former years we used to carry all prunings of shrubs to the old Castle grounds, that being the most convenient place close at hand to burn them, and a man was supposed to attend to the fire till all was consumed. In each of these cases the yearling Alderneys, which are usually turned among the ruins, found their way to the fire-heap, and picked up the half-withered pieces of Yew lying on or around it. In the first case five of them died in a few hours, in the second case one died, the rest recovered. One of my leading men informed me that he knew a very valuable horse to die from eating

a small branch of Yew that had been cut some little time previously. We have a great many Yews here, and I feel sure if green Yew were poisonous we should lose a great many valuable cattle, as we have some very large trees in the park, which afford them shelter during stormy weather, and I have frequently seen them eating the green branches, which no one would doubt if they saw how evenly they were trimmed off underneath. I have sent you small pieces of six of them for your inspection. *W. G. Pragnell, Castle Gardens, Sherborne, Dorset.* [Five of the six are male, one a female plant. The question, however, needs to be solved by direct experiment, as the indirect evidence is very conflicting. EDS.]

Fruit Nomenclature.—Can any of your readers give me any information with regard to a Pear named *Beurré Robin*? I cannot find any mention of it either in Hogg's *Fruit Manual* or in André Leroy's list, but in Scott's *Orchardist* there is a Pear, Robine, which is given as synonymous with *Royale d'Été*. For my own part I think it must be a mistake on the part of the nurserymen, who, it seem to me, generally get the worst penman in their employ to write the names on labels. Especially is this the case with the French nurserymen, whose wooden labels with yellow paint take months to decipher. However this may be, I shall be glad if any of your readers can tell me if there is such a Pear. While on the subject I cannot refrain from referring to the stupid custom of calling new fruits by names very like those of old ones. There was a Pear (and a very good one) called *Beurré Auguste Benoist*, which was imported from France in 1856. In ten years' time it became shortened into *Beurré Benoit* by the nurserymen, and finally, in 1879, when *Beurré Benoit* was ordered from a nurseryman the new late Pear *Marie Benoist* was sent. Again, that seemingly happy family of Desportes have each a Pear named after them; and in the gardens here there are *Beurré Mans*, *Beurré Mons*, and *Beurré Van Mons*. Why should there be such confusion? *Charles Carmichael, Bury St. Edmunds.*

Gardenias.—Mr. Sheppard in his last Calendar advises the cutting down of these plants. I never do so unless they get too big for their place. A well-known cultivator of these plants grows them in such a way, that he declared to me that he had to take the shears to keep them in bounds just as Mr. Sheppard may treat his Laurel hedges. That is the way to have Gardenias. Leaving the shears out of the question, these plants, if properly treated, should be bristling with buds from January to December, so that it is only a question of sun or fire-heat to expand the buds at any time. The ripening of the wood must proceed as the growth is made. I have grown them the year round without any shade; but plants in a sickly condition must be shaded, and if it is necessary to have more flowers by a certain day, then again shading may be resorted to, so as to preserve those in advance of the others. I may offer a few remarks ere long on the present mode of treating these plants, just to preserve us from drifting into the old ruts made twenty-seven years ago. *W. P. R.*

Fruit Prospects in Yorkshire.—Fruit prospects in this neighbourhood are on the whole promising. Should we be favoured with three or four weeks' nice mild genial weather the crop will be good. In my experience I do not remember seeing fruit trees in so backward a state as they are at present. Apricots are only in full flower now, which is six weeks later than their usual time. Peaches are coming into flower. There are a few Cherry blossoms open on the trees on the south wall, but not a single blossom of Plum or Pear as yet. The Apple blossom will not be over-abundant as many trees lost their leaves last June, and these trees, in consequence, did not form fruit-buds; the trees that did not lose their leaves have plenty of blossom-buds. Bush fruit will be a most abundant crop, if the weather be at all favourable. The Strawberry crop will in a great measure depend on the state of the weather for the next few weeks; if the weather be mild and genial we shall have good crops, but not otherwise. *M. Saul, Stourton.*

Azorean Tea.—In a letter recently received from Señor José do Canto, this gentleman kindly informs me that the cultivation of the Tea plant has gradually taken a great development at St. Michael's, and promises to flourish still more since the arrival of two Chinese tea growers, sent for by the Agricultural Society of that island. Lucky it was indeed that the two practical men from the Celestial Empire, after a very careful examination of the St. Michael's plantations, pronounced the plants as belonging to the very best varieties of Tea grown in China. If stimulant were needed, it has thus been given, and the time is not far off when Tea from St. Michael's will come to the European market and prove to be of a very good quality. Formerly this island was a wine producing country, but the oidium destroyed almost all the vineyards, which covered large tracts of land. The very industrious inhabitants began first to grow the Tobacco instead, which proved to be quite a success,

and it is to be expected that the Tea plant will be equally successful. Looking now for an instant over the continent of Europe, we discover in the North of Portugal quite as favourable conditions, as respects climate and soil, to cultivate this Chinese shrub, as has already been pointed out by Professor Link (*Voyage en Portugal*). This reminds me that Professor A. De Candolle's sentence, "Vine growing countries will never produce Tea, and *vice versa*," as a rule, must admit of exceptions. *G—e.*

Fate of Shrubs and Climbers at Oakfield, Wimbledon, during the Winter:—

Killed.

| | |
|--------------------------------------|--|
| Abelia floribunda, Mexico | Escallonia montevidensis, South Brazil |
| Adenocarpus telenensis, South Europe | .. pterocladia, (?) |
| Anagryis foetida, South Europe | Eugenia apiculata, Chili |
| Anthyllis Barba-Jovis, South Europe | Eucalyptus (all I tried) |
| Aralia edulis, Japan | Euonymus fimbriatus, Japan |
| Astartia Endlicheriana, New Holland | .. tingens, Japan |
| Azara dentata, Chili | Fabiana imbricata, Chili |
| .. Gilliesii, Chili | Genista candicans, South Europe |
| .. microphylla, Chili | Grisehnia macrophylla |
| Bignonia (all I tried) | Helwingia rufo-folia, Japan |
| Callicarpa Wallichiana, Himalaya (?) | Ilex Cassine, North America |
| Calycotome spinosa, South Europe | Jasminum Reevesii, (?) |
| Cardiandra alternifolia, Japan | Lavatera arborea, Europe |
| Carmichaelia australis, New Holland | Lupinus arboreus, (?) |
| Ceanothus divaricatus, California | Maclura aurantiaca, North America |
| Clethra barbinervis, (?) | Mutisia Clematis, Chili |
| Convolvulus Cneorum, South Europe | Neillia thyrsiflora, Nepal |
| Correa speciosa, New Holland | Osebeckia stellata, Nepal |
| Diospyros Kaki, China | Paliurus aculeatus, South Europe |
| Dodonaea cuneata, New Holland | Passiflora corulea, Brazil |
| .. triquetra, New Holland | Pittosporum undulatum, New Holland |
| Duvaua spinescens, (?) | Rhodocistus Berthelotianus, Canaries |
| Edwardia chilensis, Chili | Solanum grispum, Chili |
| .. grandiflora, New Zealand | Stauntonia latifolia, Chili |
| .. microphylla, New Zealand | Veronica Girwoodiana |
| | .. imperialis |
| | .. ligustrifolia, New Zealand |
| | Vitex Agnus-castus, South Europe |

Not Killed.

| | |
|--|-------------------------------------|
| Abelia rupestris, China | Fontanesia phillyræoides, Sicily |
| .. triflora, N.W. India | Forsythia suspensa, Japan |
| Akebia quinata, Chusan (now in flower) | Fremontia californica |
| Aralia Sieboldii, Japan | Garrya elliptica, California |
| Aristolochia altissima, South Europe | .. macrophylla |
| Benthamia fragifera, Nepal | Grevillea sulphurea, Port Jackson |
| Berchemia volubilis, North America | Grisehnia littoralis, New Zealand |
| Buddleia Lindleyana, China | .. lucida, (?) |
| Calycanthus occidentalis, California | Hakea sp. (?) |
| Cassinia fulvida, New Holland | Idesia polycarpa |
| Castanea chrysophylla, California | Illicium religiosum, Japan |
| Ceanothus azureus, Mexico | Indigofera Dostia, Nepal |
| .. dentatus | Jamesia americana, California (?) |
| .. velutinus, Oregon | Jasminum revolutum |
| Cedrela sinensis, China | Koeleria paniculata, China |
| Celtis australis, South Europe | Lardizabala biternata, Chili |
| Cerasus lificifolia, California | Lonicera sempervirens |
| Chimonanthus fragrans, Japan | Mutisia decurrens, Chili |
| Choisya ternata, Mexico | Olea europæa, South Europe |
| Clematis graveolens, China | Oreodaphne californica |
| Clerodendron foetidum, China | Phyllocladus asplenifolia, Tasmania |
| Cleyera japonica, Japan | Piptanthus nepalensis |
| Coriaria myrtifolia, South Europe | Philodendron japonicum |
| Daphne Mazelii, (?) | Rosa anemonæflora, China |
| .. salicifolia, (?) | Rubus australis, New Zealand |
| Desfontainea spinosa, Chili | R. rosæiflorus (?) |
| Diospyros Lotus, Caucasus | Stauntonia hexaphylla |
| Enkianthus nivalis, China | Stuartia virginica |
| Escallonia illinita, Chili | Styrax japonica |
| .. sanguinea, Chili | Teucrium fruticans, South Europe |
| Euonymus microphylla | Veronica parviflora angustifolia |
| Eurybia Gunniana, Van Diemen's Land | .. decussata, New Zealand |
| | .. pinguifolia |

The Tulip Tree.—I send you particulars of a very fine specimen of this tree growing in the pleasure grounds here. Height, 90 feet; girth of tree close to ground, 11 feet; at 17 feet from ground, 10 feet; at 22 feet from ground, 8 feet 6 inches; the butt of the tree is 38 feet in height, and contains 152 feet of timber. The tree is evidently very old, but we do not know its age. It grows on the edge of a small stream of water, and its roots must be under the bed of the stream, which is never dry; the soil a stiffish clay. In summer the tree is always completely covered with blossoms, and presents a splendid appearance. *J. B. Maunsell Tibbits.*

Hibiscus rosa-sinensis, var. schizopetalus.—This very interesting plant, which was exhibited by Messrs. Veitch at the Horticultural Society, at its meeting on April 22, is apparently the same as the "Hibiscus allied to *H. rosa-sinensis*," notices of which by Dr. Kirk and Prof. Oliver were communicated to the Linnean Society June 3, 1875, and are published in its *Journal*, vol. xv., pp. 478—480. The forms of *Hibiscus rosa-sinensis* hitherto seen in gardens seem to be unknown in the wild state; and this variety, of which dried specimens only have

hitherto been seen, but which Messrs. Veitch have now living, appears to occur over a considerable tract of country in East Tropical Africa, where it could hardly have escaped from cultivation. It would be interesting if it turned out to be really the parent stock of the varieties cultivated throughout the East Indies, and so added one more instance to the African products which, like Frankincense and Dragon's Blood, having been distributed over the East Indies, and thence imported into Europe, have lost for a time the history of their origin. *W. T. Thistleton Dyer.*

Poisonous Properties of the Cytisus Laburnum.—The Laburnum is one of the commonest ornamental trees in our gardens, and as its brilliant yellow flowers belong to the spring flora, it has become quite a favourite with old and young people. The seeds act so violently as an emetic that they are justly deemed poisonous, but it seems very little known that all the parts of this plant, leaves, flower-pods, even the bark and roots, are largely dangerous and contain the cytisin discovered by Husemann and Marne in 1864. A dose of 0.03 gram syringed under the skin is sufficient to cause instantaneous death of a dog or cat. Dr. Christison was the first who observed the fatal poisoning of a man by cytisin, and more than a hundred cases of poisoning by this alkaloid, of which the majority caused death, have been published in the records of medical literature. Particularly children, who had eaten of the pods or seeds of Laburnum (ten seeds kill a child), but also adult persons who by mistake had taken flowers of Laburnum instead of the False Acacia to prepare a tea, were dangerously affected. The symptoms of this kind of poisoning are not at all characteristic, and unfortunately no antidote is known. *G—e.* [In such a case an emetic of salt and water should be given as soon as possible, brandy judiciously administered, and a doctor sent for without delay. *EDS.*]

The Horticultural Directory.—The usefulness of this work is somewhat impaired by reason of the want of attention given to corrections sent to the office. In the autumn of 1875 I was appointed secretary of the Ealing, Acton, and Hanwell Horticultural Society, in the place of Mr. C. B. Folkard, deceased. In 1876 I sent a schedule of prizes for that year to the Editor, marking so as to attract attention that part showing the change in the secretaryship; but no notice was taken of it. In 1877 I sent a communication in addition to the schedule, pointing out the change and asking that the alteration might be recorded. Still no attention was given to it. I repeated this in 1878, and regret to add with no better result; and communications are still sent addressed to Mr. Folkard, causing pain to his widow, and giving the Post-office authorities unnecessary trouble. As the Editor requests notices of alteration to be sent to him, I gave him the information he requires; it is his fault, not mine, that the list of horticultural societies and their secretaries is not so correct as it might be. *Richard Dean, Secretary, Ealing, Acton and Hanwell Horticultural Society.*

Hardiness of Lapagerias.—I do not think that the shoot of Lapageria which has found its way through the roof of one of the houses at Gunnersbury having withstood the severity of the frost we have recently had can be regarded as a test of its hardiness, as a plant so situated is in a much better position for resisting cold than one having its roots out in the open. With the vital part under cover, snug and comfortable, circulation in the exposed portion is rarely, if ever, entirely suspended; and it is just possible that the branch referred to lies so close to glass that the radiation of heat from the inside is sufficient to preserve it from the ill effects of the weather. To conclude that Lapageria alba is hardy from such an instance as the one under notice may lead to much disappointment by causing some to venture their plants out, which if they do without ample protection of some kind, the chances are they will lose them. I am trying out a large plant of *L. rosea* in a sheltered part of our hardy fernery, which is greatly favoured by trees and steep banks, but I find the leaves even at the present time are quite perished, although I should think the frost where it is has never been more than about 15° or 16°. The hard wiry nature of the stem renders it impossible as yet to say with any certainty whether it has received injury or not, as so far it maintains its freshness and green appearance, as do also the buds, and until the frost gets out or spring comes I shall be in doubt whether it will start again or not. Not wishing to lose the plant, I had the crown well protected by dry leaves and bracken, but the top is twined to stakes and left exposed as a test, and I will therefore report later on. If Mr. Roberts, who I know to be greatly interested in all that concerns plants, will have a thermometer placed in the same position as the shoot of the Lapageria in question, and give the reading of it as compared with another fully exposed, he will be rendering good service to others, and anything he may have to

say on the hardness of this truant part of the plant that has escaped from confinement will be looked forward to as directly confirming or otherwise what other correspondents have already written about it. I had at one time a strong opinion that Lapagerias would prove hardy, as many plants from Chili are so, and the general structure and character of the Lapageria seemed much in its favour. *J. S.*

Crotons.—Allow me to recommend the following newer varieties in addition to those enumerated by your correspondent "J. S." (p. 508), all of which are really good:—*C. Cooperi*, leaves 9 inches to 12 inches long, 2 inches to 3 inches wide, dark green, mottled, and veined with creamy-white, of a beautiful arching habit and very pretty. *C. Challenger*, leaves 18 inches to 2 feet long, light green, mottled with creamy-white and with a bright rose-coloured midrib; a grand variety, and one of the most distinct sent out. To get small plants of this well coloured, grow them on till they get strong, and then strike the tops. *C. Harwoodianus*, leaves 9 inches to 12 inches long, 1 inch to 1½ inch wide, dark green, beautifully veined with light rose; a fine variety, but very scarce yet. *C. majesticus*, a well-known variety, still one of the best of its class. *C. Macarthurii*, leaves 12 inches to 15 inches long, 1 inch wide at base, tapering to a point, variegated with sulphur colour; one of the best for table decoration. *C. nobilis*, one of the narrow leaved class, deep green, striped with red and yellow, a first-rate variety, one of the best for table decorations. *C. Mortii*, leaves 6 inches to 9 inches long, 3 inches to 5 inches wide, richly variegated with a deep golden-yellow; one of the best. *C. roseo-pictus*, leaves 6 inches to 9 inches long, 3 inches to 5 inches wide, mottled and veined with a deep rose; a really good variety. This and the preceding make a fine pair for a contrast. *C. tortilis*, of the same habit as *C. spiralis*, but of a much better colour; this variety is very liable to be attacked by thrips. *C. Truffautianus*; this approaches to *C. Youngii* in habit, but is not so stiff, with the colour of *C. nobilis*; a first-class variety. *C. Queen Victoria*, leaves 9 inches long, 1 inch to 1½ inch wide, rich variegated with light rose and cream colour. *W. H. Divers, Burghley.*

Duboisia myoporoides.—In his lecture on plant distribution Mr. Dyer speaks of this Australian shrub as furnishing a new drug, the properties of which were first pointed out by Baron von Mueller. He adds that it is already in use in ophthalmic surgery. A German medical journal gives the following notice of this Solanaceous plant. Quite recently Messrs. Holmes and Gerrard have extracted out of the leaves of *Duboisia myoporoides* an alkaloid, to which the name of duboisin has been given. It acts like the atropin, but is said to be more efficacious and to have other advantages over the atropin. Duboisin is obtained in a similar manner as the nicotin from the Tobacco leaves; it is an oil of yellowish colour, and has a strong narcotic smell. For the present there is only one pharmacy in Berlin where it can be purchased, at a very high price. The tenth part of a gram costs 5s.; a gram (15 grains) is sold at the somewhat lower price of £2 sterling; 1 lb. of duboisin would, therefore, amount to £1000 sterling. This makes me believe that it would be worth while to try the introduction of the Duboisia in some parts of Southern Europe, where the Australian vegetation seems to be quite at home. *G—e.*

Azalea narcissiflora.—Permit me to endorse "L. L.'s" high eulogium of this variety as an early flowerer. It is by far the earliest we have, and the staying qualities and peculiar form of the flowers render them invaluable for bouquet work. This useful pure white early-flowering Azalea ought to prove valuable to fertilisers, and being only semi-double, or hardly that—for the flower is much like a large flimsily formed Narcissus—there would probably be little difficulty in seeding it or getting pollen from it. Next to this variety the *Azalea amena* is the earliest with us, and the many valuable hybrids of this raised by my neighbour, Mr. Carmichael, and others, will prove invaluable for forcing and bouquet-making. The more *amena* size and form the hybrids possess the more valuable they will prove for the latter purposes, for the majority of single Azaleas are almost too large and flimsy for bouquet work; the smaller species and varieties, semi-doubles and doubles, are by far the most useful. Double *amenas*, ranging in colour from fiery scarlet to spotless white, would make a fortune to their raisers, for buttonholes and flowers for the hair. *D. T. Fish.*

Floors for Stoves and Orchid-houses.—Some three or four years ago a gentleman put up a range of houses, consisting of stove, intermediate-house, greenhouse, and vinery. The vinery has an iron grate pathway, which is all right; the other three houses are floored with hard-burnt black and white Staffordshire tiles, which are impervious to moisture. The ground, not being level, had to be raised at the end where the stove is built; it was

made as firm as possible with a rammer, but as the tiles will take in no moisture the consequence is that none can be thrown off by them again. Such a large quantity of water has to be poured over the surface in the way of damping that it has found its way through the joints of the tiles and concrete and settled in the earth beneath; the floor has sunk in places some inches, the legs which support the staging, resting as they do on the floor, have gone down with it and broken the joint in several places. My object in writing this is to point out how very unsuitable such floors are for hothouses, where it is impossible to grow plants successfully without a great amount of surface moisture. Flagstones are much better than tiles, in fact I do not know of anything so good for a pathway; they are more porous, and do not require more than one-third of the water poured over them to keep up the requisite amount of moisture. They can be procured the proper width. The colour is of such a sober hue that the plants around show to greater advantage to the eye; for instance, what I mean is, if you place a good effective foliage plant in a very ornamental vase it detracts somewhat from the beauty of the plant, so I say that an ornamental floor does the same to the plants in the house to a certain degree. With conservatories such matters must stand on one side, as they often open out of corridors, where flagstones would be incongruous. R. H. G.

The Spring Flowers at Belvoir.—The perfect rest given to hardy plants by the long and severe winter has proved decidedly beneficial to the majority of them, and that the benefit of the season was equally felt by bulbs, Snowdrops, Croci, Scillas, Narciss, has been sufficiently evidenced by healthy foliage and perfect blossom. *Scilla sibirica* exhibited a vigour in its leaves and an intensity of blue in its clusters of flowers I never saw surpassed. The Croci were large and firm, and enduring, and escaped all injury from birds. Is this in any way due to their exceptional vigour? Home-grown Hyacinths developed better heads of bloom, and exhibit a most satisfactory amount of health and vigour. Amongst the common plants of the spring garden *Arabis alba*, which often drops off in open winters, shows its alpine nature by appearing after a long winter in wonderful health and bloom. *Myosotis dissitiflora* in sheltered nooks and on dry banks is charmingly bright, but less so than the old neglected *Omphalodes verna*, which this season is especially striking in the intense brightness of its azure blossoms. The small early *Saxifragas*, *oppositifolia* and *S. Bensoniana*, bloomed vigorously and abundantly; and the handsome large-leaved section, particularly *Saxifraga ligulata*, nobly embellished the garden. As vase plants for winter they are unsurpassed. All the *Primulas* which have yet bloomed appear to me to have exhibited their best characteristics; *P. Golden Gem*, *P. altaica*, Mr. Dean's varieties, and especially one he introduced under the name of *P. auriculæflora*, have been, and are still, exceedingly beautiful. I have gained one of the most conspicuous effects of yellow blossoms from a Cowslip, *Primula macracalyx*; it is very early, highly floriferous, and still promises to develop into something very useful. That very cautious plant, *Aubrietia græca*, is only just blooming; it is later than I have known it. It is appearing with Pansies and Daisies, and will make late spring gardens particularly gay this year. Wm. Ingram, Belvoir, April 30.

Hardiness of the Camellia.—Notwithstanding the severity of the winter, we have a large bush of the old red *Camellia* with some dozens of flowers fully open, and other buds to expand, and the foliage with not a leaf injured. It is planted in the pleasure ground, in a south aspect, on one side a large Box tree, on the other a fine specimen of a seedling *Rhododendron* raised from *R. arboreum*, the scarlet trusses of which were cut on April 9. I have planted this season a group of the *Donkelaari*, the old white, tricolor, and *Chandlerii*: will report how they fare. I have sent a half-dozen flowers with foliage for your inspection. [Very good.] W. Forde, Dogmersfield Gardens, North Hants.

Gardening at the Crystal Palace.—Whoever may have read the remarks that were made in your last issue respecting the resignation of the Garden Superintendent can have but one feeling, that of regret, and especially will this be felt by exhibitors at the Palace shows. Mr. Thompson has proved himself a complete master in the management of the fruit and flower exhibitions held in the Palace, and I am sure every exhibitor will think with me, that no man has shown greater kindness and courtesy to all and every one who has attended these shows; and must have remarked the state of efficiency in which the grounds have been maintained, and the splendid condition of the magnificent Palms, Ferns, and other foliage plants in the interior of the Palace. It seems like a public loss, that a man who holds such a position should feel compelled to resign his post in consequence of some cheeseparing arrangements of the directors. It puts one in mind of the once famous

Commissioner of Public Works, who was so anxious for the public weal that he wanted to do a bit of gardening on his own account, and signally failed. Let us heartily hope it may have the same result with the authorities at the Crystal Palace. W. F.

The Sexes of the Willow.—It is generally an easy matter to tell the sex of a Willow, but we now and then meet with specimens in which Nature hardly seems to have made up her mind whether to produce stamens or pistils. The accompanying illustrations (figs. 80, 81), selected from some specimens kindly sent us by Mr. William Thomson, show various stages of transition between genuine stamens and genuine



FIG. 80.—STAMENS CHANGING TO CARPELS.

pistils. In the catkins in question some of the flowers were wholly male, while others in the same catkin showed various transitions between the stamens and the pistil. In such cases it is not the development of a new organ, it is the same organ which assumes a male or a female aspect. Such occurrences are not very rare among Willows, and they confirm the notion, which has of late gained great strength, that the essential difference between the two sexes is very much less than generally supposed. From an origin-



FIG. 81.—STAMENS OF WILLOW COMPLETELY CHANGED INTO CARPELS.

ally neutral common state divergences subsequently occur, resulting in a male or a female flower respectively.

Beetles in the Severn in 1574.—The appearance of beetles in the Severn, referred to by Mr. Henry Baker in the *Philosophical Transactions*, 1747 (noted at p. 470 of the *Gardeners' Chronicle* for April 12), which apparently is the same of which an account is given at some length in *Holinshed's Chronicles*, vol. iv., p. 326 (London, 1808), was accompanied by such unusual circumstances that it may be of some interest to give the entire passage, taking, however, the liberty of modernising the spelling:—

"The 24th day of February being the feast of St. Matthew, on which day the fair was kept at Tewkesbury, a strange thing happened there. For after a flood, which

was not great but such as thereby the meadows near adjoining were covered with water in the afternoon, there came down the river of Severn great numbers of flies and beetles, such as in summer evenings used to strike men in the face, in great heaps, a foot thick above the water, so that, to credible men's judgment, there were seen within a pair of butts length, of those flies, above a hundred quarters. The mills thereabouts were dammed up with them for the space of four days after, and then were cleansed by digging them out with shovels. From whence they came is yet unknown, but the day was cold and a hard frost."

It is dangerous to venture an opinion on possibilities of hybernation or abnormal times of appearance, but looking at the date, which is much earlier than the usual time of development of cockchafer, and various other circumstances (although the amount is probably somewhat exaggerated), the impression is strong on my mind that the "beetels" were not *Melolontha vulgaris*, but more probably the dor-beetle—one of the *Geotrupidae*. These, as well as the cockchafer, "fly in the face in summer evenings;" they are to be found developed early in the year (as in the present season, when specimens have been noticeable for weeks); and the flood might not unreasonably be conjectured to have caused their appearance by sweeping away some artificial deposit near the town congenial to the habits of the beetles. Some of the other entomological entries are also of interest, as of the quantity of bees—noticed vol. i., p. 384—then "in such plenty that in some uplandish towns there were 100 or 200 hives of them, although the said hives are not as huge as those of the east country, but far less, as not able to contain above 1 bushel of corn, or 5 pecks at the most;" and also relatively to the appearance of flies in unusual numbers being "a prognostication natural of a plague like to follow:" rather, judging by the context, a coincidence with the masses of putrefying matter accompanying them, and in those days of neglect breeding at the same time insect pests and sickness. O.

The Effect of Age on Fertility.—This is one of those questions that fertile stocks and the practice of root-pruning have driven out of consideration, and yet it is a most important one, as there can hardly be a doubt that old Vines, old Peach and other fruit trees bear more freely *per se* than younger ones. Take, for example, the magnificent Peach tree that fills as well as adorns a large house at Chatsworth, the monster Vines at Hampton Court, Cumberland Lodge, and other places—they never seem to fail of a crop, and their crops are as a rule rather over than under an average in regard to quality. Now it is hardly possible to look at the enormous ramifications of these huge plants without feeling that their size may have something—it may be much—to do with their constant fertility. Sap is by no means the mere water that many thoughtlessly assume it to be. And it would be a nice, as well as deeply interesting, point to determine how far, if to any appreciable degree, its quality is altered on transit from the roots to the buds or leaves. [Very greatly.] It seems probable that it may lose a considerable amount of water during conveyance. The amount of loss might also be measured to some considerable and sensible extent, at least, by the length of the journey. Sap vessels are something widely different from a series of iron, lead, or glazed pipes. They are pervious, if not porous throughout their entire length; consequently the sap may be, is doubtless thickened on its journey. [There are no sap-vessels in the sense meant by our correspondent, i.e., no continuous series of tubes, but a chain of bladders or "cells," the contents of one oozing out and passing into another. EDS.] In addition to this mere mechanical inspissation of fluid in the process of conveyance from roots to extremities, certain vital or chemical changes are probably effected in it by exposure to light and heat, and its passage through living tissues. These may be so subtle or slight as to be incapable of detection by any process of analysis or experiment, and yet so potential as to turn the balance of the plant's vital forces in favour of fertility. The mere diffusion, dilution, or attenuation of the sap, may have an influence in intensifying its fertile power. It is well known to cultivators that any tendency to excess of sap tends to sterility. The grosser it is, also, the more it leans to wood-making rather than fruit-forming. Hence the expressive term *gourmand* applied by the French to gross shoots may be held to mean more than that the wood is gross merely; it may also be held to imply that they have also been produced by feeding on gross food. The long journey through old trees may prove potential in fining down the sap. Another point may favour the same result. The sap vessels in old trees are more contracted than in younger ones; hence a more refined sap has to flow through a smaller area. Both conditions may favour augmented fertility. Probably other and more subtle influences may be at work. Of the fact that old trees are more fertile than young ones there can be but little doubt, and this gives rise to another question, of great practical importance, which is, how far these considerations ought to influence us in the preservation of old

trees? To the modern mania—some might be disposed to call it a mania for the fruiting of baby trees—many fine old trees have been rashly sacrificed. "Cultivator, spare that tree," might often prove as profitable as "Woodman, spare that tree" is popular. Were the effects of mere age on fertility better understood, no doubt many fine old trees would be renovated, not removed. An old fruit tree in good health is one of the noblest triumphs of cultivation: to have it always full of fruit crowns that triumph with the more solid results of utility and profit. Besides, the root-power and branch capacity of old trees is enormous. It takes ten, a dozen, or twenty young trees to equal the amount of produce of some of the venerable old ones, and the fruit as a rule is of finer size from the old trees. This is likely to be the case, for reasons already stated, in the matter of Grapes especially; the relation of age and size of Vine to the quality of the fruit is one of those points deserving of the most careful consideration. It might also be formulated as a general principle, that the larger and older, perhaps, the Grape Vine, the higher the quality of the Grapes, and the more vinous their flavour. All this may probably arise from the sap that imparts the finishing touches to the Grapes being more highly elaborated, and this additional elaboration may, in a large measure, be owing to the length of the journey from the roots to the bunches. *D. T. Fish.*

Hymenocallis macrostephana, Baker.—More than two years ago my gardener, Mr. W. Muir, directed my attention to the peculiar merits of this plant as compared with *Pancratium fragrans* (*Hymenocallis speciosa*), of which we cultivate a large number of plants. Fully recognising its superiority, I, nevertheless, was inclined to consider it as merely a good variety of our old favourite. Early this year Mr. Muir again indicated to me the peculiarities both in the form of the leaves and inflorescence which led him to consider it as specifically distinct. As I could gain no information from the books I happened to have in my library, I suggested that he should forward some flowers to competent authorities to endeavour to elucidate the point of specific identity. This he did, but with negative results. I then sent up a flower for Sir Joseph Hooker's examination, who kindly informed me that the subject was an interesting one, and asking for better materials on which to form a judgment; I forwarded, subsequently, an entire spike of flower and a leaf, and afterwards a bulb. These were placed in the hands of Mr. Baker, who was opportunely engaged in examining identical specimens received from Mr. Woodbridge of Sion House Gardens, and upon these materials he determined the specific character of the plant. My object in making this communication is that my gardener, Mr. William Muir, may have the credit that is due to him as having been the first to recognise the peculiar and distinctive merits of this exquisite flower. *P. de M. Grey Egerton, 288, Albemarle Street, May 1.*

Natural History.

HELIx POMATIA.—My specimen of this snail, mentioned at p. 562 of the *Gardeners' Chronicle* of May, 1878, was found on April 26, having been missing since last September. Though in excellent health it only weighs 1 oz. 56 grains, about 30 grains less than when weighed on its appearance on April 20 last year. "The Canterbury Pilgrim," as this kind of snail is sometimes called, is getting old. It enlarged its shell a little last year, but the markings are very indistinct, most of the epidermis is gone, and the dull white look of the greater part of them give the appearance of a dead shell, quite in contrast to the activity of its inhabitant. During the winter the shade temperature near the spot was at times as low as 9°. *G. E. O.*

Foreign Correspondence.

JAMAICA: Orchids at Home.—At p. 143 of the present volume, in Mr. Spyer's directions for the cultivation of Orchids, I find the following passage:—"There is an important *something* which these plants meet with in their native habitats, and which they do not meet with in this country. What that *something* is I do not know; but I often wish some one would analyse Brazilian and English-grown bulbs, as that might throw some light on the subject." Now I cannot pretend for one moment to lay down a law upon this subject; but when such a successful grower as Mr. Spyer candidly acknowledges that there is an unknown "*something*" which is wanting to assure successful cultivation of this class of plants,

it behoves gardeners one and all to use all their powers of observation to discover this unknown quantity.

Let us for one moment take a look at some of the native habitats of these plants, and try whether there are not some conditions to be found which are not, and cannot be, produced under artificial cultivation. I see before me a glen which we have entered from the bottom; tall trees are growing on all sides, overhanging a small rivulet which has its source in some mountain-spring some two miles higher up the mountain's side. This, at the time we enter (early morning), is bathed in moisture, partly from the heavy dews of the previous evening, and partly from a shower which fell on the afternoon of the preceding day. Our mission there is searching for Ferns; and proceeding slowly onwards, passing numerous little falls, hollows in which pools of clear water constantly lie, producing quantities of moisture, we observe hanging overhead large quantities of *Oncidiums*, *Ionopsis*, *Brassias*, *Brasavolas*, *Epidendrums*, and other Orchids.

Now comes the question, In what kind of place do they grow? In nineteen cases out of twenty they will be found in the fork of a tree, where some Fern has produced masses of fibrous roots and itself, having thus provided sustenance for the Orchid, and answered its life's purpose, dies after producing spores, which are wafted by wind and water to again undergo the same process. Nor is this fibrous support sufficient, the trees being close together and in a state of Nature fallen leaves, twigs, branches, trunks, are all lying about in a state of decay, over all of which numerous fungi, lichens, Lycopods, are growing, assisting in the process of decomposition, which seems to be always connected with robust growth in the homes of Orchids. If you chance to see an Orchid on a tree from which the surroundings are cut away, letting in sun, wind, leaves swept up clean, not a particle of decomposing matter: that Orchid is slowly but surely being starved to death, even supposing it supplied with necessary support of peat, sphagnum, &c.

What, according to my observation is required by Orchids, is those gases emanating from decaying vegetable matter—those compounds of which the chemist tells us; and which, if found possible to supply in proper form and quantities easy to be assimilated, will, I think, be found to constitute the unknown "*something*." *J. Hart, King's House, Kingston, Jamaica.*

Reports of Societies.

The Manchester Botanical and Horticultural Society (NORTHERN AURICULA SHOW AND SPRING EXHIBITION): April 29.—In common with the sister society which forms the Southern section of the National Auricula Show the Northern Society was favoured with bright and sunny weather on the occasion of holding its annual exhibition in the Town Hall, Manchester, on the above date. The dull heavy morning broke into a fine day just before noon, and the sunlight (a rare visitor to Manchester for weeks past) broke in through the stained glass windows, pouring a flood of most welcome illumination on the plants and flowers arranged round the sides of the splendid hall. As in London, so in Manchester, the Auriculas occupied one side of the hall, the groups of plants the opposite side and the ends.

Auriculas were not so numerous shown as at South Kensington, there is an absence in the Northern schedule of a class for fifty and also of twelve varieties—the highest class is for six plants; but all the classes for "pans" were well filled: while those for single plants brought a very large number of specimens. What was lacking in numbers was present in quality; as some flowers of the very finest expression found a place on the tables.

The best six varieties came from Mr. B. Simonite, Rough Bank, Sheffield, who had Lancashire Hero and Talisman, green-edged; George Lightbody and John Watson, grey-edged; Frank Simonite, white-edged; and Blackbird, self: truly a strong lot; Talisman a little cupped, but powerful in its clear white paste; Frank Simonite, a king among white-edges—very bright and pleasing; George Lightbody and Lancashire Hero being also in grand form. Mr. Thos. Woodhead, Halifax, was 2d with Imperator, green-edged; George Lightbody, grey-edged; Ne Plus Ultra, white-edged; and Metropolitan, Blackbird, Garibaldi, self. The presence of three selfs was a weak point, but there was good quality—Blackbird, Metropolitan, and George Lightbody being very fine. 3d, Mr. H. Wilson, Halifax, with Prince of Greens and Page's Champion, green-edged; George Lightbody and Lancashire Hero, greys; Ashworth's

Regular, white-edged; and C. J. Perry, self. The two green-edges were shown in fine condition. 4th, Mr. Jonathan Booth, Failsworth, Manchester, with Prince of Greens, green-edge; George Lightbody and Dr. Horner, green-edged; a seedling white-edge, having a finely formed pip and showy tube, but wanting in body colour; and Meteor Flag and Ruby, self. 5th, Mr. T. Mellor, Ashton-under-Lyne; 6th, S. Barlow, Esq., Chadderton. In the class for four dissimilar plants, Mr. T. Mellor, Ashton-under-Lyne, was 1st, with Traill's Anna, green-edged; Kenyon's Ringleader, grey-edged; Smiling Beauty, white-edged; and Othello, self. Smiling Beauty and Ringleader were in rare form. 2d, Mr. B. Simonite, Sheffield, with green-edged Richard Gorton, a lively-looking flower in the way of Prince of Greens, stronger in the tube, but not in such good form as it has been previously seen; grey-edged George Lightbody; white-edged Frank Simonite; and a seedling red self, apparently from Lord of Lorne, rather deeper in colour, and with a firmly formed flat pip. 3d, Mr. T. Woodhead, Halifax, with green-edged Colonel Taylor, grey-edged General Bolivar, very fine; white-edged Ne Plus Ultra, and self Blackbird, very fine. 4th, Mr. E. Pohlman, Halifax, with green-edged Richard Headley, very fine green-edge and good tube, well-shaped and finely coloured, the body colour weak, and the paste a little scolloped, yet generally in good form and very promising; grey-edged Kent's Queen Victoria, white-edged Chapman's Maria, and self Garibaldi (Pohlman's), very fine in all its parts excepting the paste, which was a little narrow. 5th, Mr. J. P. Sharp; 6th, Mr. W. Brocksbank.

In the class for two varieties the plants have to be dissimilar both in variety and class. Here Mr. J. Booth was 1st with grey-edged George Lightbody and Blackbird in rare form; 2d, Mr. B. Simonite, with grey-edged George Lightbody and white-edged Frank Simonite; 3d, Mr. Thomas Mellor, with grey-edged General Bolivar and self C. J. Perry; 4th, Mr. H. Wilson, with green-edged Prince of Greens and Ashworth's Regular; 5th, Miss Steward, York; 6th, Mr. W. Brocksbank, Didsbury. In the class for two plants, maiden growers only, Mr. J. Beswick, Sale, was 1st, with grey-edged Richard Headley, in fine form; and a breeding self in the way of Pizarro, of good colour and proportions, and full of promise; 2d, Mr. W. Brocksbank, with General Bolivar, grey-edged, and Lord Palmerston, green-edged; 3d, Mr. W. Shaw, Bury with grey-edged George Lightbody and white-edged Taylor's Glory; 4th, Mr. William Bolton, Warrington, with grey-edged George Lightbody and self Bessy Bell, a very bright-looking dark self of good form and substance, the paste a little wanting in rotundity.

As we have before stated, a large number of flowers were staged in the classes for single plants, and generally in good form. The premium green-edge was Prince of Greens, from Mr. B. Simonite; then came in the order of merit Stretches' Alexander, from Mr. T. Woodhead; Lancashire Hero, from Mr. R. Gorton; Lovely Ann, from Mr. T. Mellor; Traill's Anna, from S. Barlow, Esq.; Colonel Taylor, from Mr. B. Simonite; and lastly, a variety having neither its name nor that of the exhibitor attached. The premium grey-edge was a splendid Lancashire Hero, from Mr. B. Simonite; and following according to merit came Ne Plus Ultra, from Mr. Jno. Spittle; Ajax, a bold-looking variety of good proportions, from Mr. B. Simonite; George Lightbody, from Mr. Cator; Richard Headley, from the same; and General Bolivar, from Mr. T. Mellor. In the white-edged class Frank Simonite, from Mr. B. Simonite, was very fine, the truss having eight pips, all of excellent quality, and particularly well finished on the edge; next the seedling already noticed, from Mr. J. Booth; John Watson, from Mr. T. Mellor; True Briton, from Mr. R. Gorton; Smiling Beauty, from Mr. J. Booth; Catharina, from Mr. J. Bolton; Taylor's Glory, from Mr. B. Simonite; and a seedling in the way of Glory, from Mr. J. Beswick. In the class for selfs the premier flower was a very fine well-formed seedling in the way of Mrs. Sturrock, but of a deeper and brighter colour, and well finished; then came a fine, smooth, dark seedling from Mr. J. Beswick; Ellen Lancaster, from Mr. T. Mellor, very fine in the paste; C. J. Perry, from Mr. H. Wilson; Royal Purple, from Miss Steward; Pizarro, from an unknown exhibitor; Nonsuch, a dark self, from Miss Steward; and Lord of Lorne, from Mr. S. Barlow.

The Rev. F. Tynons, of Dublin, who acted as one of the judges, brought over with him one of the finest examples of Richard Headley perhaps ever seen, and an equally fine example of George Lightbody. These two fine grey-edges were intended for the single class for grey-edges, but were unfortunately overlooked by the judges, under the supposition they were in another class. The example of George Lightbody was selected as the premier flower in the whole exhibition by general consent. It was surpassingly fine in truss and pip.

The class for four alpine Auriculas was not so well represented as usual, but as all flowers staged must be

shaded varieties they could not be so numerous as in the South. The best four came from Mr. J. Booth, who had Elcho, Diadem, Tenniel, and George Lightbody; 2d, Mr. S. Barlow, with Dazzle, Ovid, Elcho, and Beatrice; 3d, Mr. W. Brocksbank, with Brilliant, Orion, Dazzle, and Diadem; 4th, Mr. R. Gorton, with Jessie, Diadem, Elcho, and Stirling Castle, very bright indeed. The best golden-centred flower was Diadem, from Mr. J. Beswick, and Mr. J. Booth was 2d with the same variety; indeed Mr. R. Gorton's beautiful flower would have won all along the line did not the society's rules preclude a variety from winning more than twice in the class. Some unnamed flowers and Ovid were also awarded prizes. In the class for white-centres Elcho was 1st, from Mr. J. Booth; and 2d, from Miss Steward; Conspicua and Tenniel were also well shown.

The class for twelve fancy Auriculas brought some curious and by no means unattractive looking flowers, the best strain coming from Mr. S. Barlow; 2d, Mr. W. Brownhill; 3d, Mr. W. Bolton.

The classes for gold-laced Polyanthus were better filled than in London, and brought flowers of much greater refinement, indeed high-class quality is indispensable in the North, where the finest developed red-ground Polyanthus is taken down by a black ground, so much importance being attached to the striking contrast between black and gold. The best three plants came from Mr. J. Beswick, Sale, who had Exile, Cheshire Favourite, and Lord Lincoln; 2d, Mr. Brocksbank, with Hilton's President, in better form than we have ever seen it before, Cheshire Favourite and Exile; 3d, Mr. Brownhill, Sale, with Exile, Cheshire Favourite and President; 4th, Mr. S. Barlow, with the same varieties. The premium flower was Exile, from Mr. Brownhill; then followed in the order of merit Lord Lincoln, from Mr. Beswick; Cheshire Favourite, from Mr. Brownhill; Exile, from Mr. John Beswick; President, from Mr. Brownhill; and William IV., from Mr. S. Barlow. The best seedling Polyanthus came from Mr. W. Bolton, Warrington, a variety sprung from a seedling raised by Mr. David Jackson, from Lord Lincoln, and having its clear bright colour. It is a flower of decided promise. Mr. S. Barlow came next with a well laced flower, somewhat clouded in the centre; Mr. J. Goodier, Stakehill, being 3d.

There was a class for twelve dissimilar fancy Polyanthus, and the same number of double and single Primroses; and in both classes Mr. S. Barlow was 1st, and Mr. Brocksbank 2d. Mr. Barlow's basket of Primroses contained two or three fine and striking single varieties; and Mr. Brocksbank's stand a very good single white.

A First-class Certificate of Merit was awarded to a seedling gold-laced Polyanthus named John of Gaunt, from Mr. Brocksbank; and the same award was made to double Primrose, platypetala plena, from Messrs. Paul & Son, the Old Nurseries, Cheshunt.

The periodical meeting of the Manchester Horticultural and Botanical Society brought together some remarkable collections of plants, foremost among them being a most attractive collection, filling a large space, from S. Barlow, Esq., J.P., Stakehill House. This was truly representative of forced and hardy spring flowers, and especially of Primulaceæ. To this group the Society's Gold Medal was awarded. Foremost were some admirably bloomed examples of Messrs. Isaac Davies & Co.'s hybrid Rhododendrons, including Duchess of Sutherland, pure white, and very fine; Countess of Derby, very fine; Countess of Sefton, Lady Skelmersdale, Gibsoni hybrida, &c. We could not help being struck with the remarkable freedom of bloom characterising these types, quite small plants being heavily laden with blossoms; and also the following fine varieties of Azalea mollis—Isabella Van Houtte, Léon des Vignes, Comte de Gomer, Scarlet le Grand, Baron E. de Rothschild, &c. About sixteen large pots of Hyacinths, generally eight bulbs in a pot, bearing fine spikes, and of such varieties as Baron Von Tuyl, Charles Dickens, General Voorst, Kohinoor, Voltaire, and Grand Lilas; also a very fine example of Trillium grandiflorum, various forms of Ophrys, the true Narcissus triandrus, once plentiful, but now very rare; Primulas rosea, cashmeriana, purpurea (Sikkim variety), Balbisiana, with yellow pendent flowers; and various other things too numerous to mention. From George Hardy, Esq., Timperly, came a very fine group, including a fine lot of showy Amaryllis, several well-grown plants of Orchids, comprising Dendrobium suavisimum, D. crassinode, D. Devonianum, Odontoglossum Bluniei, O. Cervantesii, Cattleya Mossiae, C. intermedia, C. Mendelii, Cypripedium Stonei, C. Boxalli, C. caudatum, Vanda cœrulescens Boxalli, Azaleas, Palms, &c. From W. Leech, Esq., came a fine specimen of Dendrobium Devonianum, to which a First-class Cultural Commendation was awarded; Oncidium serratum, Epidendrum atropurpureum, Odontoglossum Ruckerianum, O. Alexandræ, O. Pescatorei, O. triumphans, O. Cervantesii, Masdevallia Vetchii, &c. J. Broome, Esq., Didsbury, sent some beautiful Orchids, to two of which, viz., Dendrobium nobile Wallichii and Odon-

toglossum vexillarium, First-class Cultural Commendations were awarded; there were also Dendrobium Wardianum, D. thyrsiflorum, D. fimbriatum oculatum, D. chrysotoxum, Vanda suavis, Anthurium Scherzerianum, &c. Messrs. Paul & Son, the Old Nurseries, Cheshunt, sent a dozen finely-grown Roses in pots, which comprised fine examples of Etienne Levet, Madame Lacharme, Céline Forestier, Madame Victor Verdier, La France, Edward Morren, Annie Laxton, &c. These were much and deservedly admired, and made a fine feature in the hall. Messrs. J. Standish & Co., Royal Nurseries, Ascot, sent some small plants of Rhododendrons in pots, all remarkably well bloomed, and containing some very bright coloured seedlings from the red Ascot Brilliant: one in particular, named Mrs. Duffield, deserves especial mention, having a white centre margined with clear rosy-lilac, very bright and yet delicately beautiful, and of the finest form. Also a large number of plants of forcing Pink Lady Blanch—a variety that forces well in a brisk heat, opening its flowers very freely. Thomas Agnew, Esq., sent a very effective lot of flowering plants; and Messrs. G. & W. Yates, Manchester, did the same. Mr. W. Brownhill, nurseryman, Sale, had some fine fancy Pansies, a new purple-bedding Viola, some fine seedling Primulas, in the way of P. intermedia, &c.; and Messrs. Isaac Davies & Co., Ormskirk, some small plants of Rhododendron Countess of Derby, to show how well it flowers on quite little specimens.

All the groups were arranged with Mr. B. Findlay's usual taste and judgment, and his exertions and those of the Council were rewarded by a crowded attendance; so dense was the throng of visitors (over 5000) that it was difficult to move about with anything like freedom. Evidently Manchester highly appreciates these pleasant spring exhibitions in its splendid Town Hall.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, April 30, 1879.

| MONTH AND DAY. | BAROMETER. | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6TH EDITION. | | WIND. | | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|------------|---------------------------------|--------------------|-----------|
| | Mer. Reading Reduced to 32° Fahr. | Departure from Average of 42 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degree of Humidity, Sat. = 100. | Average Direction. | |
| April 21 | 29.75 | -0.02 | 52 | 42 | 10 | 45 | -3 | 41 | 83 | N.N.E. | 0.00 |
| 22 | 29.81 | +0.03 | 53 | 43 | 10 | 43 | -5 | 38 | 84 | S.S.W. | 0.04 |
| 23 | 29.49 | -0.28 | 63 | 49 | 14 | 51 | 9 | 41 | 77 | S.W. | 0.05 |
| 24 | 29.53 | -0.24 | 53 | 42 | 10 | 43 | -1 | 41 | 82 | S.S.E. | 0.04 |
| 25 | 29.80 | +0.08 | 51 | 38 | 13 | 43 | -4 | 38 | 81 | N.E. | 0.00 |
| 26 | 30.12 | +0.35 | 51 | 33 | 18 | 42 | -6 | 32 | 63 | E.S.E. | 0.01 |
| 27 | 30.03 | +0.25 | 51 | 38 | 13 | 41 | -5 | 36 | 73 | NNW | 0.00 |
| Mean | 29.83 | +0.02 | 53 | 37 | 17 | 45 | -3 | 38 | 78 | variable | 0.14 |

- April 24 Overcast and dull till 6 P.M.; fine after. Clouds at night. Cold.
- 25—Fine, though cloudy till 2 P.M.; overcast after. Frequent rain after 3 P.M. Windy. Cold.
- 26—A fine bright day, cloudy at times. Rain fell in early morning, and a smart shower fell at 5 P.M. Cloudless at night.
- 27—Fine and bright till 11 A.M. Heavy shower of hail at 11.30 A.M.; rain fell between noon and 1 P.M. Beautifully fine in afternoon, but overcast at night.
- 28—Overcast till evening, then fine, but partially cloudy. Cold.
- 29—Fine bright day. Very cloudy at times. Overcast, slight shower at 11.30 P.M. Cold.
- 30—A fine day, but dull and very cloudy. Cold. Overcast at night.

Note.—The mean temperature of the air for the twenty-one days ending to-day (Wednesday), the 30th, was 40°·9, being 6°·5 below the average of sixty years.

LONDON: Barometer.—During the week ending Saturday, April 26, in the vicinity of London the readings of the barometer at the level of the sea decreased from 29.70 inches at the beginning of the week to 29.39 inches by noon on the 20th, increased to 29.60 inches by noon on the 22d, decreased to 29.47 inches by the afternoon of the 23d, increased to 30.12 inches by the morning of the 25th, and decreased to 29.63 inches by the end of the week. The mean reading for the week at sea level was 29.66 inches, being 0.01 inch below that of the preceding week, and 0.29 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 60½° on the 26th to 43½° on the 21st; the mean value for the week was 52°. The lowest temperatures of the air observed by night varied from 32½° on the 22d and 33° on the 25th to 40° on the 24th; the mean value for the week was 37°. The mean daily range of temperature in the week was 15°, the greatest range in the day being 21°, on the 26th, and the least 7½°, on the 21st.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—20th, 43°·3, — 4°·1; 21st, 38°·8 — 8°·8; 22d, 40°·4, — 7°·4; 23d, 45°·3, — 3°·3; 24th, 45°·3, — 3°·2; 25th, 43°·5, — 5°·3; 26th, 48°·5, — 0°·5. The mean temperature of the air for the week was 43°·4, being 4°·6 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 125½° on the 26th, 108° on the 25th, and 96½° on the 20th; on the 21st the reading did not rise above 49°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 30° on the 22d, and 32° on the 25th; the mean of the seven lowest readings was 34½°.

Wind.—The direction of the wind was again variable, and its strength gentle.

The weather during the week (except on Saturday, the 26th) was dull and cold, and the sky generally overcast.

Rain fell on four days during the week; the amount measured was 0.70 inch.

ENGLAND: Temperature.—During the week ending Saturday, April 26, the highest temperatures of the air observed by day were 61° at Hull, 60½° at both Cambridge and Norwich, 60½° at Blackheath, and 60½° at Leicester; the highest temperature of the air at Bradford was 53½°, and at Wolverhampton was 54½°; the mean value from all stations was 57½°. The lowest temperatures of the air observed by night were 27° at Nottingham, 28½° at Sheffield, 29° at Leicester, 29½° at Wolverhampton, and 30° at Hull; the lowest temperature of the air at Truro was 39° and at Plymouth 38°; the general mean from all places was 52½°. The extreme range of temperature in the week was the greatest at Nottingham, 32°, and the least at Sunderland, 18°; the mean range of temperature from all stations was 25½°.

The mean of the seven high day temperatures was the highest at Truro, 58°, Plymouth, 56½°, and Leicester, 54½°; and the lowest at Sunderland, 47½°, and Bradford, 48½°; the mean from all places was 52°. The mean of the seven low night temperatures was the lowest at Wolverhampton, Nottingham, Sheffield, and Bradford, all 36½°, Cambridge and Hull, both 36½°, and Blackheath and Leeds, both 37°; and the highest at Truro, 44½°, and Plymouth 44°; the mean value from all stations was 38½°. The mean daily range of temperature in the week was the greatest at Cambridge, 17°; and the least at Sunderland, 8½°; the mean daily range from all places was 13½°.

The mean temperature of the air for the week from all stations was 43½°, being 4½° lower than the value for the corresponding week in 1878. The mean temperature was the highest at Truro, 49½°, and Plymouth, 48½°; and the lowest at Wolverhampton, 41°, and Leeds and Sunderland, both 41½°.

Rain.—Rain fell generally on four or five days in the week. The heaviest falls were 1.49 inch at Wolverhampton, 1.38 inch at Bristol, 1.13 inch at Bradford, and 1.05 at Leeds; and the least falls were 0.40 inch at Hull and Sunderland, and 0.42 inch at Brighton; the average fall over the country was 0.81 inch.

The weather during the week was dull, showery, and very cold. Slight thunderstorms occurred at some places on the 26th.

SCOTLAND: Temperature.—During the week ending Saturday, April 26, the highest temperatures of the air observed by day varied from 55° at both Glasgow and Dundee, to 46½° at Aberdeen; the mean value from all places was 53½°. The lowest temperatures of the air observed by night varied from 30° at Perth, to 35° at Leith; the mean from all stations was 33½°. The mean range of temperature in the week from all places was 19½°.

The mean temperature of the air for the week from all stations was 41½°, being 4½° lower than the value for the corresponding week in 1878. The highest was 43° at Glasgow, and the lowest was 40½° at Perth.

Rain.—The falls of rain during the week varied from 0.60 inch at Greenock, to 0.15 inch at both Edinburgh and Leith. The average fall over the country was 0.37 inch.

DUBLIN.—The highest temperature of the air was 62½°, the lowest 34°, the range 28½°, the mean 47½°, and the fall of rain 0.41 inch.

JAMES GLAISHER, F.R.S.

Obituary.

WE regret to record the sudden death, on April 16, of Mr. HENRY WALTON, of the Edge End Nursery, Brierfield, Burnley, Lancashire. Though a long-sufferer from asthma and bronchitis, the deceased gentleman was able to go round the nursery with a visitor on the 15th, but was suddenly taken ill at 3 A.M. on the following morning, and expired before noon.

— We have also to record the death, on April 28, at the age of fifty-one years, of Mr. JOSEPH TREMBLE, of the firm of Joseph Tremble & Sons, Victoria Nurseries, Penrith.

Enquiries.

He that questioneth much shall learn much.—BACON.

THE BLUE GUM TREE.—Will some of your correspondents who have grown the Blue Gums, give us some account of how they have stood the late severe winter? We planted out a few two years ago, some of which had the protection of walls facing south, and which last autumn had made on an average 6 feet of growth. Every one of them are killed outright. An old Myrtle growing beside them is also very much damaged. Escallonias are quite brown. Any information bearing on the above will oblige. *West Coast, Renfrewshire.*

EQUISETUM (HORSE-TAIL) IN DRAINS.—May I ask you to name the enclosed rootlet, and say whether it be part of an Equisetum? [Yes.] And how can I best deal with mine enemy? From the surface it has struck down through 4 feet of strong clay, and completely stopped the action of my 4-inch pipes below. *Old Subscriber.*

Answers to Correspondents.

APPLE TREES: C. C. Your friends have given you bad advice when they recommended you to keep heading back your standard Apple trees. Let them grow, and cut only when absolutely necessary to bring them to a convenient form.

CINERARIAS: E. T. Y. The flowers were too much crushed to enable us to say more than that the colours appear to be very bright and effective.

CUCUMBER: H. W. W. The appearance results from the union, when in a very young state, of a leaf with the fruit.

ERRATA.—In the report of the Floral Committee meeting at p. 538, for "Glouera," read Glonera; and for "Mr. Denny," gr. to Lord Lonsborough, read Mr. Denning.—At p. 526, col. a, for "Dracena calocoma," read D. calocoma.

GLOXINIAS: F. Paynter. They are very apt to perish from dry-rot, if kept too dry and cold. For a small number it would be the simplest plan to keep them in the pots till the time for restarting them, setting them in a dark part of a warm house, and giving just water enough to keep them plump. They will not bear to be dry and cold.

GOAT MOTH: M. S. J. We should think you would succeed in your object by transferring the larvæ to a perforated tin box filled with soil, and kept in a cool place. The grubs have been found hibernating underground, but it is not a common occurrence. You may look for the perfect insect about the end of June.

HEATING A SMALL GREENHOUSE: Novice. Some of the paraffin stoves, combined with hot-water pipes, would probably serve your purpose.

HYDRANGEAS: X. The blue colour is usually attributed to the presence of iron; but some experiments of M. Fournier go to show that ammonia had a more powerful effect in producing the blue colour.

INSECTS: W. J. C. Your insect is the common burying or sexton beetle (*Necrophorus vespillo*). The Colorado beetle is much more globose, and has orange and black longitudinal stripes, not transverse bars. *I. O. W.*

JOHN FROST: D. W. Thanks for your hint; but we have not a copy of the book to refer to.

MANURING FERNS: B. Hall. Many of the free-growing Ferns are benefited—that is to say, they grow more freely and vigorously—if they get an occasional light dose of manure. The delicate sorts do better without, and prefer pure well-drained soil. Adiantum farleyense will take a fair supply of water, but it should not be overdone. If kept in a damp atmosphere syringing is of little consequence to it.

NAMES OF FRUIT: G. M. S., *Tillington*. We do not recognise any of the Apples.—*T. D. M.* 1, Beauty of Kent; 2, not known to us.

NAMES OF PLANTS: A. B. *Lælia cinnabarina*.—*H. E. W.* It is the flower commonly called the Oxlip, but not the real Simon Pure.—*A. H. Tait*. *Sparmannia africana*.—*Dr. P.* *Rhododendron Falconeri*.—*S. R.* *Arthropodium cirratum*, not uncommon in cultivation.—*C. E. F.* 1, *Rhododendron arboreum* var. *cinnamomeum*; 2, *Rhododendron candelabrum*.—*C. W. D.* *Adoxa moschatellina*.—*J. W. S.* A variety of *Stapelia* (*Orbea*) *bufonia*, which Mr. Brown, to whom we referred the specimen, has not seen before. He does not think it a distinct species, as (so far as he can make out from the rather smashed flower) it does not appear to differ from typical *S. bufonia* except in colour; but he would be very glad if "J. W. S." will favour him with another flower and

portion of stem, carefully packed in a tin box, that he may figure it in his monograph.—*G. H. S.* A moss, which we cannot undertake to identify.—*T. W.* 1, *Eupatorium riparium*; 2, *Primula cortusoides*.—*Alpha*. *Tropæolum azureum*.—*Tregenna Castle*. *Eupatorium riparium*.

ROSE SPORT: Dr. P. No. The same thing also occurs in Gloire de Dijon.

SEEDS: J. S. C. We have no answer to make, having failed to identify them.

SELAGINELLA AFODA: B. Hall. There is no difficulty in cultivating *S. apoda*, which is what you mean, we presume, by *S. densa*; it grows freely in any gritty peaty soil. For small plants put little tufts singly in small pots, and give them a moderate shift when they require it. For larger plants prick out the little rooted pieces over the surface of the pot or pan. After replanting keep them close and freely sprinkled until they begin to make new growth. It must not have water in excess, and would succeed in a shady drawing-room if it were kept moist enough.

TEA ROSE: H. A. B. It is difficult to say with certainty from forced flowers what your Rose is, as the shades of yellow Tea Roses approach each other so nearly when forced. It is most likely the Yellow China, or Thé Jaune of the French.

VINES: J. H. C. If the Vne leaves were not scorched by the sun while bathed, as it were, in moisture, the mischief must have been done by the hot-water pipes having been over-heated some time. It is a clear case of scorching; and judging from the weak, thin, and poverty-stricken character of the leaves, we are not surprised at it spreading.

** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

CATALOGUES RECEIVED:—Simon-Louis Frères (à Plantières-lès-Metz, Lorraine), Catalogue of Plants.—Stephen Brown (Weston-super-Mare, Somerset), Catalogue of Bedding Plants.

COMMUNICATIONS RECEIVED:—H. K.—W. J. C.—E. Sang & Sons.—B. F. (many thanks).—D. T. F.—G. L. D.—S. J.—E. T. Y.—W. R.—W. C. & Son.—T. Walker.—J. R.—H. S. R.—W. P. R.—R. F.—E. G.—W. H.—J. D. R.—S. J. (thanks).—P. H.—N. J. E.—W. T. D.—G. S.—F. W. B.—A. D. C.—B. J.—H. G. E.—C. B. C.—T. B.—H. O. W.—J. T. B.—J. McD.—W. F.—W. P. H.—R. P.

DIED, at Victoria Nurseries, Penrith, on the 28th ult., Mr. JOSEPH TREMBLE, aged 51 years.

Markets.

COVENT GARDEN, May 1.

Prices remain much the same; the improvement in trade being well maintained. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pears, per doz. | 4 0-8 0 |
| Grapes, per lb. | 6 0-15 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per lb. | 6 0-12 0 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 4 0-6 0 |
| Jerusalem, bush. | 6 0-8 0 | Lettuces, Cabbage, | |
| Asparagus, Fr. sprue, | | per doz. | 1 6-2 0 |
| per bundle | 1 6-2 0 | Mint, green, bunch | 0 8-1 0 |
| Eng. per bundle | 7 0-8 0 | Onions, per bushel | 6 0-7 0 |
| Fr. giant, p. bun. | 30 0-3 0 | — young, per bun. | 0 4-0 6 |
| Toulouse, bun. | 2 6-3 0 | Parsley, per lb. | 1 0-2 0 |
| Beans, French, p. 100 | 2 0-2 0 | Peas, per quart | 5 0-6 0 |
| — broad, per lb. | 1 0-2 0 | Potatoes, new, per lb. | 0 6-0 9 |
| Beet, per doz. | 1 0-2 0 | Radishes, Fr. bunch | 0 6-1 0 |
| Cabbages, per doz. | 1 0-2 0 | — New Jersey, doz. | 2 0-3 0 |
| Carrots, per bunch | 0 4-0 6 | Rhubarb, doz. | 6 0-8 0 |
| — New Fr., p. bun. | 2 0-3 0 | Shallots, per lb. | 0 6-1 0 |
| Cauliflowers, per doz. | 2 0-5 0 | Seakale, per punnet | 2 6-3 0 |
| Celery, per bundle | 1 6-2 0 | Spinach, per bushel | 3 6-4 0 |
| Chilis, per 100 | 2 0-3 0 | Sweet Potatoes, per lb. | 0 6-1 0 |
| Cucumbers, each | 0 9-1 6 | Tomatoes, per dozen | 6 0-10 0 |
| Endive, Batav. dozen | 1 6-2 0 | Turnips, p. 12 bunch. | 3 0-6 0 |
| Garlic, per lb. | 0 6-1 0 | — New Fr., bunch | 1 0-1 6 |
| Potatoes:— | | | |
| Regents, 100s. to 130s. | | Champions, 80s. to 95s. | |
| Rocks, 70s. to 75s.; Flukes, | | 120s. to 140s. per ton. | |
| supplies, and trade heavy. | | | |

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Arum Lilies, 12 blms. | 3 0-7 0 | Narcissus, 12 bunch. | 6 0-12 0 |
| Azaleas, 12 sprays | 0 4-1 0 | Pelargoniums, 12 spr. | 1 0-2 0 |
| Bouvardias, per bun. | 1 0-4 0 | — zonal, 12 sprays | 0 6-1 6 |
| Camelias, per dozen | 1 0-6 0 | Primroses, single yel- | |
| Carnations, per dozen | 1 6-4 0 | low, 12 bunches | 0 6-1 6 |
| Cineraria, 12 bunches | 6 0-12 0 | — double white, 12 | |
| Cyclamens, 12 blooms | 0 3-1 0 | bunches | 1 6-3 0 |
| Daffodil, 12 bunches | 2 0-6 0 | Primula, double, per | |
| Deutzia, 12 bunches | 4 0-12 0 | bunch | 0 9-1 6 |
| Eucharis, per doz. | 6 0-12 0 | Roses (indoor), doz. | 1 6-9 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Stephanotis, 12 sprs. | 4 0-12 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Tropæolum, 12 bun. | 2 0-6 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberose, per dozen | 3 0-6 0 |
| Hyacinths, 12 bnch. | 4 0-12 0 | Tulips, 12 blooms | 0 6-1 0 |
| Lily of Val., 12 sprays | 1 0-3 0 | Violets, 12 bunches | 0 6-2 0 |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|----------------------|-------------|-------------------------|-------------|
| Arum Lily, or Rich- | | Ferns, in var., p. doz. | 4 0-18 0 |
| ardia æthiop., doz. | 9 0-18 0 | Ficus elastica, each | 2 6-15 0 |
| Azaleas, per dozen | 18 0-60 0 | Foliage Plants, vari- | |
| Begonias, per doz. | 6 0-18 0 | ous, each | 2 0-10 6 |
| Bouvardias, per doz. | 18 0-24 0 | Fuchsias, per dozen | 8 0-18 0 |
| Cinerarias, per doz. | 6 0-18 0 | Genista, per dozen | 8 0-74 0 |
| Cyclamens, per doz. | 9 0-30 0 | Mignonette, per doz. | 6 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 5 0-12 0 |
| Dielytra, per dozen | 9 0-18 0 | Palms in variety, | |
| Dracæna terminalis | 30 0-60 0 | each | 2 6-21 0 |
| — viridis, per doz. | 18 0-24 0 | Pelargoniums, per | |
| Erica hyemalis, doz. | 9 0-30 0 | dozen | 12 0-24 0 |
| — ventricosa, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 6 0-12 0 |
| per dozen | 24 0-42 0 | Roses, per dozen | 12 0-42 0 |
| — Willmoreana, per | | Spiræa, per dozen | 6 0-24 0 |
| dozen | 9 0-24 0 | — palmata, per doz. | 18 0-48 0 |
| Euonymus, var., doz. | 6 0-18 0 | | |

SEEDS.

LONDON: April 30.—Nothing of special importance has transpired this week in connection with the trade for farm seeds. Indeed, so far as the wholesale Mark Lane trade is concerned, the consumptive wants of the present season, backward as it is, seem nearly satisfied. There is, however, still some retail demand, and this will probably continue, in a daily lessening degree, for two or three weeks longer. The stocks held here of all the leading descriptions are not excessive; and the low rates current would, in ordinary times, have induced considerable speculation. It is noticeable that, with regard to Clover seed, the markets across the Atlantic, in contrast with the state of things here, are exceedingly firm—the available supply of seed there being very small. The export movement from New York has suddenly ceased, the total quantity shipped thence for the week ending April 10, 1879, being only 14 tons, and for the week ending April 18, 1879, nil. Alsike, white Clover, and Trefoil seeds offer no subject for remark. There is a moderate request for grass seeds. Mustard and Rape seed meet with more attention at advancing rates. As Potatoes are now getting higher in price and worse in quality, there is an improved sale for blue Peas and Haricot Beans. Canary and Hemp seed are without quotable variation. In feeding Linseed the tendency is upwards. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Trade at Mark Lane on Monday was very quiet. English Wheat was in short supply, and the better qualities moved off slowly on former terms; inferior produce was hardly so good in price. Foreign Wheat was rather firm, owing to the unsatisfactory accounts of the crops abroad. Barley was in limited request, and a very quiet market was experienced for malt. Oats were dealt in less freely, and though prices were from 6d. to 9d. per quarter higher on the week the market was not quite so firm. Maize was dull and without recovery in prices. Beans, Peas, and flour were taken only to a limited extent, and rates were unchanged.—On Wednesday, owing to the unsatisfactory reports of the crops abroad, and the absence of warm growing weather at home, holders of Wheat were not anxious sellers, and prices accordingly were maintained. Barley was slow of sale, as also was malt. For Oats the advance was supported. Maize continued dull. Peas were rather flat, but as regards Beans and flour sales were rather firm.—Average prices of corn for the week ending April 26:—Wheat, 40s. 11d.; Barley, 31s.; Oats, 20s. 11d. For the corresponding week last year:—Wheat, 51s. 8d.; Barley, 42s. 6d.; Oats, 25s. 10d.

CATTLE.

At Copenhagen Fields on Monday the demand for beasts was short, and it was exceedingly difficult to make a clearance, although there was a disposition to take lower prices than we quote to effect it. For sheep trade was very dull, and prices were lower for all descriptions. Lambs were more in request and dearer than on Thursday last, but the calf trade was not quite so good. Quotations:—Beasts, 4s. to 4s. 4d., and 4s. 6d. to 5s.; calves, 5s. 6d. to 6s. 6d.; sheep, 4s. 8d. to 5s., and 5s. 2d. to 5s. 8d.; lambs, 7s. 8d. to 8s. 8d.; pigs, 3s. 8d. to 4s. 8d.—Thursday's cattle trade was quiet in tone. Supplies of beasts and sheep were not large for a Thursday, but were sufficient for the demand. Sheep were drooping. Lambs also were easier. Calves sold at slightly reduced rates.

POTATOS.

The Borough and Spitalfields markets reports state that the arrivals of Potatoes have been moderate and trade remains quiet:—Kent Regents, 120s. to 130s.; Essex do., 85s. to 110s.; Scotch do., 100s. to 130s.; Champions, 95s. to 110s.; Victorias, 110s. to 140s.; Foreign, 95s. to 110s. per ton.—The imports into London last week comprised 27,228 bags from Hamburg, 5380 packages Malta, 2658 bags Bremen, 2374 Ghent, 808 Antwerp, 688 Rouen, 643 Boulogne, 331 Dunkirk, and 182 Treporet.

COALS.

No prices were quoted for Monday's business; the following are the figures for Wednesday's transactions:—Bebside West Hartley, 14s. 9d.; West Hartley, 14s. 9d.; Walls End—Original Hartlepool, 15s.; South Hetton, 15s.; Thornley, 17s. 6d.; Radford Navigation, 15s. 6d.

Government Stock.—On Monday for delivery Consols were 98½ to 98½ at the close, and for the account 98½ to 99. Tuesday's closing prices were 98½ to 98½ for delivery and the account. On Wednesday Consols left off at 98½ to 98½. The Exchange was closed on Thursday.

SPORT AND PRACTICE.



COCOA-NUT FIBRE REFUSE.—

Reduced Price:—In 4 bushel bags, bags included, at 1s., 30 bags £1, or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, as

supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

RITCH (late Finlayson & Hector), Cocoa-Nut Fibre Works, 24 and 25, Redman's Row, Mile End Road, London, E.

GARDEN REQUISITES.—COCOA-NUT

FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners.

3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s.

4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack;

5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half

ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF-

MOULD, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and

Paper, Russia Mats, &c.

Write for free PRICE LIST. Goods free to rail.

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PEAT SOIL, PEAT SOIL.—

BROWN FIBROUS, good quality, for Orchids, Pot

Plants, Ferns, &c., £6 6s. per truck. BLACK, good quality for

American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s.

per ton, or 6-ton truck for £4 10s. Delivered on rail at Black-

water, S.E.R., or Camberley, S.W.R., by the truckload. Cash

with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER AND SON, Crown Nurseries, Reading.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best

quality for Orchids, Stove Plants, &c., £6 6s. per truck.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas,

Heaths, American Plant Beds, 15s. per ton.

Delivered on rail at Blackwater, S.E.R., or Farnborough,

S.W.R., by the truckload. Sample bag, 4s.; 5 bags, 20s.;

10 bags, 35s. Bags, 4d. each.

Fresh SPHAGNUM, 10s. 6d. per bag.

WALKER AND CO., Farnborough Station, Hants.

By Permission of the Hon. Board of Customs,

Free of Duty.

NICOTINE SOAP.

A NEW AND UNRIVALED INSECTICIDE

FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing

properties, with perfect safety to foliage. No known blight can

resist it, and it is the cheapest in the market.

Price, in jars, containing 8 oz., 1s. 6d., and 20 oz., 3s.;

drums, 28 lb., 25s.; and 2 oz. samples jars, 6d. each. Two

ounces sufficient for one gallon of water for ordinary use.

THE LONDON GROUND TOBACCO.

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TOBACCO PAPER, CLOTH, and CORD.

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ARTIFICIAL RUNNING RABBITS.

CHEAP and EXCELLENT SPORT.

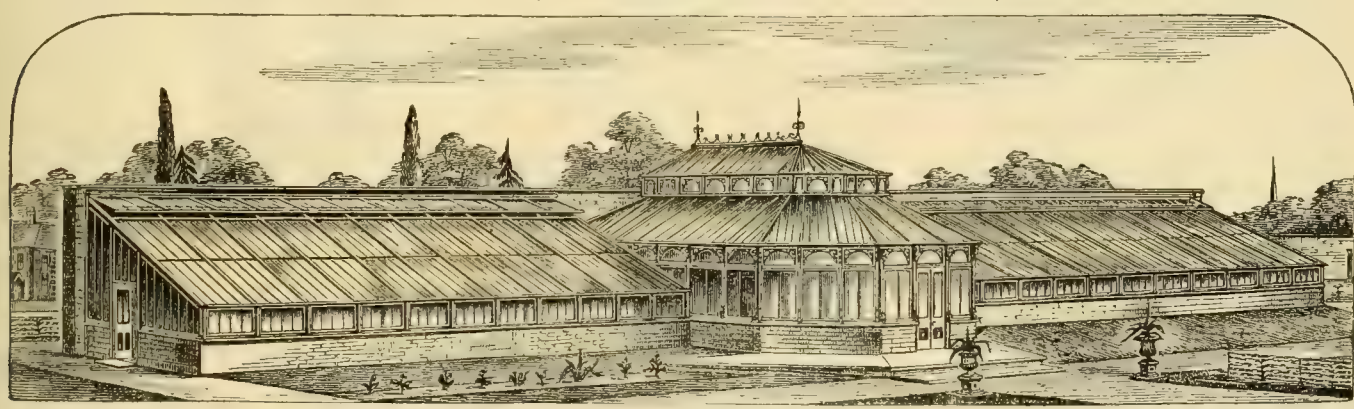
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For Stimulating and Quickening the Growth of Plants, and producing a Rapid and High Development of Blossom.

Extract from Dr. Voelcker's Analytical Report, of June 7, 1878.

"The preparation is readily soluble in water, and perfectly free from all disagreeable smell, and it may be regarded as the concentrated essence of the most valuable manures, deprived of all the disagreeable smelling and useless products of partial decomposition which generally accompany ordinary manures."

Directions for Use.

One teaspoonful of the Florvita to be added to each gallon of water used.

The Plants should be watered with it three times a week or more.

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Sold by all Florists and Seedsmen in the United Kingdom, in 1s. and 2s. 6d. Bottles, and in 18s. and 36s. Jars.

EWING'S MILDEW COMPOSITION, in bottles, 1s. 6d. and 3s. each; one-gallon cans (to make 104 gallons of mixture for syringing), 12s. each; two gallon cans, 20s. each. Mildew or Red Spider are also effectually prevented or destroyed by merely painting the hot pipes with the composition mixed with whitewash; no direct application to the foliage is then necessary.

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GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

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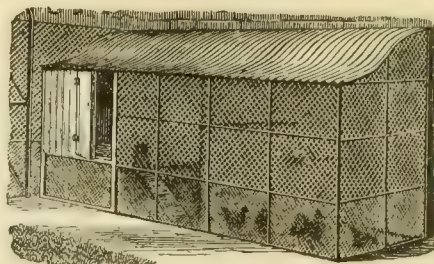
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TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.

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Prices—Carriage paid to any railway station in England:

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|---|--------|
| 1st size, No. 7, with run complete, 12 feet long, 4 feet wide | £1 5 0 |
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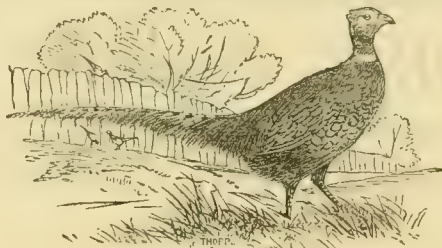
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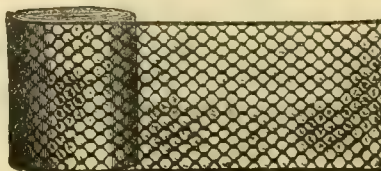
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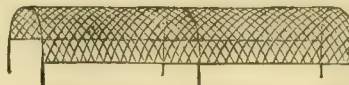
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Samples and prices on application.

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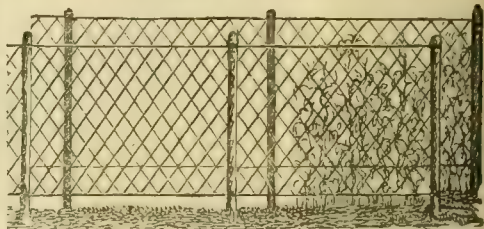
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For Training Peas, instead of Sticks.

GALVANISED AFTER MADE.



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| 6 feet wide, 3 feet high | 2s. 6d. each panel. |
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The above engraving shows the arrangement of the panels tied to ordinary wood stakes.

IMPROVED FRAMED STANDARDS for ditto, galvanised, 2s. 6d., 2s. 9d., and 3s. each.

10 per cent. discount allowed for cash with order.

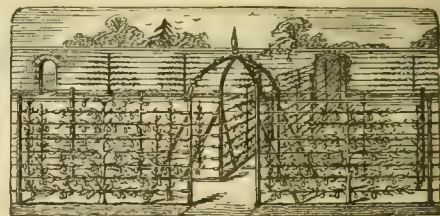
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Estimates given free of charge for Espalier Trainers! or Fruit Trees, &c. The Espalier can be easily fixed, wood or stone blocks being unnecessary. In writing for Estimates please give exact lengths required, with a rough sketch showing angles, if any.

FITTINGS for WIRING FRUIT WALLS.—Having a large stock, orders can be executed on receipt at reduced prices. Carriage Paid on Orders of 40s. value. Illustrated Lists, with full particulars, free on application.

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No. 1.

No. 3.



No. 1.—This Arch is very strong, and suitable for training Creepers of any kind. Wrought Iron Frame, covered with stout galvanised Wire Netting, 7 feet high, 4 feet span, 2 feet wide, frame painted green, 15s. each.

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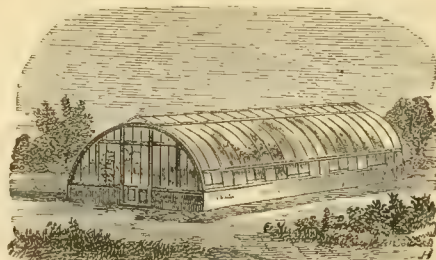
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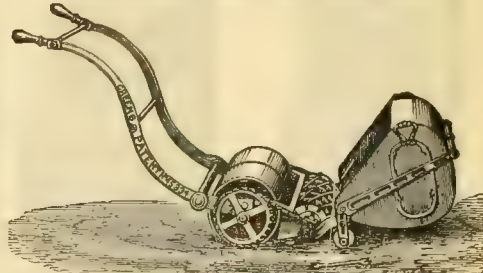
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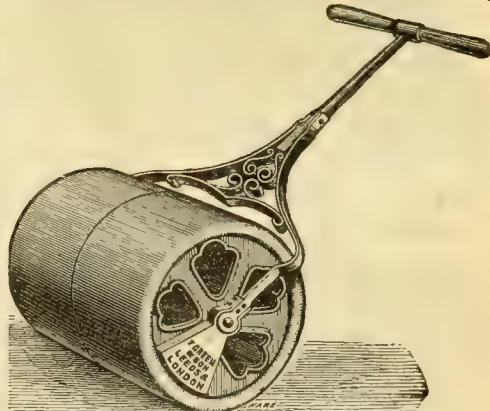
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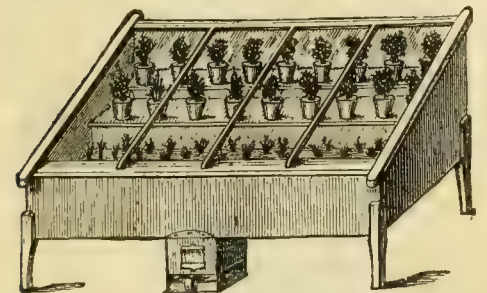
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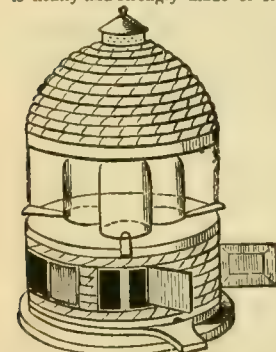
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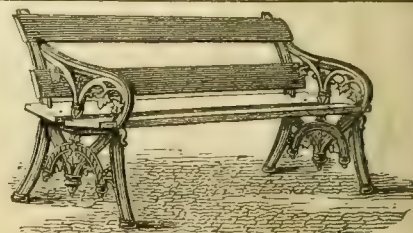
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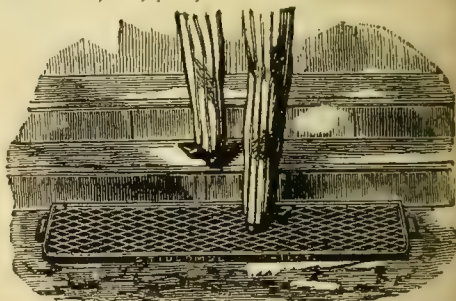
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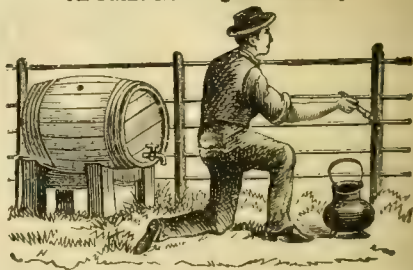
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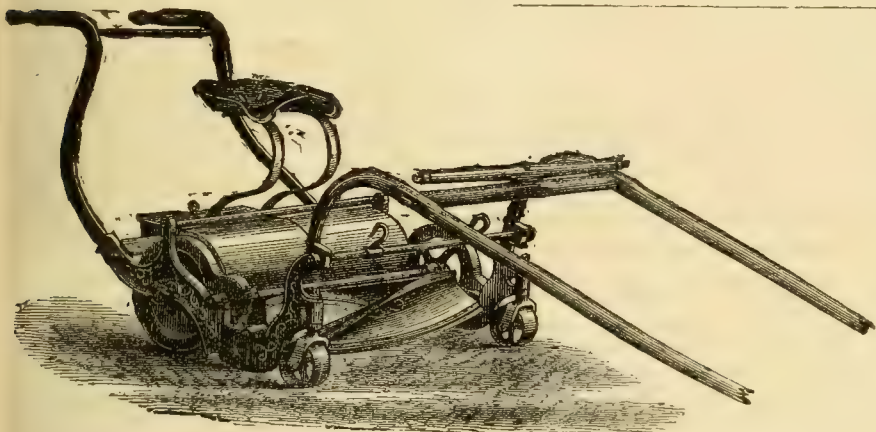
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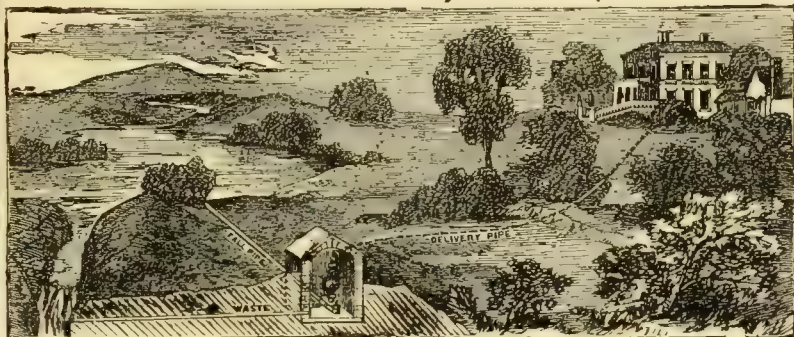
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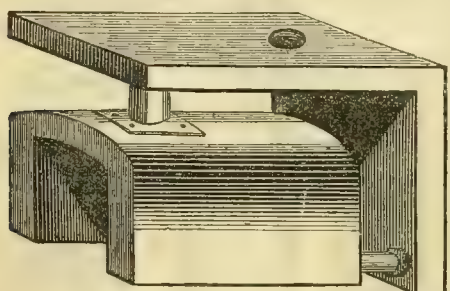
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The most effectual cure for Gout and Rheumatism.—A frequent cause of these complaints is the inflammatory state of the blood, attended with bad digestion, lassitude and great debility, showing the want of a proper circulation of the fluid, and that impurity of the blood greatly aggravates these disorders. Holloway's Pills are of so purifying a nature that a few doses taken in time are an effectual preventive against gout and rheumatism, but any one that has an attack of either should use Holloway's Ointment also, the properties of which, combined with the effects of the Pills, ensure a certain cure. The Ointment should be thoroughly rubbed into the parts affected at least twice a day, after they have been sufficiently fomented with warm water to open the pores to facilitate the introduction of the Ointment to the glands.

and the Jury in their Report say :—

The "Archimedeon" was the only Lawn Mower used, and specially selected in preference to all other Mowers for Cutting the Grass on the most conspicuous parts of the Paris Exhibition Grounds. Also awarded

NOTE.—The “Archimedean” was specially selected from the Mowers exhibited at Vienna for constant use in the Exhibition Grounds, and gave great satisfaction; and we have pleasure in calling attention to the following Testimonial, received from the Inspector of the Royal Gardens, Schönbrunn, Vienna:—

"Your 'Archimedean' Lawn Mowers have been used for some time past at the Imperial Gardens, and I have great pleasure in stating that they have given perfect satisfaction. Their quick and good work prove them to be the best and most efficient machines of the kind."

"The quickest, most simple, and most efficient Mower ever used."—*Gardeners' Chronicle*.

"Far superior to any of ours."—*The Field*.

"Remarkably easy to work."—*Gardeners' Mag.*

"We feel bound to recommend it to our readers as one of the best Mowers we have as yet made acquaintance with."—*Floral World*.

HER GRACIOUS MAJESTY THE QUEEN,
HER IMPERIAL MAJESTY THE EMPRESS OF GERMANY,
THE LATE EMPEROR OF THE FRENCH,

HIS ROYAL HIGHNESS THE PRINCE OF WALES,
HIS IMPERIAL MAJESTY THE EMPEROR OF AUSTRIA,
THE VICEROY OF EGYPT,

And many of the Nobility and Gentry of Great Britain.

They are extremely LIGHT IN DRAUGHT, SIMPLE IN CONSTRUCTION, WELL MADE, and NOT LIKELY TO GET OUT OF ORDER.

They Cut LONG or SHORT,
WET or DRY Grass, and do
not clog.

They have no ROLLERS in FRONT of the Cutter, and therefore Cut the Grass as it GROWS, and do not miss the BENTS.

They work well on SLOPES,
STEEP EMBANKMENTS,
UNDER SHRUBS, and
Close up to Trees, &c.

They can be USED either WITH
or WITHOUT GRASS BOX,
as may be desired.



From A. F. BARRON, Esq., Royal Horticultural Society, Chiswick Gardens, W.

"GENTLEMEN,—We have now had your 'Archimedean' Lawn Mower in use for several months, and without hesitation I can truly say it is the *best and most efficient* implement of the kind we have ever used."

From SHIRLEY HIBBERD, Esq.,
F.R.H.S., Editor of the "Gardeners'
Magazine."

"The 'Archimedean' Lawn Mower has been in constant use in our experimental garden since Midsummer last, and has done its work remarkably well. It is a good sign when the men who have to do the work take to a thing of this sort without any persuading, and my men evidently regard it as a magical means of making mowing an amusement, for they fly through the work and enjoy the perfect shave quite as much as I who look on, and wonder we have so lately attained to real simplicity."

From the Rev. A. McALLISTER, Plumstead Vicarage, London.

"I have the pleasure of forwarding a cheque for the 'Archimedean' Lawn Mower which I had from you, and which does its work admirably."

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| 8 " " " " .. | 2 2 0 | 16 " " " on Level Lawns .. | 6 6 0 |
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NO CHARGE FOR PACKING CASES, which are most convenient for storing the Machine during Winter.

EVERY MOWER IS WARRANTED TO GIVE AMPLE SATISFACTION,
And if not approved of may be returned within a Month, and the amount paid be refunded.

Before purchasing a Lawn Mower send for Catalogue, containing Opinions of the Press and Testimonials from Gentlemen of high position in the Horticultural World, Noblemen, Clergymen, and others.

WILLIAMS & CO. (Limited), Manufacturers and Patentees.

Selling JOHN G. ROLLINS & CO., Old Swan Wharf, Upper Thames Street, London, E.C.

Agents } WALTER CARSON & SONS, La Belle Sauvage Yard, Ludgate Hill, E.C.; and 21, Bachelor's Walk, Dublin. } **Agents**

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Established 1841.

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CARTER'S GOLD MEDAL LAWN GRASS.—Price 1s. (post-free 1s. 4d.), 1s. 6d., and 2s. 6d. per packet. 25s. per bushel. 20s. value carriage free. Awarded First Prize Paris Exhibition.—237 and 238, High Holborn, W.C.

IMPORTANT CAUTION.—The beautiful Lawns so much admired on the Trocadero at the Paris Exhibition, awarded the First Prize and only Gold Medal (beating all other competitors, English and Continental), were produced with CARTER'S FINE LAWN GRASS SEEDS, and no other English seed house was awarded a gold medal for lawns. In sealed packets only, as above. CARTERS, The Queen's Seedsmen, 237 and 238, High Holborn, London, W.C.

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DR. DENNY'S ZONAL PELARGONIUMS (Sixth Set), are now ready for distribution. For descriptive CATALOGUE apply to JOHN BALAAM, Vine Nursery, Hackney Downs Road, Lower Clapton, N.E.

PELARGONIUM VOLUNTE NATIONAL.—The most beautiful Geranium ever introduced, strong plants 3s. 6d. each, free by post 3s. 9d. in stamps. FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

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TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or less quantities, on application. ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

FRUITING PLANTS of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale. THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps. CATALOGUES of ROSES and ORCHARD-HOUSE TREES post-free on application. THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Vines—Vines—Vines. J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

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Cabbage Plants—Cabbage Plants. THOS. IMRIE AND SONS beg to offer Late Drumhead CABBAGE and GERMAN GREENS. Prices on application. Nursery and Seed Warehouse, Ayr.

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ASPARAGUS PLANTS, 3-yr.; and four sorts of DAISIES, good, 3s. per 100, 25s. per 1000. SAMUEL COX, Seedsman and Florist, Stourbridge, Worcestershire.

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Gentlemen's Gardeners, Amateurs, and Others REQUIRING GARDEN POTS of best quality, are requested to send their orders to J. MATTHEWS, Royal Pottery, Weston-super-Mare. Price List on application.

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WANTED, 12 or 18 Smooth CAYENNE PINE SUCKERS. Send price and particulars to RODGER, MCCLELLAND AND CO., 64, Hill Street, Newry.

WANTED, GLOBE ARTICHOKE. A quantity of good plants of Globe Artichokes are wanted. Apply, stating price, &c., to LITTLE AND BALLANTYNE, Knowfield Nurseries, Carlisle.

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SUTTON AND SONS, The Queen's Seedsmen, and by Special Warrant to H.R.H. the Prince of Wales, Royal Berks Seed Establishment, Reading.

ROMAN HYACINTHS for the Trade. Delivery in autumn. Special prices by correspondence. HOOPER AND CO., Covent Garden, London, W.C.

ROMAN HYACINTHS for the Trade, to be delivered in August, or later in the autumn. Special prices are given by correspondence. Early orders desirable. E. H. KRELAGE AND SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland.

FOR SALE, VERBENAS, Purple, White, Scarlet, and Pink. Good plants, 6s. per 100, package free. Cash with order. S. BIDE, Alma Nursery, Farnham.

FOR SALE, strong healthy Cuttings of Purple, White, Scarlet, and Pink VERBENAS, 3s. per 100. Twenty good exhibition varieties, 4s. per 100, free by post. Cash with order. S. BIDE, Alma Nursery, Farnham.

VERBENAS, VERBENAS.—All good strong, well-rooted, and healthy, of the following varieties, at 6s. per 100, 30s. per 1000:—Purple, White, Crimson, and Pink, &c. Package free for cash. T. FLETCHER, Florist, &c., Chesterfield.

Verbenas from Store Pots. WILLIAM BADMAN offers clean, healthy, well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash. Cemetery Nursery, Gravesend.

Hardy Primrose Seed. L. T. DAVIS offers to the Trade a fine lot of the above, saved from a very superior strain, in great variety of colour, from pure white to deep purple and crimson. Price on application. Ogle's Grove Nursery, Hillsborough, Co. Down.

Tea-scented Roses. WILLIAM FLETCHER offers clean healthy plants in 48-pots, now coming into bloom, of all the leading varieties. Price on application. Ottershaw Nursery, Chertsey.

SEEDLING PEDIGREE ROSES.—The greatest floral novelties of the age are H. Bennett's "Pedigree Seedling Roses." Will be ready the first week in June. To ensure good plants order at once, as there is only a small stock of each variety. Descriptive LISTS gratis and post-free. H. BENNETT, Manor Farm Nurseries, Stapleford, Salisbury.

Now Ready. CRANSTON AND CO.'S TRADE LIST of NEW ROSES for 1879. King's Acre Nurseries, near Hereford.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c. THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above. CATALOGUES on application.

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FOREST TREES, Seedling and Transplanted.—The very extensive stock of the above is this season in splendid condition. CATALOGUES on application. The Lawson Seed and Nursery Company (Limited) Edinburgh.

Strawberries. CHARLES TURNER can supply all the leading varieties in good plants. LIST on application. The Royal Nurseries, Slough.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade. SANDER AND CO., Seed Growers, St. Albans.

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. GREAT FLOWER SHOW, under the Large Tent, MAY 27, 28, 29, and 30. ONE THOUSAND POUNDS IN PRIZES—Roses, Orchids, Azaleas, Pelargoniums, Rhododendrons, Fruit and Vegetables. Competition for Silver Cups offered by Mr. William Bull, F.L.S., for New Plants. Band of the Royal Horse Guards each day. Admission—Tuesday, from 1 o'clock, 5s.; Wednesday and Thursday, from 10 o'clock, 1s.; Friday, from 10 o'clock, 6d.; or by Tickets purchased before the day by Fellows, for the first day, 3s. 6d. Tickets at the usual Agents and at the Entrances to the Gardens.

N.B.—Application for space to be made to the Superintendent, Royal Horticultural Society, South Kensington, S.W. Entries close Friday, May 23.

Note.—Medals to be awarded for Implements, &c., see p. 6 of Schedule.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. NOTICE.—COMMITTEES' MEETINGS, FRUIT and FLORAL, at 11 A.M., SCIENTIFIC, at 1 P.M., on TUESDAY NEXT, May 13. General Meeting for Election of Fellows, &c., at 3 P.M. Band of Royal Horse Guards at 4 o'clock, in the Conservatory. Admission 1s.

ROYAL BOTANIC SOCIETY, Gardens, Regent's Park, N.W. SUMMER EXHIBITION of PLANTS and FLOWERS, WEDNESDAY, May 21. Gates open at 10 o'clock. Tickets to be obtained at the Gardens only by Vouchers from Fellows of the Society. Price 5s., or on the day of the exhibition 7s. 6d. each.

ALEXANDRA PALACE.—The GREAT ROSE SHOW will be held on SATURDAY, July 5. Schedules of Prizes now ready, and may be obtained on application to The MANAGER, Alexandra Palace, Muswell Hill, N.

ROYAL BOTANICAL and HORTICULTURAL SOCIETY of MANCHESTER. The GRAND NATIONAL HORTICULTURAL EXHIBITION of 1879 will be opened by the President, the Right Hon. the Earl of Derby, at 2 P.M., on FRIDAY, May 30. Admission to Non-Subscribers, 1st day, 5s. each; 2d day, 2s. 6d.; Whit Monday and remaining day, 1s. each. Notice to Exhibitors—ENTRIES CLOSE on the 23d inst. BRUCE FINDLAY, Curator and Secretary. Royal Botanic Gardens, Manchester.

DISS HORTICULTURAL SOCIETY.—The SECOND ANNUAL EXHIBITION will be held in the grounds of F. Taylor, Esq., Diss, on TUESDAY, July 8. 1st Prize, a Silver Cup value £5 5s.; 2d, £3; 3d, £2; 4th, 10s.; will be given for the best 24 ROSES (open to all Amateurs). Further particulars may be had of the

Rev. F. PAGE ROBERTS, Hon. Sec., The Rectory, Scole.

THE NEWPORT (Mon.) and COUNTY HORTICULTURAL SOCIETY will hold their Fifth Annual Exhibition, on WEDNESDAY, July 16. A Prize of TWENTY-FOUR POUNDS for 8 STOVE and GREEN-HOUSE FLOWERING PLANTS (Open). Schedules can be obtained of the

HONORARY SECRETARIES, Town Hall, Newport, Mon.

SALES BY AUCTION.

Oakwood, Crayford, Kent.

(Within a mile from Crayford Station, Kent.)

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises as above, on WEDNESDAY, May 14, at 12 for 1 o'clock precisely, 20,000 BEDDING PLANTS, 8000 GERANIUMS of sorts, PYRETHRUMS, 2500 ECHEVERIA GLAUCA, 5000 ALTERNANTHERAS, 2000 FUCHSIAS, LOBELIAS, CALCEOLARIAS, named CHRYSANTHEMUMS, DRACENAS, BLECHNUMS, CLERODENDRONS, FERNS, ORCHIDS, Specimen CROTONS, and numerous other STOVE, GREENHOUSE and BEDDING PLANTS.

View any day prior to Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Clapton, E.

CLEARANCE SALE.

Three minutes' walk from Clapton Station, Great Eastern Railway.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, without reserve, by order of R. Simpson, Esq., on the Premises, Mount Pleasant Lodge, Mount Pleasant Lane, Clapton, E., on THURSDAY, May 15, at 11 for 12 o'clock, the whole of the well-grown STOVE, GREENHOUSE, and BEDDING PLANTS, viz. Crotons, Adiantums, Caladiums, Camellias, pyramidal trained Azaleas, 2 to 3 feet 6 inches; Dracenas, Lapageria rosea, Dwarf Roses; 10,000 Bedding Plants, consisting of 5000 Geraniums in variety, Alternantheras, Fuchsias, Echeverias, Lobelias, Pelargoniums, Coleus, Iresine, and many other plants; eight capital Frises, Flower Stands, Iron Safe, Gas Lamps, Roller Lawn Mowers, Root Pulper, Chaff Cutter, and a quantity of other effects.

May be viewed the day prior to Sale. Catalogues had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, E.C.

Harvestock Hill, Hampstead, N.W.

Opposite Belzive Avenue, Hampstead, near the Chalk Farm and Hampstead Railway Stations, N. L. Railway.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises as above, on FRIDAY, May 16, at 12 for 1 o'clock precisely, 10,000 BEDDING and GREENHOUSE PLANTS, remarkably well grown, consisting of 20,000 Geraniums of sorts, 500 Ferns, 200 Climbers, 200 Rock and Alpine Plants, 200 Spiraeas, 2000 Calceolarias, 2000 Verbenas, 1000 Heliotropes, 1000 Crataegus, 500 choice Dahlias, 500 standard and Dwarf Roses in pots, 5000 Lobelias, Iresine, Pyrethrums, Ageratums, Fuchsias, Echeverias, Coleus, and the usual assortment of Bedding Plants, &c.

May be viewed the day prior to Sale. Catalogues had on the Premises, and may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Beckenham, Kent, S.E.

Five minutes' walk from Beckenham Junction Station.

MESSRS. PROTHEROE AND MORRIS will sell by AUCTION, on the Premises, Victoria Nursery, Bromley Road, Beckenham, Kent, S.E., by order of Mr. G. Nunn, on THURSDAY, May 22, at 11 for 12 o'clock, about 12,000 well-grown BEDDING PLANTS, viz.:—4000 Vesuvius, 4000 Geraniums in variety, 3000 Calceolarias, Pyrethrums, Fuchsias, Hardy Ferns, Iresine, &c.; Greenhouse and Stove Plants, Dracenas, Crotons, Corypha australis, Seaforthia elegans, Tea and other Roses, Pelargoniums, &c.

May be viewed the day prior to the Sale, and Catalogues had on the Premises, also of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

SALE THIS DAY, AT HALF-PAST 12 PRECISELY.
Plants and Bulbs from Holland.

MR. J. C. STEVENS will sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, May 10, at half-past 12 o'clock precisely, a Consignment of ROSES, CONIFERS, FRUIT TREES, HOLLIES, and other PLANTS from Holland: CARNATIONS, PICOTEES, and PINKS, HERBACEOUS PLANTS, CAMELLIAS, GREENHOUSE PLANTS, RUSTIC BASKETS, GLADIOLI, SPIRÆAS, LILIUMS, &c.

On view morning of Sale, and Catalogues had.

2500 Odontoglossum Alexandræ.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 13, at half-past 12 o'clock precisely, the final portion of the splendid consignment of ORCHIDS received per steamer "Medway," consisting of 2500 ODONTOGLOSSUM ALEXANDRÆ. The lots offered have been collected in the same locality whence the dark-coloured and large-flowered varieties came some five years ago. The importation is an extra fine one, and it may be safely asserted that a better lot never reached Europe; the masses are in perfect health, freely set with breaks, and it will be seen that some have actually made flower-spikes in coming home. The Sale will also include a splendid importation of the magnificent LÆLIA FURFURACEA. It is ten years ago this season since this magnificent Mexican Lælia was last imported, and few collections possess it now. The masses are in extra fine condition, very large and with breaks. The flower of this very showy Orchid is 5 inches across, its colour is dark purple, lip rose. Also a splendid lot of CATTLEYA CITRINA, with bulbs some 6 inches in circumference and in largest masses; a very fine lot of the true ODONTOGLOSSUM ROSSI MAJUS, SOPHRONITIS COCCINEA and GRANDIFLORA; also a very fine lot of the beautiful ONCIDIUM PRÆTEXTUM (Reich.), in growing pieces, and various ODONTOGLOSSUMS.

On view morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS has received instructions from Mr. R. Bullen, of Lewisham, to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 13, at half-past 12 o'clock precisely, IMPORTED ORCHIDS, just received ex R.M.S. "Nera," from Brazil, all in first-class condition, consisting of fine plants of Lælia cinnabarina, L. purpurata, Burlingtonia decora picta, B. fragrans, Oncidium sarcode (true), O. Forbesii, O. Marshallianum, O. crispum, O. curtum (true), Huntleya meleagris, Calax jugosus, Zygopetalum Maxillaria (very rare), Z. violacea, Sophronitis grandiflora variety coccinea, Compantzia coccinea (rare), Scuticaria Hadwenii, Miltonia cuneata (very rare).

On view morning of Sale, and Catalogues had.

Lælia furfuracea.

MR. J. C. STEVENS has received instructions from Mr. F. Sander to include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 13, an Importation of LÆLIA FURFURACEA. It is ten years ago this season since this magnificent Mexican Lælia was last imported, and few collections possess it now. The importation is a very fine one, the pieces are in extra fine condition, and show breaks; the flower of this beautiful Orchid is thrown up on strong 2 feet high spikes, and measures some 5 inches in diameter; its colour is dark purple, lip bright rose, the colour is very vivid, and this Lælia one of the very finest of the Mexican Orchids.

On view morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS has received instructions from The New Plant and Bulb Company, of Colchester, to sell by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 14, at half-past 12 o'clock precisely, ORCHIDS from Brazil, including Oncidium Forbesii, O. concolor, O. crispum grandiflorum, the rare Sophronitis violacea, Cattleya Harrisoni, a fine consignment of handsome Cattleyas and Odontoglossum gloriosum from Colombia; also Dendrobium nobile, D. Devonianum, a splendid flowering TUBEROUS PLANT from India, &c.

On view morning of Sale, and Catalogues had.

Highly Important Sale of Stove and Greenhouse PLANTS, FERNS, &c., grown at Darnley, Leicestershire. In consequence of the Messrs. Fraser having resolved not to exhibit or compete, they have instructed

MR. MASSON, AUCTIONEER, to sell, in the Music Hall Buildings, during the SECOND WEEK in JUNE, their well-known Collection. Catalogues and further particulars, with cards to view, may be obtained from Messrs. FRASER, or the Auctioneer, 115, Union Street, Aberdeen.

By order of the Executrix of the late Archibald HENDERSON.—(462.)

FOR IMMEDIATE DISPOSAL, the valuable LEASE (twenty years unexpired) of the SION NURSERY, 6 acres in extent, held, together with the Dwelling-House, Sheds, and Glass erections, at the low rental of £80 per annum; also the whole of the Stock and Utensils in Trade, Shop Fixtures, and such Greenhouses as belong to the tenant; likewise the Lease of the handsome Shop and Conservatory, occupying a conspicuous corner position in High Street, Croydon, held for a term of ninety years unexpired from Christmas, 1879.

This well-known Nursery has been carried on most successfully for many years by the late proprietor, and to any one in possession of a moderate amount of capital an excellent opportunity is presented for securing a lucrative business on easy terms.

Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.
Printed List of Nurseries in the market may be had on application.

Near the Crystal Palace (4620).

TO BE DISPOSED OF, a thoroughly genuine NURSERY, SEED, and FLORIST'S BUSINESS, the owner being about to retire, comprising about Two Acres of Land, convenient semi-detached Dwelling-house, with commanding Shop, a handsome Conservatory and Aviary in front, possessing a noble frontage to the main road, in the best part of a high-class neighbourhood. Also Ten modern Greenhouses, admirably planned and heated. Extensive Jobbing trade. Immediate possession. Rent, on lease for 21 years, £160 per annum. Stock, including Horse, Cart, Utensils, Goodwill and Fixtures, £1100. The Freehold, together with the Stock, &c., may be purchased on moderate terms.

For further particulars and orders to view apply to Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C.

Berkshire (4631).

SEED BUSINESS for SALE, in a high-class neighbourhood, doing a good local trade and jobbing business. House and Shop in High Street of important market town. Good reasons for disposal. Rent £50. Price about £400.

For detailed particulars, apply to Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C.

TO BE LET, A SMALL NURSERY, situated at Mitcham Road, Croydon, in the county of Surrey, consisting of good Cottage, with water and gas laid on, Viney 27 feet long, and 18 feet Pit, 70 dozen of Bedding Plants, and the Nursery well stocked with Fruit Trees, &c. Low rent. Incoming £45.

For further particulars, apply at 31, Mitcham Road, Croydon.

MR. CHARLES BURLEY, HORTICULTURAL AUCTIONEER and VALUER, undertakes SALES, in any part of the country, with strict economy.
Office: Brentwood, Essex.

PARIS EXHIBITION, 1878.—We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the peculiar merits of our exhibits at the above exhibition. See Times Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON AND SONS, The Queen's Seedsmen, Reading, London and Paris.

Azaleas Coming into Bloom.

JAMES IVERY AND SON, having a large stock of the above in all the choice varieties (home-grown), beg to offer them at the following low prices:—

Plants in large 48's, with good heads, well set with bloom, from 18s. per dozen.

Also a quantity of smaller stuff, nice plants, in small 48's, at 12s. per dozen.

Extra plants will be sent to compensate for carriage.

The Dorking Nurseries, Surrey.

Verbenas—Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose, and other mixed sorts, good strong spring-struck Cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders.

Queen's Road Nursery, Markhouse Common, Walthamstow, Essex; late of Islington Nursery, Park Street, Islington, N.

THE WINCHESTER SOCIETY'S EXHIBITION OF POULTRY, PIGEONS, DOGS, FLOWERS, and FRUIT, will be held at Winchester on JULY 9 and 10, 1879. Prize Schedules and Rules on application.

ENTRIES CLOSE—For Dogs, June 25; Poultry, Pigeons, Flowers and Fruit, July 2.

F. RAYMOND BRYAN, Hon. Sec.

8, Great Minster Street, Winchester.

BATH and WEST of ENGLAND SOCIETY (Established 1777) and SOUTHERN COUNTIES ASSOCIATION.

Patron—H.R.H. the PRINCE OF WALES, K.G.

President—The Right Hon. the EARL OF MORLEY.

EXETER MEETING, JUNE 2.

3, 4, 5, and 6, 1879.

GREAT EXHIBITION of LIVE STOCK, POULTRY, MACHINERY, IMPLEMENTS, WORKS of ART and HORTICULTURAL SPECIMENS;—COMPETITION of SHOEING. SMITHS, &c.

JOSIAH GOODWIN, Sec.

4, Terrace Walk, Bath, May, 1879.

Horticultural Shows, Season 1879.

Before making their final arrangements, Secretaries should send for particulars of the Music and Entertainments of **THE ROYAL HANDBELL RINGERS** and **GLEE SINGERS** (Poland Street, London), by which the cost of an expensive Band may be saved, and a handsome profit for Societies' funds may be realised. References to Secretaries of Coventry and Warwickshire, Oundle, Buckingham, and other Local Societies. Full particulars from the Conductors.

DUNCAN S. MILLER, 53, Richmond Terrace, Clapham Road, London, S.W.

CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Medals, Illustrated Catalogues gratis and post-free. Awarded Paris, 1878, Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.

CARTERS, The Queen's Seedsmen, High Holborn, London, W.C.

SEAFORTHIA ELEGANS.—For disposal, a fine specimen of the above Palm, about 12 feet high.—Apply to Mr. HERRIN, The Gardens, Chalfont Park, Slough.

NOTICE.—See Grand NEW ZONAL GERANIUMS for 1879 Advertisement in *Gardeners Chronicle* of April 26.

LIST OF CUTTINGS and PLANTS.

CHARLES BURLEY, Brentwood.

NOTICE to all Applicants.—LIST of Choice Plants and Cuttings post-free, from CHARLES BURLEY, Brentwood.

NEW CATALOGUE for 1879.—The most comprehensive Catalogue issued of reasonably-priced Plants and Seeds of the best quality, and suitable for all who love a Garden or Greenhouse. See last week's large advertisement, and write for a Catalogue.

WM. CLIBRAN AND SON, The Oldfield Nurseries, Altrincham, Cheshire.

Bedding Geraniums.

GEO. POULTON has thousands of strong plants of VESUVIUS and WONDERFUL to offer; also MADAME THIBAUT, the best pink Geranium extant. Strong plants, in single pots, 2s. per dozen.

GOLDEN PYRETHRUM, 2s. per 100.

Terms cash. Packages free.

Fountain Nurseries, Angel Road, Edmonton.

A. VAN GEERT, the Continental Nurseries, Ghent, Belgium. PLANT and SEED CATALOGUES free on application. All orders have careful and prompt attention.

London Agents: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, E.C.

COLEUS—COLEUS—COLEUS.—Four of the best new Coleus of 1878 post-free for 2s. 6d., viz. Garnet, George Bunyard, Fascination, and Exquisite, a perfect gem. Cash with order to PERKINS AND SONS, Park Nurseries, Coventry.

ROSES—ROSES—ROSES.—Dwarf Roses, on Manetti, 25s. per 100, £10 per 1000, for cash. Extra fine plants, being transplanted end of March, and are as backward as though it were February. No risk in moving them, the season being backward; will all flower this summer. R. LOCKE, Rose Farms, Red Hill, Surrey.

THE CHAMPION POTATO.—Fine samples, for Seed, of this and other leading kinds. Prices on application to The LAWSON SEED and NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

ROSES—ROSES—ROSES.—Very fine blooms of the leading varieties of Tea Roses, to be sold at 2s. 6d. per dozen to any person ordering not less than from thirty to fifty dozen per week; 3s. per dozen to any person ordering not less than twelve dozen per week. Carefully packed, and carriage paid to any part of England. DOUGLAS BROWN, Silbury Gardens, Crediton, Devon.

Established upwards of a Century.

DICKSONS AND CO., NURSERYMEN and FLORISTS, 1, Waterloo Place, Edinburgh, will be glad to send, post free, on application, their new Descriptive CATALOGUE of FLORISTS' FLOWERS including early and late Phloxes, Bedding Violas and Pansies Show and Fancy Pansies, New Primulas, Winter-flowering Zonal Geraniums, and all kinds of Bedding-out Plants.

New Hardy Grass.

PHENOSPERMA GLABRA.—A quite distinct and highly decorative species from Northern China; growing from 3 to 4 feet high. It has come through the last severe winter without injury. Good seedling plants are offered at 2s. 6d. each.

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

Now Ready.

CARTER'S Illustrated CATALOGUE
of NEW and CHOICE PLANTS for 1879.
Gratis and post-free on application to
The Queen's Seedsmen, High Holborn, London, W.C.

Rhododendron Ponticum.

J. J. MARRIOTT has a fine stock of the
above, and begs to offer 4-yr. seedlings, 2-yr. bedded,
at 24s. per 1000; 4 to 6 inches, transplanted, bushy, 7s. per 100,
60s. per 1000; 6 to 9 inches, 9s. per 100, 80s. per 1000. Also
2-yr., 3-yr., and 4-yr. seedlings, very fine, 4s. to 7s. 6d. per 1000.
The Trade supplied.
Highfield Nurseries, Matlock, Derbyshire.

Roses—Roses—Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of The Floral Nurseries,
Hailsham, Sussex, offers a most unique collection,
either for immediate display in conservatory or open ground.
The plants are quite hardy, having only had the protection of a
cold pit during the late severe winter. 15s. per dozen, £3 per 100.
Price to the Trade on application.

ASPARAGUS PLANTS, Giant, the best
that money can procure, all certain to grow, 2s. 6d. per
100. This delicious vegetable does not require half the expense
usually incurred in planting it. See Richard Smith's SEED
LIST for 1879.

Extra Strong SEAKALE, 2s. per dozen.

RICHARD SMITH, Nurseryman, Worcester.

Verbenas.

FIFTY THOUSAND
now ready for Sale. All good, strong, spring-struck
plants, perfectly free from all disease, of Purple King, Scarlet,
White, and Pink, 6s. per 100. Good exhibition varieties, true
to name, 8s. per 100. Package free for cash. Also strong
healthy Cuttings of the above at half-price: free by post.
S. BIDE, Alma Nursery, Farnham, Surrey.

NORTH AMERICAN PLANTS—
including Hardy Bulbs, Orchids, Ferns, and Hardy
Herbaceous Perennials generally; also Climbers and Small
Shrubs, from both sides of the continent, the Rocky and other
Mountain ranges, &c. Our new Descriptive CATALOGUE,
Wholesale and Retail, is now ready, and will be sent free by
post. By far the largest collection in the country. Many rare
species never before offered for sale, and some entirely new.
WOOLSON AND CO., Passaic, N.J., United States, America.

Illustrated Catalogue of Hardy Perennials.

THOMAS S. WARE has pleasure in
announcing the issue of the above for the present year,
containing New, Rare, and Select Hardy Perennials, with
which is combined extensive Lists of Aquatics, Bog Plants,
Hardy Terrestrial Orchids, Bamboos, and Ornamental Grasses.
Gratis and post-free on application.
Hale Farm Nurseries, Tottenham, London.

CENTAUREA CANDIDISSIMA or
RAGUSINA.—Fine Plants, thoroughly established in
single pots, 16s. per 100, 150s. per 1000. Package free.
HERBACEOUS CALCEOLARIAS.—Fine Plants of a
splendid strain, established in 5-inch pots, 8s. per dozen.
Basket and package, 1s. 6d. per dozen extra.
PELARGONIUMS.—Splendid free-blooming (large collection)
varieties, in 5-inch pots, 8s., 12s., and 18s. per dozen.
Basket and package, 1s. 6d. per dozen extra.
VERBENAS.—In variety, from stores, 4s. per 100; Fine
Plants, established in single pots, 14s. per 100. Package free.
PLANT CATALOGUE free on application.
WOOD AND INGRAM, The Nurseries, Huntingdon.

CARPET BEDDING.

MENTHA PULEGIUM GIBBALTARICUM, 6s. per 100.
SEDUM brevifolium majus, 10s. per 100.
" *acre elegans*, 10s. per 100.
ARTEMISIA STELLERIANA, 8s. per 100.
LOBELIA compacta, 6s. per 100.
MESEMBRYANTHEMUM variegatum, 12s. per 100.
MONEYWORT, golden-leaved, for spring bedding, 8s. per 100.
GENTIANA ACALUIS, 8s. per 100.
Send cash, with order, to
R. T. PENNETT, Nurseryman, Park Lane, Tottenham.

Dahlias, Verbenas, and New Roses.

KEYNES AND CO. are now prepared to
execute orders for DAHLIAS and VERBENAS, both
new and old varieties, of which they have a large supply of fine
Plants.
Descriptive priced CATALOGUES free on application.
Special quotations to the Trade for large quantities.
The NEW ROSES for 1879 can still be supplied, with good
long shoots for working, and the best sorts selected.
Nurseries, Salisbury, May 1, 1879.

Cheap Bedding Plants.

H. I. HARDY offers fine strong and healthy
autumn-struck Plants of the following:—
GERANIUMS, Vesuvius and other best scarlets, from single
pots, 2s. per dozen; stores, 12s. per 100. Master Christine and
Madame Vaucher, single pots, 2s. 6d. per dozen, 15s. per 100.
CALCEOLARIA, aurea floribunda, from single pots, 1s. 6d.
per dozen; 10s. per 100.
VERBENAS, from single pots, 1s. 6d. per dozen; stores, 6s. per
100.
LOBELIAS, Emperor William, best blue, 5s. per 100; seed-
lings, 2s. 6d. per 100, or 20s. per 1000.
AGERATUM, dwarf and tall blue, 2s. 6d. per 100, 20s. per 1000.
PYRETHRUM, Golden Feather, 2s. 6d. per 100, 20s. per 1000.
MUSK, Harrison's Giant, 1s. per dozen.
Terms cash. Package free, and extra Plants for carriage.
Stour Valley Seed Grounds, Bures, Suffolk.

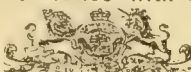
PYRETHRUMS, Double, strong flowering
clumps from ground, in twenty-five varieties, 6s. per dozen,
40s. per 100; smaller roots, free by post, 4s. 6d. per dozen.
Now is the time to plant these most beautiful hardy perennials
to flower this season. Trade price on application.
FREDERICK PERKINS, Nurseryman, Regent Street,
Leamington.

Hardy Florists' Flowers.

**THOMAS S. WARE'S SPRING CATA-
LOGUE** of the above for the present year is now ready,
containing a good list of Novelties, and including selections of
choicest varieties of Carnations and Picotees, Chrysanthemums,
Delphiniums, Fancies, Phloxes, Pyrethrums, and other families.
Free on application.
Hale Farm Nurseries, Tottenham, London.

ROOTED CUTTINGS.

(Choice Varieties with Names.)

FREE AND SAFE BY POST.  FREE AND SAFE BY POST.

We have much pleasure in offering the following in well-rooted
healthy Cuttings, which, by our improved system of packing,
can now be sent by post with perfect safety to any part of the
British Isles. The selection of varieties must in all instances be
left to us:—

| | |
|--|----------------|
| BEGONIA FUCHSIOIDES , a pretty pot plant for the greenhouse | Per Doz. s. d. |
| each, 4d. | 3 0 |
| CHRYSANTHEMUMS , large-flowered, new and choice sorts | 2 6 |
| " good standard varieties | 1 6 |
| " Pompon, a first-class selection | 1 6 |
| COLEUS , from our splendid collection of nearly 100 newest and choicest varieties, extra choice sorts | 3 0 |
| " handsome varieties | 2 0 |
| DAHLIAS , all the newest and best in cultivation. Show varieties, new and choice | 3 6 |
| " fancy varieties, new and choice | 3 6 |
| " fancy varieties, good popular sorts, per 100, 12s. 6d. | 2 0 |
| FUCHSIAS , a splendid collection of all the newest and finest single and double-flowered varieties | 2 6 |
| " finest single, good popular varieties, per 100, 10s. 6d. | 1 6 |
| " 6 new varieties of 1879 | 5 0 |
| FUCHSIA SPLENDENS , a rare and beautiful species | 3 0 |
| GERANIUMS (Pelargoniums)— " ZONAL and NOSEGAY , upwards of 250 of the newest and most splendid varieties in commerce, extra choice sorts | 4 0 |
| " choice sorts, fine exhibition varieties | 2 6 |
| " choice sorts, twelve new varieties of 1878, including White Vesuvius, Salmon Vesuvius, &c. | 9 0 |
| " double-flowered Zonals, choice varieties | 4 0 |
| " very good sorts | 2 6 |
| " silver variegated, Daybreak, &c., per 100, 10s. 6d. | 1 6 |
| " Ivy-leaved, a beautiful class for hanging baskets, vases, &c. | 1 6 |
| " sweet-scented varieties | 3 0 |
| IRENES , Herbstii and Lindenii | 1 0 |
| MIMULUS , Daniels' superb large-flowered, very fine, per 100, 10s. 6d. | 1 6 |
| MUSK , Harrison's Giant | 1 0 |
| PHLOX , Perennial or Herbaceous, all the best varieties, per 100, 12s. 6d. | 2 0 |
| PENTSTEMONS , in beautiful variety | 1 6 |
| TROPÆOLUMS , double-flowered and beautiful varieties of Lobbianum, fine for pots, hanging baskets, vases, &c. | 2 0 |
| VERBENAS , in choice variety | 1 6 |
| VERBENA , lemon-scented | 3 0 |

Not less than 50 will be supplied at the rate per 100, or six at the rate per dozen.

From R. J. HAMILTON, Esq., Tonbridge, November 11, 1878.
"Enclosed please find P.O.O. in payment of account for Rooted Cuttings, all of which have turned out splendidly, especially the Chrysanthemums, which are very fine."

From Mr. W. D. PENNY, Nairn, N.B., November 5, 1878.
"I am very glad to say that the Rooted Cuttings I had of you in the spring turned out very well indeed, not a single failure in the lot."

Cheques or Post-office Orders to
DANIELS BROTHERS,
TOWN CLOSE NURSERIES, NORWICH.

E. G. HENDERSON & SON

Will be pleased to forward, on application, their

New Spring Plant Catalogue
For 1879,

Containing Priced and Descriptive LISTS
of the best Bedding and Ornamental Flowering
Plants either for Garden or Conservatory.
Several beautiful Novelties for this year
are offered for the first time; among them are:

SOLANUM AZUREUM, with Myrtle-like foliage and
clusters of blue flowers covering the ends of the branches.
EUPHORBIA COROLLATA, hardy, elegant white flowers,
suited for bouquet purposes.
HYDRANGEA SCANDENS, Japanese climbing variety.
A beautiful plant, roots clinging to the wall similar to
the Ampelopsis Veitchii.
The **GOLDEN-LEAVED ARTEMISIA**, hardy.
The **GOLDEN-VARIEGATED SYMPHYTUM**, a grand
hardy plant.
DACTYLIS, with long, drooping, variegated leaves.
The **WHITE-FLOWERED VARIETY** of **AGAPANTHUS**
UMBELLATUS.
The **SPRING-FLOWERING TRITOMA**—T. præcox.
New **BOUARDIAS**, hybrids between Roezii and flava.
FUCHSIA, ROYAL OSBORNE, the greatest advance that
has been for many years.
NEW JAPANESE and other **CHRYSANTHEMUMS**.

BULBS, TUBERS, &c.

ACHIMENES, 100 in 25 varieties, 7s. 6d.; 100 in 12 varieties,
6s.; 50 in 12 varieties, 3s. 6d.
GLOXINIAS, 12 varieties, 9s., 12s., and 18s. per dozen;
mixed, 6s. per dozen.
CALADIUMS, 12 varieties, 18s. and 30s. per dozen.
" 100 bulbs, in 100 varieties, 200s.
" 50 bulbs, in 50 varieties, 75s. to 100s.
BEGONIAS, mixed, 6s. per dozen; 12 varieties, 9s., 12s., and
18s. per dozen.
GESNERAS, 12 varieties, 6s. and 9s. per dozen; 50 bulbs in
25 varieties, 21s.
DAHLIAS, choice, 4s. and 6s. per dozen.

THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.

New Verbenas for 1879.



MR. WILLIAM BULL is now sending out
the following six NEW VERBENAS, which are a
Selection made from the handsome Varieties raised by J. F.
Mould, of Pewsey. These Verbenas have attracted considerable
attention in the West of England, and a notice of them appeared
in the *Gardeners' Magazine* of October 19, 1878. They are
remarkable for the size and fine form of their flower-pips, their
huge trusses, freedom of growth, distinct colours, and profusion
of bloom. They are good and desirable, both for bedding
purposes and for exhibition.

CLEOPATRA, waxy cream-white, suffused with pink; a
fine, round, well-formed flower. 3s. 6d.
CYPRUS, bright, scarlet-crimson, with white eye; very
large, finely-shaped pip; immense truss. 3s. 6d.
EARL OF BEACONSFIELD, delicate flesh colour, suffused
with magenta-rose; bright centre. 3s. 6d.
HOGARTH, deep velvety crimson, shaded with chocolate;
small white eye, surrounded with magenta-purple. 3s. 6d.
LORD SALISBURY, lively plum-colour; a fine flower, of
good form; very rich and distinct. 3s. 6d.
VANDYKE, fine deep velvety crimson, shaded with ma-
roon; purplish magenta centre; immense pip and truss.
3s. 6d.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Vines—Vines—Vines.

B. S. WILLIAMS begs to announce that
his stock of VINES is this year unusually fine, and
comprises all the leading kinds, including "Alnwick Seeding."
For descriptions and prices, see B. S. W.'s BULB CATA-
LOGUE for this year.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

The New Plant of the Year.**CALCEOLARIA FUCHSIÆFOLIA.**

RODGER, McCLELLAND AND CO. are
now sending out this wonderful plant. For full descrip-
tion see *Gardener* of March 29, which also contains a coloured
plate. Price 7s. 6d. each.

We can also offer the following species, all autumn and winter flowering, except the last:—

| | |
|------------------------------------|-----------------|
| CALCEOLARIA BICOLOR | s. d. |
| | 1 6 |
| HYSSOPIFOLIA | 1 6 |
| LOBATA | 1 6 |
| PAVONII | 2 6 |
| VIOLACEA | 1s. 6d. and 2 6 |

64, Hill Street, Newry.

THE VICTORIA COLLECTIONS OF
CHOICE FLOWER SEEDS, in Handsome Coloured
Lithographic Wrappers, with Cultural Directions.

No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.

No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.
A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.**Special Cheap Offer.**

To SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, Jeyes' or Payne's Conqueror. About
20 quarters, Hand-picked, 15s. per bushel, 112s. per
quarter. Samples on application to
W. BALL and CO., Bedford Road Nursery, Northampton.

To the Trade.

MANGEL WURZEL and **TURNIP SEEDS.**
H. AND F. SHARPE will be pleased to give
special quotations for their fine selected stocks of
home-grown MANGEL WURZEL, and SWEDE and other
TURNIP SEEDS of 1878 growth, and raised from transplanted
Bulbs.

Seed Growing Establishment, Wisbech.

ILLUSTRATED CATALOGUE OF FERNS.

The above, comprising 80 pages of illustrations, synonyms,
"Notes on Cultivation" &c., is the most complete Fern List in
the Trade, and will be forwarded on application. Postage 2d.
Ferns being our Speciality, and having an immense stock, we
are able to supply them at the most reasonable prices.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near
Manchester.

GERANIUMS, &c., for Bedding.—Strong
autumn-struck plants from store pots, of Vesuvius, Dr.
Lindley, Indian Yellow, Christine, Stella, Tom Thumb and
other varieties, 10s. per 100; Madame Vaucher, Crystal
Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of
Calderdale, &c., 12s. per 100.

HELIOTROPE, Light and Dark, 6s. per 100.
CENTAUREA CANDIDISSIMA, autumn-struck, good
plants in large 60's, 30s. per 100.
Package free for cash.

S. BIDE, Alma Nursery, Farnham, Surrey.

FORTY THOUSAND Dwarf, Tea-scented,
and other ROSES, in pots, at 15s. to 18s. per dozen, or
£5 per 100.

Extra fine Tea-scented ROSES, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen. Address

WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex

JULES DE COCK, NURSERYMAN, Ghent,
Belgium, offers, per 100 plants, in store-pots:—*Areca lutescens*, 40s.; *A. rubra*, 30s.; *Chamaerops Fortunei*, 8s.; *C. humilis*, 8s.; *Cocos Weddelliana*, 10s.; *Corypha australis*, 20s.; *Euterpe edulis*, 25s.; *Latania borbonica*, 12s.; *Pandanus uilis*, 25s.; *Glaziosa insignis*, 4s.; *Phoenix reclinata*, 20s.; *P. tenuis*, 12s.; *P. sylvestris*, 16s.; *Seaforthia elegans*, 25s.; *Caryota sibirica*, 50s.; *C. urens*, 40s.; *Thrinax elegans*, 40s.; *Aralia Sieboldii*, 6s.; *Dracena indivisa*, 6s.

NEW ENGLISH ROSES.—The following
twelve new English-raised Roses for 25s., basket and
packing free for cash with order:—May Quennell, Mabel
Morrison, Robert Marnock, Dean of Windsor, Richard Laxton,
John Bright, Mrs. Laxton, Penelope Mayo, Red Dragon,
Marchioness of Exeter, Magna Charta, and Lady Mary Keith,
all extra fine plants. List of Roses in pots (Tea-scented, new
French varieties of 1879, &c.), gratis and post-free.

GEORGE COOLING, Nurseryman, Bath.

ORCHIDS.

THE NEW PLANT and BULB COMPANY

Reg respectfully to inform their Friends that their SPECIAL LIST, No. 43, is now published, contents as follows:—Colombian, Mexican, Japanese and East Indian Orchids; and the finest representatives from each country, embracing Odontoglossums, Cattleyas, Oncidiums, Aerides, Dendrobis, Vandas, Cologynes, Cyrtopodiums, Pleioneas, Saccolabiums, Laelias, Maxillarias, &c. This List contains both the Prices for Established and Imported Plants, and the Prices range from 2s 6d. upwards.

CATALOGUES free by post on application.

LION WALK, COLCHESTER.



WM. PAUL & SON,

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B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

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in pots, for planting out during spring and summer, or for conservatory decoration all the year round; also new FRENCH and ENGLISH ROSES in pots. The above are a special feature in our Nurseries, and our stock is one of the largest, finest and healthiest in the country. Write for a Pot Rose LIST to
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Strong Plants in pots, worked on seedling Brier, 12s., 15s. to 18s. per dozen.

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WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter.

VERBENAS, purple, white, scarlet, rose and crimson, 6s. per 100, 50s. per 1000, or from single pots, 12s. per 100, 15s. 6d. per dozen. Twelve choice show sorts, 8s. per 100.

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PELARGONIUMS, Vesuvius and Jean Sisley, best scarlets, 7s. per 100, 60s. per 1000; Madame Vaucher and Virgo Marie, fine white, 10s. per 100; Master Christine, best bedding pink, white, 10s. per 100; Striped Vesuvius (New Life), 6s. per dozen, 40s. per 100.

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" Double, Smith's Wonderful, good plants, 15s. per 100, or from stores, 12s. per 100; Madame Thibaut, finest double pink, 12s. per 100.

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FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including JACKMANNI, &c., at 12s. to 30s. per dozen. Selection left to ourselves.

Descriptive CATALOGUES free on application to
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VERBENAS, VERBENAS, VERBENAS.

—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100, 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s.

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Terms cash.
H. BLANDFORD, The Dorset Nurseries, Blandford.

New Bedding Plants for 1879.

IRELAND & THOMSON

Have much pleasure in announcing that they are now sending out the following splendid Novelties:—

NEW AGERATUM, "HER MAJESTY."

Is of a dwarf-creeping habit, and produces flowers in great abundance, of a pale lavender colour, and is very effective. This will prove to be the best Ageratum yet sent out.

Price 12s. per dozen, 84s. per 100.

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This is admitted by all who have seen it to be the finest and most effective Tropæolum for bedding yet raised. It is of a dwarf habit, and produces flowers in great abundance, of the most intense scarlet colour. This will form one of the greatest additions to our Bedding Plants we have had for some time.

Awarded a First-class Certificate by the Royal Caledonian Horticultural Society.

Price 12s. per dozen, 84s. per 100.

NEW WHITE LOBELIA, "LOBELIA ALBA MULTIFLORA."

This is a Seedling raised from speciosa. In habit it much resembles its parent, but produces flowers of large size, of a pure white colour, and when seen in beds or lines it produces a dense mass of pure white. We can recommend this as the best white Bedding Lobelia yet sent out.

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Price 12s. per dozen, 84s. per 100.

NEW PINK LOBELIA, "LOBELIA PINK QUEEN."

This is quite a novelty among Bedding Lobelias. In style of growth it resembles pumila grandiflora, being of a dwarf, compact habit, and free bloomer. The colour of its foliage and stems is a bluish-bronze, with flowers of a beautiful pink colour.

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H. CANNELL'S (F.R.H.S.) Stock of SOFT-WOOD and BEDDING PLANTS is very large and in fine condition, and dispatched all over the world.

From J. D. HALTON, Esq.,
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"The seeds arrived in splendid condition, and are growing well. The plants you sent by post also reached me in fine condition."

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"DEAR SIR,—The plants have arrived in good condition. Your system of packing is unequalled by anything in this country."

The Home for Flowers, Swanley, Kent.

H. CANNELL'S BALSAM and other

Flower SEEDS are now acknowledged the best in England.

BALSAM.—The Gardeners' Magazine speaks of my 100-foot house thus:—

"A very noteworthy feature at the present moment is a house filled with Balsams, which for the splendid quality of the flowers and the skill evinced in their cultivation have certainly not been surpassed. The flowers are, indeed, so large in size and perfect in form, that the strain may be described as one of the finest in existence. This house of Balsams is alone worth a journey to Swanley."

1s. and 2s. per packet.

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EIGHTY ACRES.

ROSES, FRUIT TREES, CONIFERS,

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Address—

CRANSTON & CO.,

KING'S ACRE, near HEREFORD.

CHEAPEST PLANTS EVER OFFERED.

12 STOVE PLANTS, 12s., splendid selection.

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12 CHOICEST CALADIUMS, 12s.

Rooted Cuttings of extra fine varieties of Plants at very low prices. Other Plants equally cheap.

Universal satisfaction given, and money returned if plants not approved.

LISTS now ready, post-free, which please send for and compare before purchasing elsewhere.

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ROYAL HORTICULTURAL ESTABLISHMENTS,

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ALL ORDERS TO BE SENT DIRECT TO GHENT.

The Glasshouses of this Establishment are the largest in the world, and cover a glazed surface of 87,000 square feet.

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| " RUBRA | | 1 | 11 | 6 |
| " MADAGASCARIENSIS | | 2 | 2 | 0 |
| " MONSTACHYA | | 2 | 2 | 0 |
| COCOS WEDDELLIANA | | 5 | 5 | 0 |
| EUTERPE EDULIS | | 2 | 2 | 0 |
| GEONOMA SCHOTTIANA | | 4 | 4 | 0 |
| " SPIXIANA | | 3 | 3 | 0 |
| " GRACILIS | | 10 | 8 | 0 |
| CORYPHA AUSTRALIS | | 2 | 2 | 0 |

PALMS—(continued).

| | Per 100— | £ | s. | d. |
|--------------------------|----------|----|----|----|
| PHOENIX LEONENSIS | | 2 | 2 | 0 |
| " RECLINATA | | 3 | 3 | 0 |
| SEAFORTHIA ELEGANS | | 1 | 4 | 0 |
| CHAMÆROPS EXCELSA | | 2 | 2 | 0 |
| KENTIA ROBUSTA | | 30 | 0 | 0 |

FERNS.

| | Per 100— | £ | s. | d. |
|---------------------------------|--------------|---|----|----|
| ADIANTUM CAPILLUS-VENERIS | 31s. 6d. and | 2 | 2 | 0 |
| ASPLENIUM BELANGERI | | 5 | 5 | 0 |
| " BULBIFERUM | | 3 | 3 | 0 |

FERNS—(continued).

| | Per 100— | £ | s. | d. |
|---------------------------------|--------------|---|----|----|
| ASPLENIUM FORMOSUM | | 8 | 8 | 0 |
| FABIANUM | 31s. 6d. and | 2 | 2 | 0 |
| BALANTHUM ANTARCTICUM | | 5 | 5 | 0 |
| BLECHNUM CORCOVADENSE | | 3 | 3 | 0 |
| LOMARIA GIBBA | | 2 | 2 | 0 |
| " CRISPA | | 5 | 5 | 0 |
| PTERIS ARGYREA | | 2 | 2 | 0 |
| " CRETICA ALBO-MARGINATA | | 2 | 2 | 0 |
| ALSOPHYLLA AUSTRALIS | | 2 | 2 | 0 |
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We are enabled to offer the above at these very low prices owing to their being introduced by our own Collectors and Cultivated by thousands. Splendid Collection of Specimens and Half Specimens. Specimens of Palms and other Plants for Exhibitions, &c.

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PLANT NOW HYACINTHUS CANDICANS.

Now is the best time to plant this magnificent Hyacinth, which is considered generally to be one of the finest ornamental summer plants. The large spikes bear a great number of white pendulous flowers, which are extra for bouquet-making; a fine bedding plant, too, it doubtless will become by-and-by a general favourite. We possess the largest stock of it in the world. We sell bulbs in three sizes:—

First size, extra strong, 10s. per dozen, £3 15s. per 100, £30 per 1000.

Second size, good flowering, 8s. per dozen, £2 10s. per 100, £20 per 1000.

Third size, medium, perhaps, flowering, 5s. per dozen, £2 per 100, £15 per 1000.

Discount to the Trade. Orders are executed till the end of May.

E. H. KRELAGE & SON,
NURSERYMEN, SEEDSMEN AND FLORISTS, HAARLEM, HOLLAND.

2500 ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS has received instructions from Mr. F. SANDER to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 13, at half-past 12 o'clock precisely, the final portion of the splendid consignment of ORCHIDS received per steamer "Medway," consisting of 2500 ODONTOGLOSSUM ALEXANDRÆ. The lots offered have been collected in the same locality whence the dark-coloured and large-flowered varieties came some five years ago. The importation is an extra fine one, and it may be safely asserted that a better lot never reached Europe; the masses are in perfect health, freely set with breaks, and it will be seen that some have actually made flower-spikes in coming home. The sale will also include a splendid importation of the magnificent LÆLIA FURFURACEA; it is ten years ago this season since this magnificent Mexican Lælia was last imported, and few collections possess it now. The masses are in extra fine condition, very large, and with breaks. The flower of this very showy Orchid is 5 inches across, its colour is dark purple, lip rose. Also a splendid lot of CATTLEYA CITRINA, with bulbs some 6 inches in circumference and in largest masses; a very fine lot of the true ODONTOGLOSSUM ROSSI MAJUS, SOPHRONITIS COCCINEA and GRANDIFLORA; also a very fine lot of the beautiful ONCIDIUM PRÆTEXTUM (Reich.), in growing pieces, and various ODONTOGLOTS.

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OLD BARGE WHARF,

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Have the largest and most complete stock in the Trade;
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And all CASTINGS for HORTICULTURAL PURPOSES.

Their New Illustrated Catalogue, 8th Edition, now ready
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Hot-water Apparatus erected complete, or the Materials supplied at Wholesale Prices.



SPECIMEN PALMS, DRACÆNAS, &c., to be sold cheap. See advertisement in *the Gardeners' Chronicle* of May 3, p. 550.

W. JACKSON AND CO., Nurseries, Bedale.

CHEAPEST PLANTS

ever offered.
12 Stove Plants, DRACÆNAS, CROTONS, MARANTAS, IXORAS, &c., 12s.
12 CALADIUMS, best named, 12s.
12 GLOXINIAS, best named, 12s.

Box 1s. extra. Money returned if not approved. We have received (among many others) the following testimonial:—

From the Rev. ISAAC TAYLOR, LL.D., *Settrington Rectory, York*.—"The plants arrived, well packed, and gave great satisfaction. My gardener is astonished at the prices. You have sent plants for 1s., 1s. 6d., and 2s. 6d., for which, elsewhere, he has recently been asked 3s. 6d., 5s., and 10s. 6d. Next time you should have a similar lot of plants to offer please let me know."

Our Special LIST for 1879 may be had free on application. FELTON AND SONS, Royal Nurseries, Harborne Road, Birmingham.

WM. POTTEN can now supply the following good Plants in single pots, or post-free at the following prices for 2s. 6d. worth and upwards:—

6 GERANIUMS, select Golden Tricolor, 5s.
6 " select Silver Tricolor, 3s.
6 " select Gold and Bronze, 2s. 6d.
6 " very select Double Ivy-leaf, 3s.
6 " Vicomtesse Cranbrook, ditto, 1s.
6 " very select Doubles, 2s. 6d.
12 " very select Zonals, 6s.
12 " very good Zonals, 3s.
GEORGE'S 5 NEW GERANIUMS of 1878 for 7s. 6d.
12 PETUNIAS, select Double and Single, 3s.
12 FUCHSIAS, good, 2s. 6d.
CYCLAMEN PERSICUM, good strain, 2s. 6d. p. doz. bulbs.
HYDRANGEA, Dr. Hogg, 6d. each.
POLYANTHUS, choice mixed, 3s. per dozen.
SALVIA HORMINUM, White, 2s. 6d. per dozen.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

TO THE TRADE.

TUBEROUS-ROOTED BEGONIAS.

IRELAND & THOMSON,

Having a large and fine STOCK of the above, can offer good well-rooted plants of Acme, Cheloni, Excelsior, Emperor, Kallista, and Vesuvius, at 3s. 6d. each.
Craigleith Nursery, Comely Bank, Edinburgh.

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SELAGINELLA HELVETICA.

Strong plants, grown in pots, 25s. per 100.

In my Nurseries this beautiful Alpine remained uninjured in the open ground, without the slightest protection, the last six years.

LAMIUM MACULATUM AUREUM.

Strong plants, grown in pots, 25s. per 100.

In the *Revue de l'Horticulture Belge et Etrangère* of April, 1877, Mr. Ed. Pynaert gives a coloured plate of this beautiful perennial, and says:—"Lamium maculatum aureum has about the same colour, the same regular growth as Pyrethrum parthenifolium aureum, which is generally used for carpet-bedding, but is to be preferred to Pyrethrum, because of its being perfectly hardy, and keeping its beautiful foliage in winter like in summer. It is therefore a great acquisition for amateurs of summer and winter carpet-bedding."

A. M. C. JONGKINDT CONINCK,

Tottenham Nurseries,
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B. S. WILLIAMS'
PRIZE MEDAL
FLOWER SEEDS.
POST-FREE.

PRIMULA SINENSIS FIMBRIATA COCCINEA, new, 5s. and 3s. 6d. per packet.

Awarded two First-class Certificates by the Royal Horticultural and Royal Botanic Societies.

From Mr. E. HILLMAN, *Gr., Fenny Hall, March 11, 1879.*

"I have been very much pleased with your new *Primula coccinea*, so much so that I gave a note of it in the *Garden* some weeks since. I consider it well worthy the name of '*coccinea*.'"

PRIMULA SINENSIS FIMBRIATA, Williams' superb strain, red, white, or mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

The above *Primulas* were awarded a Silver Medal by the Royal Horticultural Society, February 11, 1879.

From Mr. JOHNSON, *Derby, March 12, 1879.*

"Please send me the seeds I have written down. The last *Primulas* were splendid."

CYCLAMEN PERSICUM GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per packet.

CYCLAMEN PERSICUM GIGANTEUM, 5s. and 2s. 6d. per packet.

The above *Cyclamen* have been awarded First-class Certificates by the Royal Horticultural and Royal Botanic Societies.

CYCLAMEN PERSICUM, Williams' superb strain, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.



CALCEOLARIA, Williams' superb strain, finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.

From H. MAYGOD, Esq., *Coombe House, June 8, 1878.*

"Will you send me a packet of your superb strain of *Calceolaria*? I have a splendid collection of flowers from the packet I had last year, none equal to them in the neighbourhood."

CINERARIA, Weatherill's extra choice strain, 5s., 3s. 6d., 2s. 6d., and 1s. 6d. per packet.

From E. CROKER, Esq., *The Grange, March 9, 1879.*

"Please send me seeds named on the other side. My *Cinerarias* from your seed this year are very fine."

BEGONIA, New Bedding, finest mixed, tuberous rooted, 2s. 6d. per packet.

From Mr. R. CAMPBELL, *Utica, N.Y., January 16, 1879.*

"Please send the enclosed seed order as soon as possible. The *Begonias* I have raised from the seed purchased from you surpass anything I have ever seen or dreamt of."

SOLANUM HYBRIDUM, Empress, new, 2s. 6d. per packet.

VIOLA CORNUTA, Loveliness, new, 2s. 6d. per packet.

WILLIAMS' LAWN GRASS,
Finest Mixed,
Per lb., 1s.; per Bushel, 20s.

SUPERIOR MUSHROOM SPAWN,
Per Peck, 1s. 6d.; per Bushel, 5s.

TOBACCO PAPER,
Finest Quality for Fumigating Greenhouses, &c.,
Per lb., 1s. 6d.

ILLUSTRATED SEED CATALOGUE POST-FREE.

All Seeds of 20s. value Carriage Free.

Victoria and Paradise Nurseries,
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" SUPERBIENS.
DIPLADENIA ROSACEA.
DRACÆNA CRISTULA.
DRACONTIUM SCULPTURATUM.
ENCEPHALARTOS FRIDERICI-GUILIELMI.
FICUS EXSCULPTA.
HIBISCUS (ROSA-SINENSIS) ZEBRINA.
IXORA CHELSONI.
" PROFUSA.
LÆLIA ANCEPS ALBA.
LASTREA ARISTATA VARIEGATA.
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SATURDAY, MAY 10, 1879.

MOTH ORCHIDS.

PHALÆNOPSIS are essentially heat-lovers—like Palms they are children of the sun. One may often travel a long way in the islands where these plants are most abundant without catching a glimpse of them, and this is especially true of *P. grandiflora*, which is of all Orchids perhaps the least obtrusive in its native habitats. This trait is, however, the unobtrusiveness of high birth, they do not care to touch the ground, but rather prefer a sphere of their own high up in the trees overhead. The illustration (fig. 86) on p. 597 gives an idea of the manner in which the great flowered Moth Orchid exists at home in the tropics. The original sketch was made by myself in a little islet off the coast of Borneo in May of last year. The plants have a charming freedom of aspect, as thus seen naturally high up in mid-air, screened from the sun by a leafy canopy, deluged with rains for half the year or more at least, and fanned by the cool sea-breezes or monsoons, which doubtless exercise some potent influence on their health—an influence which we can but rarely apply to them artificially, and the greatly modified conditions under which we must perforce cultivate them may not render this one so desirable as it sometimes appears to be abroad.

In the lowland forests near the equator a peculiar phase of vegetation is not unfrequently seen. Trees 100 feet to 200 feet in height tower upwards on all sides; there is a comparative dearth of undergrowth, and one walks in the shade—diffused light is perhaps the more correct expression—the tree trunks being the pillars of Nature's cathedral, and the leafy branches high up above represent the roof. All the vegetation you see around you, on earth, rocks or fallen trunks, is represented by a few Ferns, Lindsays, with bright steel-blue fronds a yard high, broad-leaved Aroids, or Gingerworts; but epiphytes of all kinds seem totally absent, and the truth is, that, like lovable "Tom Bowling" of Dibden's minstrelsy, they, too, have "gone aloft." High up overhead is a world of light and air and sunshine which birds, insects, and flowers alike enjoy. You feel very small and helpless as you try to catch a glimpse of the plants and flowers so high above you, and almost envy the long-armed red monkeys that swing themselves so easily from bough to bough. The monkey, however, has a rival in the human natives of these forest wilds, and it would be extremely puzzling to find a tree so thick, or tall, or otherwise so difficult to climb that the lithe and dusky native would fail to reach its summit. The chances are that he will literally walk up a slender tree in the neighbourhood with the aid of hands and feet, and then find a route to the one you wish him to explore by way of the interlaced branches so high above you. If any sufficiently stout lianas are dangling near he ascends hand-over-hand in a way that would delight the most accomplished gymnast, and if the tree so stood that the ascent could only be accomplished by the direct way of its own trunk then the chances are that a stair of Bamboo pegs would enable the ingenious savage to effect his object of scouring the branches and sending the epiphytes in showers to your feet. Nor does he neglect to glean such other jungle produce as comes in

his way, such as gutta or indiarubber, camphor, dammar, or forest fruits for food or medicine.

This is in the forest primæval, but near clearings or on the skirts of the forest near rivers which let in the light and air the Phalænopsids and other epiphytes are less ambitious, and they may then be found in positions but little above the more plebeian terrestrial kinds of vegetation. This is also the case when, as sometimes happens, they are found on the trees which fringe little islands, and then not only do the plants receive a good deal of sunshine as it streams through the leafy twigs of the branches to which they cling, but it is also reflected back again from the glistening sea. The intense light in which they thus exist, added to the fervent heat and the deluge of rain which falls during six or seven months of the year, accounts for the enormous leaf and root growth made by these plants in their native habitats. The flowering of the plants is not so extraordinary, indeed rather disappointing after the results which may be seen in English gardens. It is not so much the paucity of flowers produced however as their early destruction caused by the "unbidden guests" these "Moth Orchids" are made to entertain. Not only are their flowers moth-like in form as suggested by the generic name they bear, but it is to various kinds of nocturnal lepidoptera that *P. grandiflora* at least owes its short-lived beauty in its native wilds and perhaps also its perpetuation as a species.

The root-growth naturally made by these plants is something surprising, and in many cases the roots would weigh as much again as the leaves and flower stems, and they cling to the trunks or branches on which they grow with wonderful tenacity. The plants cultivated in this country are not generally remarkable for vigour of root-growth, and their potency, as conducing to healthy vigour, is very often crippled by their being introduced into a wet mass of compost contained in a pot, by which they become blanched and comparatively useless. The roots of Phalænopsids answer the purpose of pseudobulbs in many other genera, by acting as reservoirs of nutriment, and if the roots are in a plump and healthy state the foliage is generally healthy also; but even if an accident robs a well-rooted plant of its leaves, it is sure to push out fresh foliage if the roots are sound. A genial humid climate and free exposure to diffused light and air are of more real value in growing these plants than any compost, and a very little sweet fibrous peat and sphagnum moss in a small basket, or on a teak-wood raft, is amply sufficient for their wants in that way. If the heat and moisture of the house be suitable, it will be found that the roots do not care to penetrate the compost, or if they perchance do so they like the opportunity of creeping out again into the open air or of lashing themselves round the basket sides. The development of the roots of very small seedling Phalænopsids is very interesting, and it is curious to see how they emerge from the base of the tiny plant, at first scarcely thicker than a thread, but they rapidly thicken as they lengthen.

Thanks to the night-flying moths Phalænopsids seed freely in their native habitats, and the tiny crop approaches the blooming size much more rapidly than might be supposed. Here, as among other plants of seminal origin, we see a good deal of variability not only in the relative vigour of individual plants, but also as regards the form, colouring, and texture of their blossoms. In the Philippine Islands the "queen of Orchids" (*P. amabilis*) grows luxuriantly on the stems and branches of Mango trees, and some of the finest specimens of *P. grandiflora* I ever saw in cultivation grew in an Orange or chard on an island in the China sea, where the mean annual temperature was 84°, and the thermometer often registered 120° in the shade during

the dry season. Here the Phalænopsids clung to the naked branches of the Orange trees, and the distance their thong-like roots travelled up and down the perfectly smooth branches was wonderful to see. Most of the roots were over a yard in length, and one I measured was 5 feet.

During the dry season the leaves of the

and moist atmosphere is highly beneficial to plants generally during the night even in our hothouses at home, and during the summer months at least air should be left on all night as well. I believe *P. grandiflora* has a positive liking for the fresh sea breezes, since it is most abundant on small islands and islets, and may be found on trees that actually hang over the

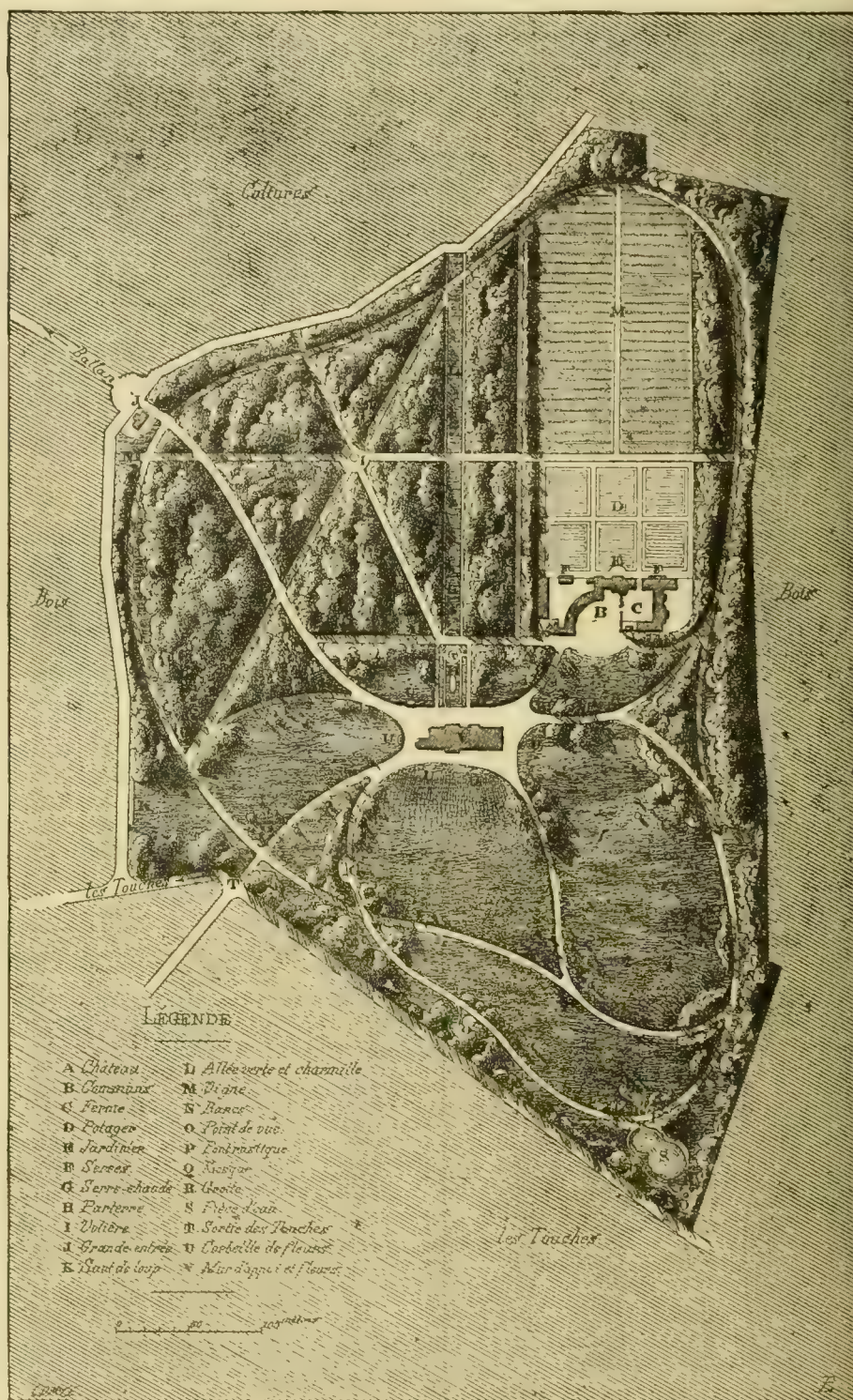


FIG. 82.—PARK OF BOIS RENAULT, DESIGNED BY M. ANDRÉ. (SEE P. 590.)

branches above them fell in showers, but the Phalænopsids did not suffer much from the increased sunshine. A few of the back leaves turned yellow and eventually fell off, but the plants were thoroughly established and went on flowering as profusely as ever. During the comparative cool nights, however, heavy dews are common, and the plants are thus enabled to recuperate themselves for the loss of moisture occasioned by hot sunshine during the day. There can be no doubt whatever that a cool

beach. Heat and a moderate amount of air we can give; the intense light of the tropics it is out of our power to supply; and therein we are at a disadvantage. It has been pointed out that during our summer months we have daylight for several hours longer during each twenty-four hours than at the equator, where the sun rises and sets about 6 o'clock all the year round. This apparent advantage, however, is more than counterbalanced by our long nights, and dull, cloudy, or foggy days of autumn and

winter. Again, even during our summer months, the cumulative amount of light we get in our latitude is not half that of the tropics, where there are twelve hours of sunshine nearly every day in the year, a dull or sunless day being a much rarer exception to the rule than with us.

Cultivators are sadly in want of a simple instrument that would measure the intensity of light, as a thermometer does in the case of heat.

stinctively shrinks from disturbing forest *débris* if he can possibly avoid it, on the ground that by so doing he would contract a fever. Freshly cleared and cultivated forest land is noted for its malarious fever-producing tendencies, but the liberation of gaseous matter, so prejudicial to man, is doubtless of benefit to vegetation. This is an old subject, which was brought forward in these columns as the "feeding by precipitation" system some

copy of the manner in which Nature herself grows many of her most lovely productions in tropical countries. She never exhausts herself—the forests primeval in all lands which have occupied the soil on which they exist for thousands of years are well known by natives and Europeans as furnishing the richest and best of "virgin" soil for the artificial growth of all agricultural produce. Nature always gives a just return to the earth for all she takes; man is too apt to snatch her fulness, giving as little as possible, or even nothing in return; then, and then only, is she niggardly to him. *F. W. B.*

ART IN THE GARDEN.

(Concluded from p. 557.)

CHAPTERS 4 and 5 treat of all that relates to beauty and taste, and the guiding principles to a proper appreciation of the beautiful. The preparation and cultivation of the mind to enable it to thoroughly enjoy the beauties of Nature and Art is apparently not an easy task, or it is very much neglected, judging from the prevalence of bad taste. On the other hand, many persons who can distinguish the beautiful and harmonious from the ugly and in-harmonious, when the contrasts are before them, are quite destitute of creative power. This demands a more serious study. Following up the line adopted by Mr. Robinson, in the before-mentioned book, Mr. André seeks to teach, by means of contrasts and comparisons, giving illustrations of examples of bad taste or bad judgment, side by side with examples of good taste or work properly executed. He insists upon a clear and definite idea of what is desired, and of the way in which it is to be carried out, before commencing operations. The woodland scene, the mountain scene, the aquatic scene, the urban scene, &c., each and all possess their harmonies, which must not be destroyed. That Mr. André is competent to teach and give sound advice is patent from the fact that he has not only visited many of the principal parks and gardens of the countries of Europe and America, but he has also designed and laid out many establishments in foreign countries, including Sefton Park, at Liverpool, besides a large number in France. This applies particularly to the sections on the improvement of country residences, the choice of site, the points to be considered in a design, the construction of plans indicating the alterations to be made, and the finished design. The practical directions include, in fact, every detail of the operations of laying-out a garden, including plan, estimate, levelling, construction of buildings, waterfalls, grottos, rockwork, selection of trees, plants, &c.

Respecting the lists of plants for various purposes too much praise cannot be given. Independently of evident care in the choice of species for the purposes proposed, the nomenclature is commendably free from errors. A few slips here and there serve to bring out in greater relief the general excellence of this part of the work. In the classified list of the indigenous woody vegetation of the centre and North of France, commencing at p. 558, some slight discrepancies may be observed. Thus the wild Service-tree is retained in the genus *Crategus*, whilst the White Beam, Mountain Ash, and True Service are under the genus *Sorbus*. Again, the Alder is included with the trees of the largest size, whilst *Salix alba* and *S. fragilis* are placed amongst those of second size. Both of these Willows attain a large size in the South of England, where moderately large trees of the Alder are exceedingly rare. A few typographical errors and false authorities should be expunged from a future edition. Following this is a similar list for the South and East, succeeded by a large variety of selections of exotic and indigenous species for different soils, situations, &c. *Chamaecyparis Lawsoniana*, Parlature, is cited in one place as *C. Boursieri*, Decaisne, and in another as *Cupressus Lawsoniana*, Murray. Parlature (De Candolle's *Prodromus*, vol. xvii.) refers Decaisne's name to *Juniperus occidentalis*, Hooker, on what authority does not appear. The general list of hardy trees and shrubs, commencing at p. 565, contains several ornamental species from North-eastern Asia, &c., which are either unknown or extremely rare in this country, amongst others *Alnus barbata* (Caucasus), *Betula nigra* (N. America), *Æsculus chinensis*, *Pterocarya fraxinifolia* (Russia), *Gymnocladus canadensis*, *Cedrela sinensis*, *Acer insigne* (Asia Minor), *Salix dasyclados* (Europe),



FIG. 83.—PARC DE LA CHASSAGNE, CÔTE-D'OR. (SEE P. 590.)

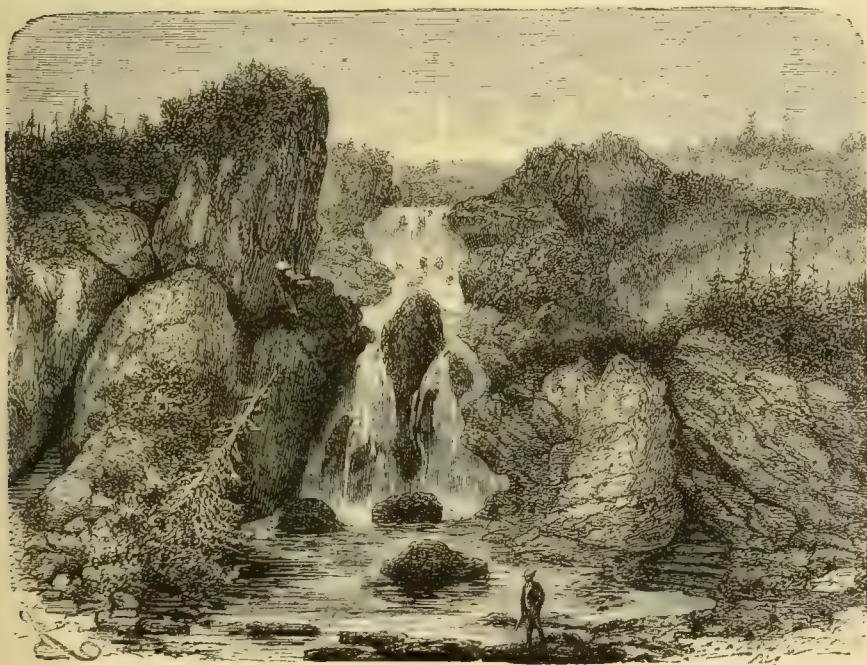


FIG. 84.—CASCADE IN THE PARK OF LA ROCHETTE, DESIGNED BY M. ANDRÉ. (SEE P. 590.)

This would be of great value in many ways, and especially in the due regulation of heat and moisture in relation to the quantity of light—a most essential point in good culture, which at present has to be guessed at. Apart from the question of light, however, there is another phase of nutrition to be considered, which is of great importance to cultivators, namely, the gaseous exhalations from the dead leaves and other *débris* so abundant in tropical forests, where growth and decay are so much more rapid than with us. A native in-

years ago, and as it is Nature's plan it may often be imitated in our hothouses with advantage. The tropical forest *débris* of leaves and fallen timber, drenched by three times the rainfall of Manchester or Drumlanrig, and heated by a hot sun, not only gives off watery vapours, pure and simple, but vapour heavily charged with manurial stimulants in the best possible condition for the sustenance of plant growth.

Our forefathers grew their fine Grapes and Pine-apples over beds of fermenting material and leaves, and this was in part a rude

Sorbus Hostii (Sweden), *Campylotropis chinensis*, *Clerodendron Bungei*, *Lespedeza bicolor* (Amur River), *Rhamnus libanoticus* (Western Asia), *Parrotia persica*, *Ostryopsis Davidiana* (Mongolia), *Ligustrina amurensis*, *Xanthoceras sorbifolia* (North China), *Solanum fastigiatum* (Mexico), *Nandina domestica* (Japan), &c. It is only right to add that some of the foregoing species are still quite rare in France. A list of trees and shrubs for the climate of Paris, the mean annual temperature of which is a little higher than that of London, due to the hotter summer, would suit almost as well for the neighbourhood of London. The selection is not very numerous, as it includes only quite hardy species suitable for permanent plantations, the common Laurel being about the least hardy.

Another useful feature of the book (p. 599) is a complete explanation of the planting of a park and garden, illustrated with a plan; the extent, situation, nature of soil, existing vegetation, composition of all the shrubberies and plantations, groups of trees and shrubs, single specimens being described with sufficient detail. It may be worth mentioning here that *Nelumbium speciosum* flowers annually in an artificial lake on the estate in question in the department of the Sarthe. Various other examples of planting are given, including town gardens, squares, entrances, approaches, streets, and the like. Mr. André's remarks on trees suitable for boulevard and street planting are interesting.* The Oriental Plane he places in the first position; it flourishes admirably, and may be seen at its best in the streets radiating from the Arc de Triomphe de l'Etoile. The trees are about 16 feet apart, but Mr. André says they should be at least double that distance, and he would now remove every alternate tree in most of the boulevards of Paris. The Horse Chestnut succeeds well in some parts. Elms were formerly almost exclusively planted in the streets, but they have been largely destroyed by *Cossus ligniperda* and *Scolytus destructor*; but there are some young ones doing well in the Boulevard St. Michel. There is an Elm (*Ulmus pedunculata*) extensively planted in Brussels, which Mr. André recommends. It is a magnificent avenue tree, judging from fig. 352, p. 637. *Acer platanoides* forms regular avenues, but it is a tree of the second size; the Sycamore grows more rapidly, though irregular; *Negundo* is too brittle; *Acer monspessulanum* is very beautiful, but a slow grower; and *A. saccharinum* is very fine in some towns of the United States. European and American Oaks would form beautiful avenues; but the transplantation of large specimens is rarely attended with success—witness those removed at a great cost from the Bois de Boulogne to the Quai des Tuileries. One defect of the common Lime is the early shedding of its leaves, and the silver-leaved Lime, grafted on the common Lime, is objectionable, because it grows faster than the stock and forms an ugly protuberance above it. *Sophora japonica* and *Robinia* are extremely elegant, though the trees are often very unequal in vigour. Poplars grow rapidly, and are of short duration; *Paulownia imperialis* grows quickly, but its large leaves collect the dust and fall early; the same may be said of *Broussonetia papyrifera*. *Ailantus glandulosa* would be a superb tree if it grew regularly in an avenue, but it grows rapidly and irregularly; moreover the male trees exhale a faint and disagreeable odour when in flower. The boulevards of Paris, from the Madeleine to the Bastille, contain numerous *Ailantus* trees which drive away pedestrians in June and July. What must it be for the people who dwell in these boulevards? With the exception of the Mountain Ash, which is not extensively employed, members of the genus *Sorbus* are rarely seen in avenues. The Tulip tree, the American Liquidambar, and *Magnolia acuminata*, require a deep rich soil; but the trees are too young to judge of their value for planting in rows: the first will not well bear pruning.

With regard to the planting of avenues of groups of trees, Mr. André's advice to avoid the number of three deserves repeating. Sections of various streets and boulevards, including the Thames Embankment, p. 636, will be found useful. The cost of the removal of large trees, and lists of the species which experience has taught may be transplanted with certainty of success, and those which are uncertain, claims the attention of planters. Having touched upon some of

the leading features of this work, a little space must now be devoted to the principal one, namely, the numerous plans of designs it contains. They are interspersed throughout the work to illustrate various branches of the subject of landscape gardening. Some have been selected to expose their defects, others as specimens of different styles, others as noteworthy examples of public gardens in various countries, and so on. As might be expected, many of them are plans of Mr. André's own designs; and in some instances where he has remodelled an estate a plan of the old design accompanies the new one. Perhaps it may be well to mention one of the most striking peculiarities of the present French style. It is the extreme regularity, and in many instances uniformity, of the curves of the paths and roads, and lakes, &c., and these curves must harmonise. This is an indispensable character; and if the walks are reduced to a minimum it is good, but if, as in some cases, they are needlessly multiplied, the effect is anything except pleasing and natural. Doubtless many persons will think the French, in avoiding the senseless windings of paths and broken banks of lakes, &c., to be met with in many gardens, often go to the other extreme and end in formality. Even some of Barillet Deschamps' designs are systems of circles and ovals, and almost as formal and more wearying than straight lines. Of course it is impossible to judge of the effectiveness of a plan without knowing all the levels, and studying the scale upon which it is to be carried out.

Mr. André, while insisting upon soft curves in the place of sudden bends and sinuosities, does not crowd his designs with walks, and his planting, and much of the modern planting in France, is tasteful, judicious, and often very happy. This is more than can be said of a great deal of the modern planting in and around London.

But let one of Mr. André's designs speak for itself. Fig. 82, p. 588, is a plan of the park of Bois-Renault, Indre and Loire, on a scale of about 150 yards to the inch, as re-modelled by Mr. André. An ancient wood, cut up by numerous roads, occupied the gravelly plateau extended to Ballen. Some of these roads were closed, and only those preserved which radiated from the round point, r, where an aviary was constructed. From the principal entrance, j, a curvilinear road was cut through the wood, terminating at the Castle, and one of its branches leading to the offices and kitchen garden. The offices were removed to a fresh site, the glasshouses, f, f, abutting on their south walls. m is a vineyard included within the precincts of the park. On the northern side the ground slopes towards the valley of the Cher, affording some good views up the valley and of the hills opposite. g is a hothouse backed up by dense masses of evergreens. Along the walk leading to the piece of water at s is a belvedere, o, from which the ruins of the old Castle of Luynes may be seen in the distance. A considerable embankment raises the valley where the bridge, r, spans the water; and the earth removed from the lake forms a mound at k, surmounted by a kiosk at q.

Respecting views, Mr. André points out that oblique views are the most agreeable. Fig. 83 shows how the effect of a distant view may be enhanced by narrowing the point from which it is visible to a break in a dense plantation. Fig. 84 is a cascade in the schistose ground of the Parc de la Rochette, designed by Mr. André. Concerning cascades, the illustration at p. 446 is surely not a correct representation of the cascade at Virginia Water. Is it a mistake? There are many other things marked for notice, but space will not permit. It may be mentioned, however, that the eleven chromolithographs are of noteworthy plans. Enough has been written here on this the latest addition to this branch of literature to show that it ought to find a place in the library of every one concerned in landscape gardening, whether a beginner or a practised hand.

HELIX POMATIA. — My "Canterbury Pilgrim" roused itself from torpor on May 1. The substance, resembling stiff parchment, with which the mouth of its shell had been closed all the winter, was scattered about its box. Its weight is now 487 grs. troy. When it became dormant, on November 9 last year, it weighed 505 grs., and has thus lost 18 grs. in weight during the winter. Last year it woke up on April 18—so, like most other things, is nearly a fortnight late. E. T. M.

NOTES FROM A LANCASHIRE GARDEN.

May 2.—What a winter we have had, and it seems hardly to be over yet. Yesterday, as an appropriate greeting to May Day, we had the pleasure of a snow-storm, and, with us at least, winter began before November was fairly out.

Never were things so backward. The Christmas Roses were all frost-bound, and about February I prophesied that there was for the first time in its life a chance that a Christmas Rose might become acquainted with a Lent Lily, as the Daffodil was once quaintly called. My prophecy was more than realised. On Easter Sunday (April 13) I gathered a whole bunch of Christmas Roses, with a snowstorm then, too, to mark the day. Yesterday there were still two white buds visible among the green fading blossoms. I find in the Diary of a son of Sir Thomas Browne (*Religio Medici*) that on March 17, 1664, "I went to Norris his garden, where I saw black Hellebore in flower, which is white;" that would seem late enough for Christmas Roses, but what is it to this year's experience?

Meanwhile, if the flowers of winter linger, the flowers of spring delay to come—"the spring comes slowly up this way," as it did that year when the Lady Christabel walked alone "in the midnight wood." The trees are hardly showing any green—but a richer brown, and a closer texture of boughs tell us that they are ready to burst into leaf—if only warm sunshine came. There is more verdure about the hedges, and the Daffodils and Primroses are bravely doing all they can. I have planted a number of Daffodils under some Hawthorn bushes near the dining-room window, and they give fresh life to the corner of ground I have cleared for them. And then in the wood the single Daffodils have done better than they have often done, and I do not wonder that Keats should have rejoiced in such a "shape of beauty" as

"Daffodil,"

With the green world they live in."

In the inner garden, too, there are the old Corydalis and Pulmonaria, and in a day or two, with more genial weather, the starch Hyacinth and the Auricula will be here, but everything is sadly backward.

But would that backwardness were the only thing of which to complain! It seems to me that almost every valuable shrub I have is killed, or most seriously injured. The Escallonia upon the house is killed, and the Ceanothus has only a shoot or two left. The Desfontainea, of which I was so proud, is gone, and so are a sweet-scented Verbena and a Berberidopsis corallina between the vineries.

On the other hand there have been some narrow escapes. The great Buddleia has lost all its leading branches, but is breaking out again on the old wood. The Diplopappus is sadly knocked about, and so is the Erica carnea, but they will recover. The Magnolias have plenty of brown leaves, but they too have received no vital injury. A Pernettya is also safe, and a Camellia against the stable wall. Why should these escape, and a great bush of Rosemary be destroyed?

Some of the shrubs which have suffered had an interest for me beyond their beauty and their value. I never stay anywhere, where there is a garden, without bringing back with me some one or more shrubs as a remembrance of a beautiful place or happy hours; and, when I plant them, I fasten to them a label, mentioning their old home, and thus I am reminded—now of a quaint low house covered with creepers and nestling among the hills of Wales—now of a magnificent castle with its pleasure in the North of Ireland—now of a stately hall in Scotland, where a wild glen runs down past the garden to the wood—now of an old English abbey, where the flowers of to-day spring up among the ruins of a thousand years ago.

Nor are the shrubs the only losses I have had. Every Wallflower is dead, and every Daisy (except, unluckily, the Daisies on the lawn—will nothing ever kill them?). The birds, too, must have been half destroyed. The rooks are of course alive and happy, and I can see them

"with busy caw
Foraging for sticks and straw."

A swallow, too, has been seen, as if to tell us that summer is after all bound to come—some day. Then there are any number of sparrows, saucy and troublesome as ever, the most ill-conditioned of birds. But

* These remarks apply more especially to Paris, though in some respects they have a general application.

where are the thrushes and the blackbirds which used to sing from early dawn? and where is the cuckoo that was wont to call out so lustily from among the orchard Limes?

And if I have fewer birds, I am not at all sure that I am going to have fewer insects. As yet I have seen no aphids; but the ants are hard at work on one of the Peach trees, and I am half tempted to believe that the aphids, which is kept down below (so the naturalists tell us) in the ants' nest during winter, may be brought up for *summer pasture*, when the young Peach leaf appears. The Apricot trees are becoming teased with caterpillars, and require a daily hand-picking.

The wall-fruit blossom is looking well, however, and the Apricots have set in thousands. I am sure I have done right in bringing bees into the garden; they are for ever at work, getting honey for themselves and setting fruit for me. They were always, whenever a ray of sun came out, among the Apricot blossoms, and, having finished their task there, they have now begun with the Peaches and the Nectarines. I hope that they will be equally industrious with the Cherries, which promise to be covered with bloom in another week. The Pears are showing well, but there is a great falling off in Plum blossom as compared with last year, but last year was, as regards Plums, quite an exceptional year.

Our forcing has been late, as the Vine roots are on the outside border, and we dared do nothing till the severity of the frost had past, so we are behindhand with Strawberries and Beans. The Orange tree has been singularly beautiful, and a new variety of Orange I have got is flowering for the first time. The Figs are doing well, and I should soon have my first dish.

Among the flowers we have forced for bringing into the house has been the common old Solomon's Seal. I had never so grown it before, and I shall always grow it in future. Nothing can be more effective in their way than its drooping Palm-like leaves, each tasselled all down with bells of a silvery green. I am also forcing the common Peony, which should look handsome in the hall, though I am afraid it will be shortlived. A large white Azalea has behaved nobly, and lasted over a month in full beauty.

We have been gravelling the walks with a sort of red shale, which I get from some coal-pits near; and we are edging the borders in the back garden with tiles, as the Box had got shabby and I did not care to renew it.

With one concluding note I must close my record of to-day. For the first time I have managed to flower the *Aquilegia cœrulea*, and it is now before me with its fine white and pale blue blossoms and its long slender spurs. What a beautiful Columbine it is! //

THE GROSVENOR GALLERY.

THE collection of pictures now exhibiting in New Bond Street is a very fine and instructive one, and one quite up to the level of former exhibitions of paintings held in these rooms. Few of the pictures are of slight interest, and if some are bad they are possibly interesting on that very account, for it may reasonably be assumed that Sir Coutts Lindsay (himself an artist of great merit) considers all to be more or less excellent. Some of the pictures are of the highest order, and the numbers being not too many, the visitor is not tired or sickened by works which appear at last to be almost repetitions of each other.

Taking the pictures in the order of the catalogue we may pause at 15, "A Morning Mist," by Cecil Lawson, which may be taken as a type of six other pictures in this exhibition by the same artist. It is impossible to deny the truthful—sometimes beautiful—colour in these pictures and the generally correct drawing; but they displease from the manifestly careless mode of execution employed. 16, "Charing Cross Bridge—Midnight," A. Stuart-Wortley, though a work of a different class, has the same merits and defects as the last. 28, "The Sirens," Walter Craue, is a semi-decorative picture of female figures by the seashore; but the ship, in Nature, could not possibly be seen where here shown, it would be towards the top of the picture, where the line of horizon should also be; the sea-line of the distant cliffs is also open to objection. In the excellent picture adjoining, 24, "Light, Life, and Melody," H. Herkomer, and in 30, by J. D. Watson, these points are correctly rendered, but the errors of perspective are repeated in

33, "To God, &c.," by C. E. Hulle. 35, "An Illustration of Solomon's Song," by J. M. Strudwick: Here, although the picture is a good one, the white Lilies are not half large enough. 42, "Night and Sleep," Miss E. Pickering: In this picture "Sleep" is shown in the act of raining down blooms of Papaver Rhæas, not of P. somniferum. 45, "The Tired Dancer," J. R. Weguelin: This, though a meritorious picture, will not pass in its perspective after Alma Tadema, an artist who in drawing never errs. The lines of the bases of columns should be horizontal, not strongly curved, and if the top of the shelf on which the arm reposes is made visible the ledge just above should not recede from the spectator. 51, "The Widow's Acre," G. H. Boughton, is a good example of correct perspective as distinguished from some of the pictures before-mentioned. In 54, 55, and 56, we get three pictures by J. M. Whistler—54 being an "Arrangement in Brown and Black—Portrait of Miss Rosa Corder"—a life-size figure painted in the two dull colours above-mentioned. 55, "Harmony in Yellow and Gold—the Gold Girl—Portrait of Miss Connie Gilchrist," another life-size figure, this time of Miss Gilchrist, the actress, skipping; there is a supposed harmony of yellow and gold in this picture. 56, "Harmony in Green and Gold—The Pacific." This is a remarkable work, and does not say much for the Pacific or for harmony. There are objects like ships in the mid-distance, and from their lines it is clear that the picture was taken (as far as the ships are concerned) from a high building or mast-head.

We shall return to Mr. Whistler's pictures below; in the meantime we may say that 57, "A Silver Mist," and 58, "A Golden Mist," both by Cecil Lawson, and very superior as works of art to Mr. Whistler's productions, are, without denying their merit, far too Whistlerian, both in name and treatment, to maintain a permanent place as high-class landscapes. Coming now to 73 and 74, "Paola and Francesca" and "Orpheus and Eurydice," G. F. Watts, we have here, no doubt, two fine works of art, showing thought and work, but at the same time they are dingily painted studies of very ugly, middle-aged corpses, shocking to look at by those who have pleasant and preconceived ideas of what Paola and Francesca and Orpheus and Eurydice were, or should be; the falling white Lily plant in the Orpheus picture is not one-half large enough. 116, "Autumn Evening," T. C. Farrer: We pause at this picture to compare it favourably with works having a similar aim by Lawson and Whistler. How true is the line of driving mist at the base of the distant trees. 120, "Naworth Castle," Walter Crane, remarkable for its alarming perspective. 145, "Ariadne" (we all have preconceived ideas of Ariadne), Sir Coutts Lindsay, Bart. Will Sir Coutts forgive us if we hint, whilst admiring this well painted picture, that the line of the sea-horizon should be on a level with the eyes of the figure, not with the lips? It may be said in extenuation that the spectator is supposed to be on his knees, or peeping out of a hole, or that an artist can afford to ignore correct lines, but we are opposed to these ideas—a good artist can make a good picture and at the same time keep all his lines natural and right. 160, "The Ship," R. Holman Hunt: a picture of night at sea, on ship-board. The less said of this work the better—there can only be one opinion about it—we advise all our readers to see it and compare notes.

Near here are five most remarkable pictures by E. Burne-Jones, viz., 166, "The Annunciation:" This picture at any rate is new in treatment. Every one knows Mr. Burne-Jones' female figures—limp, melancholy, with big pale eyes and straw-coloured hair, such a one is the Virgin in this large painting; she stands looking out of the picture as if she had forgotten something and just called it to mind, whilst on the left of the picture a gigantic angel of solid bronze descends over some bushes supported by the faintest wreath of mist. We need not say that the drawing is correct and the picture an admirable one, but it has peculiarities, such as the bronze angel and the long, white and very narrow corridor from which the Virgin has just emerged. 167, 168, 169, 170, by the same artist, illustrates the story of Pygmalion: the drawing and painting are beautiful, but Pygmalion is no more the true Pygmalion than the bronze figure is the Angel of the Annunciation. Pygmalion's sculptured figure turns out as a queer individual, but Pygmalion

and his innamorata are at any rate well matched. These five pictures are well worth very careful observation and study. 172, "Topaz," Albert Moore: Here we have a semi-decorative picture of exquisite loveliness, perfect alike in drawing and delightful harmonious colour. Compare the entire conception with 55, "The Gold Girl." 184, "The Pride of the Rose Garden," Lady Lindsay: This Rose bloom (can it be Captain Christy?) is remarkably well executed, but why are the green leaves so pale and "washed out"? They are not so in Nature, and Nature satisfies us. With rosarians the beauty and colour of the foliage is only second in esteem to the bloom itself. 186, "Cactus": Under this indefinite name Miss Conkling gives us a very indifferent picture of *Cereus speciosissimus*, and no wonder, for who can expect to reproduce the magnificence and perfection of this plant?—a more experienced artist would have chosen a less difficult subject. In the vestibule at 192 and 193 we have two more pictures by J. M. Whistler, one a "Nocturne in Blue-green," the other a "Nocturne in Blue and Gold." These are two canvasses in lead-coloured paint, and there is little more than a coat of lead-coloured paint to be seen: the marks of the brush as it has been carried across the canvasses are very plain, and the effect is not unlike the "first-coat" of a street-door before it is painted green. There are roughly painted ships in the same perspective as the ships of "the Pacific," and a sun, or a moon, or "a gold" to secure the harmony. Now a remarkable thing about these two pictures is that both are in gold frames with lead-coloured ornaments painted by hand, and as these ornaments are somewhat elaborate affairs, the spectator is sure to find himself speculating on the design and harmony of the frames, on which much more artistic time must have been expended than on the pictures themselves. In comparison with these pictures and their mounting, we may turn to 22, "Sarpedon," W. B. Richmond, one of the best and most remarkable pictures in the Grosvenor Gallery, occupying the place of honour. The artist does not trifle with his frame, but is content to let his grand picture be framed in plain polished wood. The pictures too, are comparable, for Mr. Richmond's grand painting is truly a "Nocturne" of sombre and impressive hues. 205, "A Highland Funeral," D. Murray: We refer to this picture on account of its accurate perspective in reference to the sea-line, &c. 220, "Azalea," J. M. Topling: This would do for a panel in a drawing-room; but still the flowers are ill-drawn—the artist does not perfectly know the Azalea. 221, "Fairy Flowers," Lady Lindsay: a group of Orchids less successful than the Rose picture. In this, the Water-Colour Gallery, are a number of pictures by Richard Doyle, formerly artist on *Punch*—figure-subjects, architecture, and landscape; they are too numerous for detailed notice, but we may remark that the two life-size frogs in No. 226, "Peace or War," seem to be copied from Wood's *Natural History*, vol. iii., p. 157.

In the Sculpture Gallery we have another selection of the works of J. M. Whistler. 267, "Three Studies in Chalk and Pastel;" 273, 274, "Studies in Chalk." These are certainly productions in chalk, the two latter on pieces of common brown paper—they may be "studies;" we advise our readers to see and study them, and then decide, if they can, why Sir Coutts Lindsay has exhibited such studies. There are also various etchings by Mr. Whistler, mostly pen-and-ink-like scraps and odds and ends, the two most ambitious being 285, "Putney Bridge," and 286, "The Adam and Eve, Old Chelsea." These latter etchings have been praised, but every artist knows there is no difficulty whatever in representing a row of dilapidated buildings or a tumbledown bridge. No one can tell whether such breakdown structures are right or wrong, and nothing is easier than to get a facile method of drawing old wooden houses and bridges; every beginner aims at such things and succeeds. Drawing-schools swarm with copies of such objects, and schoolgirls polish them off by the yard. Almost the last picture is a truly minute little sketch of mountains—268, "First Sketch of a Landscape," Sir F. Leighton, P.R.A. It is one of the most amazing things in the Exhibition. What has Sir Frederick done that he should be pilloried in this way? The Grosvenor Gallery is one of the best and most important exhibitions of pictures in London, and it is a great and very valuable aid to art and art teaching.

OUED EL KALIA, EL BIAR, ALGIERS.

THE Algerian winter residence of the Countess of Charleville is situated on beautifully undulated high ground south-east of and distant about 4 English miles from Algiers, and about 900 feet above the sea. From its high commanding position beautiful views are obtained of the magnificent bay, which many say is not inferior to that of Naples, and of the Mediterranean for miles away, as well as of the harbour and best part of the town. There are also splendid views secured from this place, and the grounds of the opposite or land side of the country, for distances varying from 30 to 40 miles away into the country—a scenery which is only enjoyed by a limited number of residents here, inasmuch as the majority of villas and mansions are situated in the inside of the amphitheatre-like hilly ground, which almost entirely encircles the whole of the bay, and the flat ground immediately surrounding it, and from which can be had only views from the one side, and that is of the sea, bay and harbour, whereas those residences on the heights have views of front and rear. From this standpoint splendid views of the country nad sea are obtained. That part of the country nearest is beautifully undulated, showing declivities, slopes and aspects of a varied character, and valleys and ravines very irregular in their courses, and in the distance beyond a vast plain extending to the very base of the Lower Atlas Mountains—a sight grand to look at. This long chain of mountains seems to run right across the country, or to enclose apparently that part of the north of Africa which includes Morocco, Algiers and Tunis, leaving the enclosure as a vast garden, bounded by mountains and the sea. The "sirocco," or hot winds from the desert, so much dreaded, are so much interrupted by the long chain of mountains as scarcely to be injurious on this side. It is here one can enjoy the splendid climate. The air is so clear and bracing, the vegetation is so wonderful—so very luxuriant; and there is such a loveliness of scenery to be found here as few who have not experienced it can at all imagine.

The "Place du Gouvernement," a central square surrounded on three sides by streets and buildings and Plane trees, and open on the one side to the sea, is nearly filled on Sundays with people, who assemble to hear the bands play. Leaving this you pass through one of the best streets, in fact the best street, in the town, called, I think, Rue Babazour, where, on both sides, under arcades, there are some splendid shops, similar to those seen in Paris. Leaving this street you find yourself in one of the best squares in Algiers, called "De la Republique." It is enclosed with iron palings, but is open to the public at all times. It is planted and filled with Dates, large and small; big Indiarubber trees, Bananas, Guavas, Dracenas, Eucalyptus, Carobs, Acacias, the Peppers (Schinus), and a host of other kinds, some of which are strangers to me. There are fountains and aquatics, and the place can be lighted up with gas, the whole presenting a sight like a gigantic conservatory, but without the glass covering which we are accustomed to see at home.

Departing from this spot you take the principal road out of Algiers, which leads you to "Mustapha Supérieur," a village of some note, on account of its position being situated in the most fashionable district, and in the centre of the suburbs. On the way you pass through some streets largely occupied with Arab traders, who present a novel sight to the stranger, and on until the fortification gates are reached. For some distance beyond these, the road can scarcely be called interesting, except perhaps from the character of the trees planted on the roadside. When the business houses and yards, &c., are left behind the road commences to rise, until it gradually assumes a zig-zag direction, in order to gain the ascent of the high ground on your right.

On either side of this picturesque and well-kept road—for the roads are all good—trees are planted and are well taken care of, and certainly do those concerned in their keeping great credit. The trees extend from the centre of the town outwards for miles, and chiefly consist of Guavas, Carobs, Acacias, some Eucalyptus, Peppers (Schinus), and some Dates, &c. On all sides of this grand road, extending from Algiers to Mustapha Supérieur, close to it and afar

off, are to be seen placed about on various slopes and with much variation in aspect, the lovely white Moorish residences of the gentry in the suburbs, large and small, and mostly with flat roofs, and on which, as is well known, the Moorish ladies used to take their open-air exercise. But these are only events of the past, and most of those residences are now occupied by Europeans, French, English, and indeed by Americans.

Many new residences are being erected, and unfortunately some of the modern ones have red-tiled roofs, which, when placed side by side with the flat-roofed, Moorish styled houses, are positively ugly. But there are some fine mansions being now finished, according to the Moorish style of architecture, and notable amongst these is one—a fine Moorish residence, belonging to a gentleman named Keith. It has a central open court, as is common in this kind of building, and is on one of the highest elevations.

In and around this splendid amphitheatre, extending as it does for miles along the beautifully curved bay, and the plain enclosed between the beach and it, are to be seen hundreds of residences, some placed in little nooks or crescents in the rock, others on knolls of some projecting part, and others on the ridges, and all are situated on the hilly elevations of this same amphitheatre-like boundary. Looking in any direction, whether it be that of the town, harbour, bay or sea, you must admire the grand sight before you.

Under a fine clear sky you have a blue sea before you, a splendid bay with a curvature representing half a circle, a splendidly formed beach, surrounded by level land extending for miles, on which are some villages, a racecourse, and the public gardens, called the "Jardin d'Essai," over 200 acres in extent, and all these are enclosed, as it were, by the hilly country forming the high elevations in the rear.

During December and January I found the night temperature to average about 60° Fahrenheit, and that of the day about 70°. Of the rainfall I have not any tabulated statement, and although it is recorded in some books on Algiers, I have no extracts, and therefore do not recollect it.

But on vegetation I can speak pretty largely, as there is ample evidence of the luxuriant state of that on every side. I had been told, before coming here, that if a stick is only stuck in the soil it will grow, and since then I have had sufficient evidence of the truth of the statement, as I have seen "cutting" Brumansias, straight sticks 5 feet long, trimmed as clean as walking sticks, put into a hole made in the soil by another stick, 2 feet deep, and not the slightest doubt existing as to their not growing into fine standards, and that in one season.

Of the general appearance of vegetation in the neighbourhood—to commence with timber trees—I would observe that these are very few, very large trees of the timber class can scarcely be seen. The large hills and various slopes are all furnished with some kind of growth, including some species of the Fir tribe, but they have a scrubby form about them, which would lead one to conclude that they are not exactly at home here. But the Cypress pyramidalis and horizontalis, and others, as well as the seedling varieties of Eucalyptus, Acacias, Olives, are seen in big grown trees. *J. Roberts, Charleville Forest, Tullamore.*

(To be continued.)

ORCHIDS AT KEW.

SOME first-rate Orchids are now in flower, the chief of which we shall alone mention now. The flowering of any Schomburgkia is a great rarity, but here from a strong stem of *S. tibicinis* proceeds a spike bearing eight flowers. Across the sepals, naturally expanded, measures just 2 inches; both the sepals and petals are undulated, on the upper surface they are purplish red, with longitudinal lines, beneath, rose coloured with innumerable white dots. The labellum is scoop-shaped, the scoop formed by the turning up of the two large lateral lobes as occurs in *Cattleya*, but from which it differs in the small central lobe. Towards the mouth where the edges are slightly recurved the colour is white, but on the inside it is beautifully veined with reddish rose, and on the outside the colour is bright rose. The flowers are curious in a manner to which many other Orchids approach. All the parts find their position above a horizontal plane taken on a level with the stalk, so that when a flower is laid down there is no displacement to meet the flat surface. The stems are hollow, and by the natives of Honduras are used as trumpets; at the base there is a hole, more or less perfectly formed, which in this specimen is hidden by the potting material. Of this species, speaking of the variety *grandiflora*, it is said in the *Botanical Magazine* for 1849 that "Mr. Skinner, its original discoverer, was not permitted to obtain quiet possession of the first flowering specimen he saw, for swarms of fiery ants issued forth in thousands from their snug retreat, to repel the spoiler, and inflicted pangs which none but the most ardent naturalist could have braved." The plate of this plant, we may mention, shows a much more open labellum than this specimen, otherwise there is almost complete identity.

Another beautiful Orchid, which also appears to afford a refuge for ants, we have next to mention. This is *Epidendrum bicornutum*, one of the finest species, and of the most delicious odour. The flowers are chaste and lovely, 2 inches across, and of the purest white; in outline they are extremely elegant, each segment at first rounded, then terminating in a neatly-formed point. The stems are hollow, and have comparatively thin walls; at the base there is always a gaping hole, which appears to invite the entrance of ants, just as a door thrown open would do. Why the plant should make itself an entertainer of ants is not quite conclusive, though it does appear almost certain that the benefit given is one of protection. Just as *Acacia sphaerocephala* is protected by a vigilant army of soldier-ants, so it would seem are these two Orchids. The *Epidendrum* is an evident attraction to the ants about the house; they are seen continually running about the stalks and scape, on which is produced a copious and probably sweet secretion, of which they are evidently fond. This species is considered a difficult one to grow; at Kew, however, it grows well over a tank of water, standing at about 85° Fahr., and within a short distance of the glass. After importation new bulbs are formed, which flower in due season, though it is usually said that after the imported stems have flowered, the plant has only to die out. Success is evidently due to much moisture, full light, with a high temperature.

Phalenopsis Lüddemanniana, with flowers 2 inches across, is one of the most charming species, especially with regard to colour. This is almost indescribable on account of the subtle blending of violet and rose, with such transparency, too, that the flowers sparkle as gems in sunlight. Of *P. grandiflora* there is a splendid variety, the flowers are 3½ inches across, with great breadth of petal. Especially delightful is the true *Dendrobium barbatulum*, of which there is quite a floral display. There are many forms, all equally beautiful, and of the same pure white colour, but with just a touch of yellow deep in the labellum. The plants were imported, and until recently bore evidence of their seedling origin, in the gradation of size in the stems, down to the very tiniest. It is not often that Orchids so mature still possess their youngest stems. Just as all Orchids are found to vary considerably when got together in any number, so do these representatives of this species. They vary, not in colour, but only in form, the labellum from lanceolate to nearly rotundate, and the other segments similarly in breadth. The flowers all turn upwards on the horizontally arching scape, each one quite a bouquet, and the flowers taken separately, or several together, may have the most hearty recommendation for a variety of purposes. Conspicuously standing among many other *Cypripediums* in flower is a good plant of *C. caudatum*, the tails in some cases nearly 20 inches long. The newest are *C. Boxallii* and *C. Argus*, the former nearly allied to *C. villosum*, but

BENEFICIAL GAME LAWS IN ALSACE. — Bollwiller, at the foot of the Vosges, will be known to many of our readers as the centre of a large nursery trade. Independently of soil and situation, this district is said to be peculiarly favourable to raising hardy nursery stock on account of the game laws, which are such as to prevent the undue increase of rabbits and hares. From *Der Deutsche Garten*, it appears that any and every holder of a plot of ground, no matter how small, and be he holder, owner, or hirer, is permitted, on paying the sum of twenty francs, to kill as many hares and rabbits, we presume, as he can find. According to the same authority, the Messrs. Gay possess no less than 450 acres of nursery ground, and they employ on an average from 80 to 120 hands. In consequence of the existence of the above-mentioned law it is unnecessary to fence the nurseries. The cockchafer is the most destructive pest the cultivator has to contend against, and sometimes it is necessary to lift whole quarters of seedlings to save them from the larvæ of this formidable foe. The ground is then forked over and the larvæ picked out by hand. Tillage is largely performed by horse-power, the rows of trees being planted about 40 inches asunder to facilitate this labour. To give some idea of the extent of Messrs. Gay's business, it is stated that twenty-four packers are usually employed during the season, working constantly, Sundays and week-days till midnight. The usual wages of the young gardeners is 40 francs a month.

rather an improvement in point of beauty; and the latter attractive from the very distinct spots, on account of which, no doubt, the name was given. A fine *Thunia*, recently open, is referred, as a variety, to *T. alba*. The sepals and petals are of ivory white, but the lip is of a rich orange colour, ornamented with numerous stout hair-like processes, and a fringed margin.

Isophilus linearis is a rare and charming plant from Columbia, interesting on account of its grassy-looking habit. The stems are erect, thickly clothed with short linear leaves, and a large number terminate in a spike of very heath-like lilac flowers. Other *Dendrobiums* besides *D. barbatulum* are *D. Jenkinsii*, *D. crystallinum*, and *D. macrophyllum*, all of high merit.

WILLIAM TILLERY.

It is with great regret that we have to record the death of an old and highly valued contributor to these columns, in the person of Mr. WILLIAM TILLERY, who for the long period of forty-five years was gardener to the late and present Dukes of Portland, at Welbeck Abbey, Notts, and who died on April 25, after a short illness, at the age of seventy-three.

Mr. Tillery, whose portrait we reproduce from a former volume, was born in 1808, at Kilmarnock, Ayrshire, his father at that time being manager to Mr. Gemmell, a nurseryman. Subsequently his father became gardener and forester to the late Duke of Portland at Fullerton House, near Ayr, and it was at Fullerton that the subject of these remarks commenced his gardening career. From here he went to Eglinton Castle for two years, and then came South to Malcolm's Nursery, at Kensington, which place he in time left and obtained employment at Caenwood, Highgate, where Mr. Cockburn was gardener and Mr. Frost, of Dropmore, was foreman. Subsequently Mr. Tillery proceeded to Oakhill, at a time when that place was famous for its fine Grapes; and in 1832 he succeeded his father as gardener at Fullerton House, from whence five years later he was removed to Welbeck in succession to the late Mr. Mearns. Here, in charge of perhaps the largest forcing establishment in the country, he proved himself a most accomplished practitioner, and became a sound exponent of all that was good in connection with his profession, of which it may be said that he was one of the leading representatives. To our own columns he was a contributor almost from the first number published in 1841, most frequently under his proper name, but occasionally under the *nom de plume* of "Thoth." Such is the bare record of a man widely esteemed amongst professionals, not less for his social virtues than for his high attainments as a practical gardener. He was indeed remarkable for the extent of his knowledge and the soundness of his judgment. What he spoke and wrote was based on no crude or untried theory, but on careful and constant observation and matured clear-headed reflection.

His funeral took place at Norton Cuckney, on April 29, his remains being followed to the grave by a large number of persons, including many of the Worksop tradesmen. Amongst gardeners of his generation no name will be held in higher esteem than that of William Tillery.

ODD NOTIONS ABOUT PLANTS.—We recently saw in the dining-room of a substantial Kentish yeoman a plant, stem and leaves, of *Aloe variegata* tied up to one of the beams in the ceiling such as are common in old houses. We were informed that the plant had been sent from a distance as one of great rarity, and that instructions were sent to the effect that it was necessary to treat it in this way in order to induce it to root. The good housewife was not a little troubled in her mind at observing that the bulk of the plant lessened day by day, but it was allowed to hang, in the full belief that it would put forth roots in due course.

CAMELLIAS AND CAMELLIA CULTURE.

(Continued from p. 552.)

ON FORCING.

ALTHOUGH the natural blooming season of the cultivated varieties of the *Camellia* is February, March and April, there is no reason why a good show of flowers should not be secured in the months of October, November, December and January. This is brought to pass by forcing. If when housing the plants in September or October, a given number be placed in the forcing-house, the flower-buds will gradually unfold and in succession throughout the late autumn and early winter months.

It is well not to apply too much heat in the first instance or the first year that the plants are forced. Let it also be borne in mind that here especially increased heat should be accompanied by increased moisture, both at root and top.

A temperature commencing with 55° by day and 45° by night, which may be slightly and gradually

veyed to the north side of a wall or fence, as recommended for the plants in pots.

From the above remarks it will be seen that *Camellias*, when systematic forcing is added to the usual routine of culture, may be had in bloom for seven months in the year, at the seasons when flowers out-of-doors are rarest, and can indeed hardly be reckoned on for the purposes of indoor decoration.

It may be well to remark here that *Camellias*, which are always disposed to vary much in colour under the varying systems of cultivation, are usually a trifle paler when forced to bloom in mid-winter than when flowering under the stronger and more abundant sunlight of March and April.

ON THE RENOVATION OF DEBILITATED AND UNSIGHTLY PLANTS.

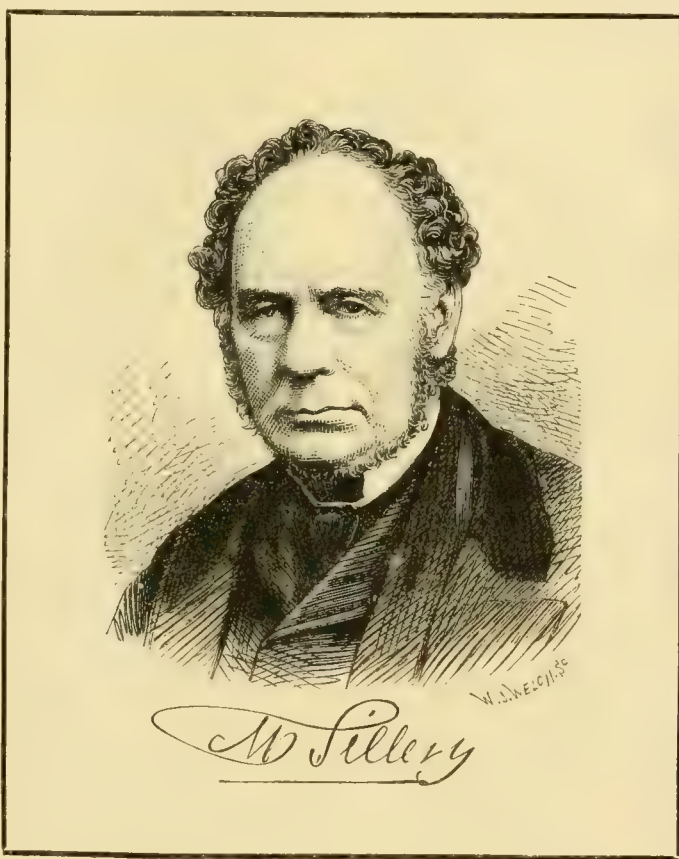
How often we meet with *Camellias*, both large and small plants, in what a good cultivator would call a "deplorable state." Bare of branches at their base, the old wood barren, and the new growth weak—the leaves small in size and sickly in appearance—we look at them with aversion rather than with delight.

They are embodiments of ugliness and weakness, instead of personifications of health and beauty.

The cause of this we have already stated (p. 525): we have now to seek the remedy.

A free use of the knife in pruning, heat, and moisture are the means by which plants in that condition may be restored to health and beauty. Take them in hand in September. Turn them out of their pots or tubs, and make sure that the ball of earth is moist all through, and drainage satisfactory. It is no uncommon thing with *Camellias* that have been for many years in pots or tubs to find the centre of the ball of earth in which they grow so hard and dry as to be almost impervious to moisture. This is a most unsatisfactory state of things. Plants in pots and tubs have but a limited area of soil from which to draw the food supplied through the roots, and a great part of this has become as sterile as the sand of Sahara. The practised hand will know by the weight of the ball of earth how far this state of things exists, but we know of no rule by which the unexperienced can arrive at correct conclusions. If any doubt exists the safest way with him is to get an iron pin about the size of a crow-quill and pierce the ball through and through both perpendicularly and horizontally, then place the balls entirely under water, in tubs or in a pond, and leave them to soak for six hours. By this means the whole mass will be saturated and not likely to become dry again at the centre if watering be henceforth properly attended to.

When the plants are put back in the pots or tubs, see that perfect drainage is secured, and press the soil firmly at the top so that it may be equally solid from the centre outwards towards the circumference. Now thin out and cut back the branches freely, leaving the plants mere stumps in appearance, but taking care to leave a few shoots or leaves to keep up the action between roots and branches. Next place them in a house, and on the turn of Christmas apply heat and moisture, and if bottom-heat can be given it is a point in their favour, although this latter condition is not absolutely indispensable. A temperature of 60° by day and 50° by night may be maintained, and the syringe should be used freely morning and evening. About March the new growth will commence. Here and there a solitary eye will start into life, and in some places along the bare stems where no sign of life was previously seen clusters of eyes will rise into being. Now is the time to refashion the plants. Estimate the number of shoots required and mark out the positions they should occupy, rubbing out the surplusage. As growth proceeds and the leaves acquire some size, weak liquid-manure should be given. From this time forward these plants require the same treatment



increased as the flower-buds advance in growth, will be found to suit them very well. When the plants have been forced two or three years in succession 60° by day and 50° by night as a starting point will do no harm, and, of course, then the period of flowering will be accelerated.

But *Camellias*, like all other plants, should be prepared for forcing. By applying moisture and warmth in January and February an early growth will be induced, and this will be followed by an early ripening of the wood. Plants, like animals, must have their periods of rest if sound health and longevity are to be secured. If *Camellias* are made to grow in January and February they will set their flower-buds in April and May, rest in June, July, and August, and be ready to work out their flowering in autumn and winter.

Of course, forced *Camellias* must not be turned out-of-doors till all danger from spring frosts is over, as by forcing they become somewhat tender, and the young leaves, even if fairly ripened, are liable to be disfigured by frost. When the growth is finished and the buds set, it is well to keep them in a cool house till the month of June, when they may be con-

as that already described for Camellias established in pots. Debilitated and unsightly plants may sometimes be restored in a single year, but it sometimes requires two or three years, much depending on the age and condition of the plant, and beyond this, certain varieties break more freely than others, and are consequently more easily renovated.

We believe that pruning both of healthy and unhealthy plants might be entirely dispensed with if the practice of rubbing out the supernumerary or ill-placed eyes (disbudding) was more freely resorted to in the earliest stages of the new growth. *William Paul, F.L.S., F.R.H.S., Paul's Nurseries, Waltham Cross.*

(To be continued.)

NOTES ON USEFUL PLANTS.

THE large number of plants that are required to be grown annually for decoration of all kinds in the majority of gardens renders it an imperative duty on the part of the gardener to make double provision at this season for an abundance of material of suitable sizes for furnishing stands, vases, or staircases, and for giving effect and variety to front lines in conservatories and other places where floral displays are required. It is also prudent to make provision against contingencies which may be unforeseen at present, but which may have to be met before next Christmas, by having a good succession of plants as auxiliaries to the general stock. The plants that are in greatest request for lighting up the front rows of collections *en masse* are Primulas, Cyclamens, Bouvardias, Zonal Pelargoniums, and Solanums, and these can be raised and grown in large quantities at a minimum of trouble through the summer months.

Primulas that are now strong seedlings should be grown in batches to succeed one another in positions near the glass, where the temperature ranges from 50° to 55°. These plants are frequently spoiled when very young by being kept in a hot steaming atmosphere, where they become drawn and weakly, and require to be "propped up with pegs" after they are potted. They are also liable to receive a check when they are turned out into their summer quarters after being coddled in a young state. To have early flowers the last shift should not exceed a pot 6 inches in diameter, and the soil used for potting should be a selected fibre from a generous open loam mixed with a goodly portion of leaf soil and wood ashes. The soil should be made rather firm in the pots and the plants placed in a light airy position through the summer, but shaded from strong sun. Towards autumn, however, they ought to be well exposed and hardened, to prevent damping at the neck when the cold dark nights set in. For early flowering and to have the flower-spikes well thrown up the plants when housed should have a warm, light, airy position, but should not be placed so near the glass as to subject them to sudden variations of temperature, which retards rather than accelerates a flowering condition.

Cyclamens when planted in a spent hotbed and sprinkled after shading them from strong sun, are easily grown in this way during summer, and when potted in the autumn they should be plunged in a mild bottom-heat, but steaming the leaves of the plants by any excess of moisture should be avoided. Air given regularly and sprinkling the surface of the bed only on favourable occasions will accomplish this.

Zonal Pelargoniums struck this month will yield a gorgeous display next autumn. The colours vary, and blend exquisitely, and are indeed invaluable in winter from the fact of there being so few flowers to approach them for giving effect by gaslight. The plants should be propagated singly, in 60-sized pots, and afterwards shifted into pots 5 inches in diameter; when these pots become filled with roots they may be plunged out-of-doors up to their rim in coal ashes, and kept pinched and regularly supplied with water during the summer. I have found plants cultivated in 5-inch pots, when judiciously watered and occasionally fed with liquid manure, capable of supplying more flowers than plants grown in pots of a much larger size. They like a light airy position and a temperature of from 50° to 55°.

Solanums may be raised from seeds or cuttings taken in February; this is an easy way of raising a number of useful plants. Tops that are taken off to let light into the berries make first-rate cuttings, which soon root in a little warmth and furnish nice little plants, in 60-sized pots, either for planting out or for growing

in pots. Those that are grown in pots of course colour their berries more quickly, and those that are planted out give a nice succession.

Bouvardias, which have no rivals as winter decorative subjects, are exceptionally easy to grow. Cuttings of them rooted from young growths will succeed admirably if planted out in frames in a rich open compost. The frame should be set on the surface of a spent hotbed, and the fermenting material should be "wakened up," and, if necessary, a little added, just to give them a start and generate a slight warmth in the frame while it is kept closed on cold nights or days when the outside temperature is likely to fall suddenly. The plants will require to be pinched after they commence to grow, and be kept well watered through the summer, and lifted in the autumn in time to get established in their pots before winter sets in.

I hear of a disease that is prevalent amongst Bouvardias, and I have a strong suspicion that it is the same as that which attacks young Vines, Verbenas, and many other plants. If my theory be a correct one, propagation should be deferred until April, and a careful but simple method of culture adopted. If the disease appears in plants that are being hardened off after being rooted in a high temperature, return them to a mild bottom-heat, and keep them growing on without check till the weather becomes genial and warm. *W. Hinds.*

Florists' Flowers.

AURICULAS IN SCOTLAND.—Auriculas have come well through the past severe winter, and so far as I can learn the deaths are very few. Growth did not begin till about a month after the usual time, and as yet they have not made up their lee-way. The bloom will be very late, and I think very irregular. The plants will not be generally in flower for a month to come. As yet there is not the usual breadth of foliage; most of the plants are small, and even the most robust growers are not up to their proper size. Any trusses which are showing themselves above the foliage do not promise to be large. If the cold, unequal weather which has so long prevailed do not change soon for the better, I fear the bloom in the North will not be much worth. The plants themselves, apart from the bloom, look uncommonly healthy. I have often remarked, that after a season with a good snap of frost in it Auriculas are more healthy, and fewer deaths occur than when the winter is mild, and damp weather prevalent. Letters from some of my Auricula friends agree in stating that the bloom will this year be very late. The plants in Scotland are all grown in frames without heat, and I do not think that any of the Northern growers approve of the application of heat to the Auricula. It may produce earlier bloom, but I should think it would be fatal to the health of the plants so forced. *J. M., Mains, by Dunfer.*

—AURICULA ACME.—The fine seedling white-edged Auricula alluded to on p. 570 as having been shown by Mr. J. Booth, florist, Failsworth, Manchester, in the class for six varieties, at the exhibition of the Northern Auricula Society, at Manchester, is one of the seedlings raised by Mr. John Read, formerly of Market Rasen, and now of Lincoln; it was named Acme by a jury of leading cultivators, and will be distributed by Mr. Booth in due course. By the leading cultivators of the North it was considered to possess excellent properties; one of the most striking being its almost perfect form.

—NOVEL AURICULAS.—At the exhibition of the Northern division of the National Auricula exhibition at Manchester, held at Manchester on the 29th ult., a basket of seedling Primulas, shown by Mr. W. Browning, nurseryman, Sale, attracted much attention. They represented large-flowered forms of what is known as *Primula intermedia*, some of which were very attractive, being of a deep reddish-purple, with large white centres. Mr. Browning stated that the progeny was obtained from seed taken from a plant of George Lightbody, grey-edged Auricula, which had occupied a place in a frame by the side of a plant of *P. intermedia*. He was very positive that the fine grey-edged was the seed-parent, and he further stated that some of the seedlings were edged white and grey, and that they were very curious in this respect. Some of these purple-coloured seedlings are likely to make capital subjects for flowering early in pots, the trusses

being very large and the pips bold and of excellent form. Any attempt to improve upon them would probably result in the production of something akin to inferior types of the alpine Auricula. Mr. Browning also had a double form of the old white-edged Auricula Bright Venus, which is an occasional sport, sometimes apparently yielding up and anon breaking out into the double character. It was more curious and interesting than attractive; those who have a special fondness for double flowers would no doubt be glad to possess it.

Garden Operations.

KITCHEN GARDEN.

SCARLET RUNNER BEANS.—Owing to the uncertainty of frost prevailing at this season this important crop is sometimes when sown too early in the present month so much enfeebled, if not killed outright by its operation, that we recommend to defer planting the main crop of these until about May 10. The cultural requirements of this highly prized and generally esteemed edible are so universally well known that it appears almost superfluous to add that it requires the best and richest of soil to bring the crop to a perfect state of excellence. If, however, this is a desideratum—and by-and-by this department will be adorned not only with noble-looking rows of this commonly esteemed edible, but also with abundant supplies of it—such conditions are absolutely indispensable for the purpose, together with ample space for its free growth and development. We prefer having it in single rows, which we place about 6 feet apart, and sow the Beans from 6 to 8 inches asunder. With this space at command we employ sticks 7 or 8 feet high, and find the yield in proportion to be better than under any other conditions. We admit that this process cannot be profitably applied under certain circumstances, and therefore under other conditions the distance between the rows should be regulated according to the height the vines are allowed to extend, and when no sticks are to be used 3 feet between the rows will amply suffice. At the time of sowing these in drills, we advise that good patches be sown together at other places for the purpose of transplanting. Where deficiencies occur at this stage of growth, it will be well to occasionally dust the plants with a little soot or wood-ashes, in order to make the plants distasteful to slugs, &c., which are very fond of them. Let the staking of these plants be done early, after which mulch the surface soil about them somewhat heavily with good manure partly decomposed. This practice is most essential and beneficial towards stimulating growth, and sustaining it afterwards during hot and dry periods. The dwarf section of Beans is so nearly allied to these, and the treatment is so similar, with the exception of having no sticks, that no repetition of instruction is needed. We enumerate the following kinds for planting now, as being unsurpassed in the respective seasons out-of-doors, namely, Osborn's Early Forcing for early work, and a Canadian Wonder for secondary and general crops afterwards. To do this fine variety well it is necessary to employ small sticks to keep the plants erect, and so keep the Beans straight. In order to keep an uninterrupted supply of the different subjects at the respective seasons, constant supervision should be given to the sowing and planting of these edibles, which will be wanted in due time. At provincial places large requirements of certain kinds of edibles are generally needed in the autumn to meet the demands of resident families at that season. We therefore now draw attention to the matter in order that special efforts may be made by those concerned to accomplish the object in view. Peas, which are so much appreciated then, should be sown in a liberal manner on fully exposed quarters, where the soil and conditions are of the best possible description, at the present time, and again at the end of the month. On both occasions we select tall-growing varieties, as *Ne Plus Ultra* or similar kinds, because they are most productive and stand the pressure of existing elements better than others. Dwarf Beans are another edible which should be had ready in a young state, "by way of a change," at the same period; a good breadth of these should therefore be planted at about the commencement of June. Similar quantities of Turnip and Carrot seeds should also be sown then, for the same purpose, so should also Rosette Coleworts and Heartwell Marrow Cabbage be sown. See also to the planting out of autumn subjects, as the most forward plants of Veitch's Autumn Giant and other Broccoli, Cauliflowers, Brussels Sprouts, and a breadth of Globe Artichokes; other subjects which require less time will also want attention in due time. Let the late sowing of Broccoli, &c., be made without further delay, and as soon as the plants in advanced beds are fit, either thin out or transplant the requisite quantity of plants before they become lanky. Proportionate quantities

of Celery plants should be pricked out into a rich compost where protection can be afforded both from sunshine or frost. The heavy rains which have recently fallen have been the means of rendering the surface-soil exceedingly hard in this department, so much so that a good surface stirring with the hoe will be of infinite benefit; suitable occasions should therefore be embraced to perform this necessary operation. Make the needful preparations for planting out Tomatoes and Vegetable Marrow plants; the latter can be put out at any time provided protection be given. Whilst such plants remain indoors see that they do not lack attention in the way of water or airing. Under the influence of a change Asparagus will be coming on rapidly. This valuable aid to the supply at this season is exceedingly late of coming in this year, but with suitable conditions its growth will doubtless be very quick, and as a natural consequence its quality excellent. In the process of cutting the heads we remove both small and large until such time as we relinquish the operation altogether. In order to eradicate the countless weeds which will naturally appear on the surface of the beds at this season they should be raked over carefully immediately after the grass is cut; by this means many will be destroyed. *Geo. Thos. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD-HOUSE.—See p. 531 as to the watering, syringing, &c., for the early house. As the fruit shows signs of ripening a rather different treatment will be necessary; more attention must be given to watering the roots, and syringing must be withheld. There is all the difference imaginable between the flavour of fruit from pot-trees, when the trees have been judiciously watered, and when the water has been applied carelessly. One objection to growing the very early Peaches raised at Sawbridgeworth in the same house with mid-season and late sorts is, that these are quite green and hard when the others are nearly ripe; it does not answer to relax syringing, and the flavour of the ripening fruit is much impaired by the moist atmosphere. We have had Early Rivers quite ripe in such a house when the Early York has been hard; but the moist rather warm close atmosphere caused the largest portion of it to decay before it was quite ripe. We are indebted to our American cousins for two of the most useful early Peaches, viz., Early York and Hale's Early. These two combine the qualities of earliness, size of fruit, and quality. The blossoms set freely, too, which is another point in their favour. See that the leaves are quite free from insect pests before syringing is discontinued. In the late house we found it necessary to fumigate because of aphids on the trees, and this must be done on successive evenings until the pest is destroyed. We do not fumigate when the trees are in full blossom, but rather wait until the fruit is set. Syringing must now be commenced, but only in the morning at first until the weather is warmer, when the leaves must also be well syringed, and the house shut up about four in the afternoon. This is also an important matter—the time of shutting up. It is very desirable to utilize as much as possible of the sun's rays, but four in the afternoon is as early as it is safe to shut up; much of course will depend upon the position of the house, whether it is a span-roof or a lean-to; a lean-to facing south-east might be shut up early, while one facing south-west might be more than half an hour later. Brown scale is rather troublesome in some houses, and it spreads rapidly at this season. I do not know any better way to destroy it than washing it off by hand with soapy water. It is necessary to very carefully examine the trees, as the pest lodges more on the wood than upon the leaves. Stopping the young shoots as soon as they are ready must be attended to as previously directed. *J. Douglas.*

ORANGE-HOUSE.—In order to keep the plants in a healthy condition, and as much as possible free from insect pests, careful attention must be given to all the minor details of culture. Ventilate early in the morning, just admitting a little air at the highest part of the house. Syringe the trees early, taking care to apply the tepid water with considerable force to every part of the trees. If the various insect pests cannot be kept under by syringing, wash off the pests as previously advised by hand. Still maintain a high temperature, and shut up the house early in the afternoon. If the trees require stimulating, surface-dressing of the soil in the pots with rich compost is best. *J. Douglas, Foxford Hall.*

PEACHES AND NECTARINES.—The fruit in the early house will now be swelling and colouring fast, but owing to the prevalence of cutting winds from the North and sharp morning frosts, the admission of air, so essential to flavour, still continues the most trying part of the daily routine; but a circulation must be secured if Peaches that ripen under glass are to be considered worthy of their name. If not already completed let all stopping of shoots for the purpose of increasing the size of the fruit, and tying down for the last time, be brought to a close. Elevate the fruit

well above the foliage by placing pieces of label-lath on the trellis for them to rest upon, and guard against crowding or shading with more young wood than is wanted for next year's supply of fruit. When forcing against time Peaches swell very large under a strong closing heat that would prove fatal before the stoning process is complete, but it is at the expense of flavour. Continue syringing until the fruit begins to ripen, and be very careful in using water that will not leave a deposit of lime on the fruit. Get inside borders watered and covered with some light nonconducting material that will keep in moisture until after the crop is gathered. Look after outside borders, and be very careful in the removal of covering until we have a change to warmer weather. It may be a fallacy, as some have been led to believe, to give our forced fruits what is termed bottom-heat; but, judging from results, all must admit that it is prudent to give a Russian winter as wide a berth as possible by making provision for a liberal root extension in internal borders, where the average temperature keeps the roots in action, and so enables them to take up the greatest quantity of food at a time when it is most needed. To this end my experience justifies me in strongly recommending inside borders made of good sound calcareous loam, resting on a foot of clean drainage through which water can pass freely; but care must be taken that copious supplies are given at proper times, as Peaches, like Vines, when in full growth in such borders, and presenting as they do a large breadth of foliage to the influence of heat and light, rarely suffer from over-watering, although an experienced eye can sometimes trace failures to the withholding of this life-sustaining element. In the formation of borders mistakes are often made by heaping together enormous masses of rich materials, through which a few gross roots travel too fast, soon get beyond control, and continue to force up unwholesome food at a time when the trees should be at rest. To avoid this the borders should be made and kept within bounds, the materials under rather than over-rich, and if animal matter is used it should always be applied on the surface as a mulching. *W. Coleman, Eastnor.*

THE CHERRY-HOUSE.—The absence of sunshine, with its concomitant influence, which has for so long a period this season existed, has been the means of retarding in some degree the ripening of the fruit in this house. At the present time, however, in advanced compartments, the fruit at the earliest part is nearly ripe, and the general crop very closely falling in the same course. In order to give colour and quality to the fruit recourse to a liberal scale of ventilation should be had whenever exterior conditions will admit of it being done, and at all times it should be given in a minimum degree. By all means avoid wetting the fruit at this critical time under the foregoing conditions; however, the other available surfaces should be moistened occasionally. As growths elongate and require tying-in let this operation be done, and stop all others which are not required at the fourth or fifth leaf. During the prevalence of cold, unless weather keep the pipes moderately warm, so as to command a free circulation of dry and warm air. This will also be required at night whenever conditions necessitate it. Frequent notice should be given to the trees, in order to detect fly, should it put in an appearance, which should be eradicated without any delay, as its effects will be productive of much mischief and annoyance. *G. T. Miles, Wycombe Abbey.*

STRAWBERRIES IN POTS.—The Strawberry season has now arrived at a critical juncture in places where forcing is carried on in vineries, peacheries, &c., where red-spider is soon transmitted to the permanent plants if the Strawberries are not regularly syringed and kept well supplied with water at the root. Even under the best of management Strawberry forcing is a matter of difficulty at this season, not only in point of cleanliness, but also as to having a proper supply of fruit when the latter is most required. Arrangements should therefore be made whereby a succession of plants shall be kept moving to succeed one another in close order, and crops that are ripening may be retarded in various ways for days together in case an extra supply is required for any particular occasion. This is done by turning the fruits from the sun, by shifting them into a north house, or by removing the plants from under glass altogether into an airy fruit-room or cool shed after the fruits are fully ripe. Much can now be done in the Strawberry line in cold frames with a little judicious management and with a minimum of labour. All plants that can be accommodated with room in low pits should have their flower-spikes thinned out to the requisite number and be plunged in coal-ashes close up to the glass, leaving room for a free circulation of air to play between the glass and the leaves of the plants, and the forward plants can always be picked to take the places of those that are ripe and ripening. Plenty of liquid-manure may be given at every alternate watering to plants swelling off their fruits, and the effect of it upon the roots will always indicate at what strength it ought to be applied. *Wm. Hinds.*

PLANT HOUSES.

ORCHIDS.—The following *Calanthes*—*C. veratrifolia*, *C. Masuca*, *C. Dominiana*, and *C. macroloba*—will now commence to open their flowers, and if healthy and clean will be beautiful objects for weeks. They are all evergreen and intermediate-house plants, that do not care to have their foliage very near to the glass; but will grow first-rate in shady parts of the house. The proper time to pot these plants is about three weeks after the flowers have faded. Being strong, free-rooting subjects, they require rather large pots, which should be one-third full of drainage, secured by a layer of moss, or, what is better, thin turf, placed grass side downwards. Use for a compost three-fourths of fibry loam, one-eighth drift-sand, and an eighth of leaf-mould. Pot moderately firm, and allow a good space for water, which must be given abundantly the whole year round. A top-dressing of the above compost, if put on now, would greatly assist the plants in opening their spikes. Brown-scale is at times very troublesome to these *Calanthes*. This pest passes the winter attached to the under-side of the leaves, where, if left undisturbed, it dies, but not before it has reproduced itself a thousand-fold. Just now, and for a few weeks to come, the young scale grows very fast, and if not checked will not only cover both sides of the foliage, but will take possession of the spikes in such numbers as to quite spoil them. This mischief must be prevented by timely sponging and by keeping an eye to the growing spike to see that no scale is passing upwards. The green and yellow aphides are also very fond of these *Calanthe* spikes; they generally make their appearance just as the first flowers are opening, and if left to themselves will mar the purity of every succeeding flower. Now is the time to examine the flower-heads; if any fly is there, fumigate each head separately; this can be easily done by placing it in a paper bag and filling the bag with tobacco-smoke. *C. veratrifolia* has pure white flowers; *C. macroloba*, the same but larger; *C. Dominiana*, pink; and *C. Masuca*, light purple. The yellow *C. Sieboldii*, from Japan, is also of the evergreen section, but I am afraid it will never be called a very desirable plant. The various species and varieties of *Anguloa* will all flourish if placed alongside of the above *Calanthes*. These plants should be potted either immediately they commence growing or so soon as they have done flowering; they will root freely in equal parts of well-drained peat and sphagnum. From now till the bulbs are thoroughly made up, give plenty of water. The flowers spring up in conjunction with the young breaks, and when fully developed are very noble in appearance. The large leaves of *Anguloa* should be frequently sponged to keep them clear of red-spider and scale. The spring flowering *Cymbidium eburneum* and the autumn flowering *C. Mastersii* are two first-rate Orchids, but seldom seen flourishing. The two principal causes why they do not do better are the growing of them too hot and close, and giving them nothing but peat and sphagnum to root in. The intermediate-house is the proper place for them, or the centre bed of the Cattleya-house. They should be potted—not too firmly in the compost recommended for *Calanthes*; give them also plenty of root-room and a good space to hold water, for they are thirsty subjects through the summer months. When rooted in the loam they grow fast and strong, flower well, and their leaves retain their tips fresh. *C. Parishii*, on the other hand, is quite contented with peat and sphagnum, and will grow well in the East Indian-house. *Vanda coerulea*, an Orchid in every one's estimation second to no other, is, sad to say, generally to be seen under our artificial treatment in a very languishing state. In many cases it is kept far too wet during the winter, and in almost every case much too dry at this time of the year and for some weeks to come. It is best grown in teak cylinders or tall baskets, with charcoal and crocks, surfaced with sphagnum to root in; and may either be suspended right up near the roof-ventilators in the intermediate-house, or it may be stood on the side stages in any position where good light and fresh air abound. Water should be given freely and the plant syringed all over after a hot day. Avoid a dark position, a close atmosphere, and dryness, and this charming plant will throw good spikes and retain its foliage in a respectable state.

Air and shade the various houses as advised in a previous Calendar. Keep the floors of the *Masdevallia* and *Odontoglossum*-house well supplied with water, or the drying east winds will make themselves felt even under glass. Whenever a morning frost is expected turn on enough heat the last thing at night to keep the temperature a trifle over 50°, but turn it off the first thing in the morning. The inmates of all the other houses should now be made to know that we can accommodate them with a tropical temperature. If the sun-heat is not sufficient it must be assisted by fire-heat, otherwise the plants will be about half-way through their growth when they ought to be ripening. It is better to fire now with many hours of daylight than later on with few. *J. C. Snyers, Burford Lodge, Dorking.*

THE Gardeners' Chronicle.

SATURDAY, MAY 10, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| | | Royal Horticultural Society: Meeting of the Fruit and Floral Committee, at 11 A.M.; and Scientific Committee, at 1 P.M. |
| TUESDAY, May 13 | | Sale of Sims' Nursery, Shepherd's Bush, at the Mart, Tokenhouse Yard, E.C., by Price & Son. Sale of Imported Orchids, at Stevens' Rooms. Floral Fete at Bath. |
| WEDNESDAY, May 14 | | Sale of various Plants at Oakwood, Crayford, Kent, by Protheroe & Morris. Sale of Imported Orchids, at Stevens' Rooms. |
| THURSDAY, May 15 | | Spring Show of the Royal Horticultural Society of Ireland. Clearance Sale at Mount Pleasant Lodge, Clapton, by Protheroe & Morris. |

THE French Government has, as our readers are aware, offered at different times large sums of money, with a view to stimulate enquiry as to the best means of preventing or of combatting the evils caused by the PHYLLOXERA. The Academy of Sciences has been charged with various and onerous duties in relation to the matter. Suggestions have poured in by the hundred, some sensible and worthy of attention, the majority stupid or ridiculous, as generally happens in such cases. The Academy, amongst other things, deputed Messrs. MAX CORNU and MOUILLEFERT to investigate the matter at Cognac, and they, after careful enquiry, came to the conclusion that the destruction of the Phylloxera was an impossibility, but recommended the employment of the alkaline sulpho-carbonates to stimulate the Vine and enable it to grow in spite of the Phylloxera. The Commission of the Department of the Hérault, which comprises such men as M. MARÉS, M. GASTON BAZILLE, M. LICHTENSTEIN, the entomologist, M. PLANCHON, M. SAHUT, and other men of high repute as scientists and men of practice, has also stated that without causing the disappearance of the Phylloxera, the use of manures rich in potash and in nitrogenous matters, especially when they contain any substance which will act as an insecticide, such, for instance, as mixtures containing sulphates and earthy and alkaline sulphurets, wood-ashes, soot, ammonia, lime, &c., have been beneficial to sickly Vines in promoting their growth and augmenting their production.

M. MICHEL FERNAND keeps by means of such manures 5 hectares of Vines in full bearing, while the Vines in the neighbourhood are dead or dying. The facts then go to prove that on a light calcareous soil, with some iron intermixed, it is possible to preserve the Vines by means of manures rich in potash, and that when insecticides are added the results are even more satisfactory. So long as the price of the wine does not fall below 15 francs the hectolitre such remedies may be profitably employed, but below that price the remedy becomes too costly. The conclusion then arrived at by the two commissions, that of the Hérault and that of Cognac, are substantially identical. The Hérault commission, it appears, received no less than 700 suggestions, of which they were patient enough to try practically as many as 317! Square plots of equal dimensions containing twenty-five Vines, each of four different varieties, were marked off, and the proposed remedies applied, a broad margin being left around each plot cultivated in the ordinary manner to serve as a point of comparison. The practical carrying out of these experiments was entrusted to MM. DURAND and JEANNENOT, whose labour in the way of observation and note-taking must have been toilsome and tedious in no ordinary degree. The volume before us *

* *Phylloxera: Commission départementale de l'Hérault. Résultats pratiques de l'application des divers procédés proposés pour la conservation des vignes phylloxérées, &c.* Montpellier.

contains, in brief, the record of these 317 experiments thrown into a tabular form, the first columns containing the number of the procedure, the details of the several remedies proposed, and the date of application. Then follow, in order, columns devoted to the aspect of the foliage, the average length of the shoots, the weight of bunches taken from twenty-five Vines, the amount of must (*mout*), and the relative degree of growth (co-efficients, maximum, 12; minimum, 0). Side by side with these are the exactly correspondent details as regards the test plots not treated with the remedies, and lastly, columns devoted to the general results, absolute and comparative. In this way, at an enormous cost of labour, a vast amount of detail is satisfactorily grouped for easy reference—the general results of the whole being such as we have already stated. These details are preceded by a brief account of the life-history of the insect, which was first discovered in the Hérault, in July, 1868. This account is drawn up by M. PLANCHON, who, all botanist that he is, has known how to turn to good account, in a different department of science, his keen faculty of observation and his logical precision of arrangement.

— THE FLAGGING OF CUT FLOWERS.—

Drooping, or, as gardeners more often express themselves, flagging, is a very common occurrence with cut flowers and leaves long before they are decayed, or even near approaching decay. It is very tantalising to see a handsome bouquet or vase of flowers in a short time after it has been arranged stripped of its beauty by more or less of the materials drooping, for it does not need many out of the number thus associated to be in this condition to give the whole a forlorn appearance. Since flowers are so universally employed for decorative purposes it is a question of importance to grow and treat them so as to impart, as far as possible, enduring properties. That some species of plants produce flowers of a much more lasting character than others is well known, but we do not now so much refer to this property as to the ability to keep flowers fresh after having been severed from the plant until the time when actual decay may be looked for. Such things as Hyacinths and Lilac, the blooms of which are of a wax-like consistency, are much less disposed to flag prematurely than others of softer texture. The Lilac, even when grown in a very high temperature and devoid of light, conditions diametrically opposed to those usually found indispensable to persistence in flowers that are forced, nevertheless when cut from the plant and exposed to a much colder, drier air, keeps quite crisp and fresh. But such flowers as these are exceptional among the great bulk of those that go to make up the whole so employed. With by far the greater number of plants that produce flowers, especially during the winter months, by the aid of fire-heat, the endurance much depends upon the way they have been managed through the time the bloom has been developing. We often hear surprise expressed as to the admirable way in which the forced flowers used in Covent Garden stand in bouquets, and other ways in which they are employed; and when we take into account that after being cut by the grower, generally a day at least before they reach the market, they have to remain until made up, and then often have to be sent across the kingdom to grace the hand of a bride and her maids attendant, looking as fresh as if newly cut with pearly dew upon them, it is evident that those who grow them know the treatment best calculated to promote lasting powers. It is a matter worth attention on the part of those who, in the thousands of private establishments in the country, have to provide flowers for such purposes continuously, and in quantity. The growers of flowers under glass for the London market of the present day, realise to the full the absolute necessity for their plants being exposed to the greatest possible volume of light in all the stages of their growth, but particularly from the time the bloom is visible to the time it is expanded. In proof of this we have only to point to the acres upon acres of new glasshouses that are now erected every year, and standing in positions where every ray from dawn to eve reaches the occupants. A thought as to the effective appearance of the plants in the houses they occupy never crosses the mind of the grower, their

robust sturdy character is everything with him; and how well he succeeds in his object is not alone evidenced by the cut bloom he grows, but equally so by the forced flowering plants that may be seen every day in the week standing by hundreds in the cold draught of the market through the winter and spring months, and which, if not managed in the way they are, would be simply useless. Beyond being well managed in the growing stage, it is a well-known fact to all who have had much experience with cut flowers that most things, if stood in water for a few hours after being cut, and before they are made up, will last far better in bouquets, button holes, or in any other way that necessitates their being mounted and placed so that their stems cannot actually be put in water afterwards; and this holds good even still further with Ferns and other leaves that are employed for mixing with flowers. The more water they can absorb after being severed from the plant before being arranged the better they will stand. For this purpose the Ferns—especially *Adiantum cuneatum*—before sent to market are immersed altogether for some hours in water, and the length of time this *Adiantum* will last when managed as it is by the London growers, and placed in water in the way best calculated to preserve it, would surprise many people. We saw some made up in a bouquet on New Year's Day, and still quite fresh, after having been cut on December 11. It had been put flat, the fronds singly, in a broad, shallow dish, containing about an inch of water, the stems immersed, and the pinnules lying on the water, in a cupboard with little light in a cool room.

— THE STOCK AND THE SCION.—Some few years ago Mr. BARRON instituted some experiments at Chiswick, with a view to glean further information on the interesting and important question of the influence of the stock on the scion, and *vice versa*; and in furtherance of this object he obtained samples of the various stocks in use from the most trustworthy sources. A certain number of stocks of each kind were allowed to grow without let or hindrance, and the others were grafted with the Blenheim Orange, it being desirable to know what effect the different stocks would have on the same variety of Apple. At the present time the results of the experiment are very clearly apparent, the young trees on the French Paradise and Doucin stocks being full of bloom, while there is none on those worked on the Crab, and but very little on those grafted on the English Paradise. It is also worthy of record that the same results were experienced last year. So much for the influence of the stock on the scion. Another singular fact which these experiments have brought out bears upon the opposite question—the influence of the scion upon the stock, and it is this, that during the winter of 1877-8 several of the unworked French Paradise stocks died; and during the past winter the remainder followed suit; thus proving (1) that in a state of Nature the French Paradise is a short-lived tree; yet (2) when grafted with another variety it lives for years—in fact, for an indefinite period.

— EFFECTS OF THE WINTER AT MANCHESTER.—When the losses through the past severe winter are made up it will be found they are of a very comprehensive character. In the pleasure grounds of Stakehill House, Chadderton, near Manchester, a number of large tortoise-shaped plants of *Iberis sempervirens* growing out of the walls of rockwork are completely destroyed. They were the growth of years, being of great size, and were conspicuous features in early spring. Hardy Heaths, the common Periwinkle, and other things are completely dead; while Hollies, Rhododendrons, Portugal Laurels, common Laurels, &c., are well nigh denuded of their leaves. In the Cheetham Hill district the evergreen shrubs open to the cold winds are in a pitiable condition, some must be past all hope of possible recovery. The bitter winds, so cruel in their deadly coldness, did more harm than the severe frost, though it prevailed for so great a length of time.

— WHIT-MONDAY FLOWER-SHOW AT SOUTH KENSINGTON.—The encouraging results of the popular flower-show held in the Royal Horticultural Society's Gardens last year have induced the Council to issue a programme for an exhibition of a similar character to take place on the occasion of the next great public holiday, on June 2. Twenty classes are provided, including a dozen in which the competition is confined to growers for market; the subjects invited being decorative plants, flowering and fine-

foliated; groups of 100 each show and Zonal Pelargoniums, and Fuchsias: fifty pots each of Musk, Mignonette and Stocks; ball-room and bridal bouquets, &c. The other prizes offered are open for competition amongst artizans, labourers, &c., in classes for the best group or collection of plants, grown in London within a radius of 3 miles of the General Post-Office; for the best specimen plants,

competed for by children attending the various public and elementary schools in the same district.

— CHAMÆPEUCE DIACANTHA.—It is worthy of remark that several plants of the handsome fish-bone Thistle have withstood the rigours of the severe winter on the rockery at Chiswick, and are now growing away nicely,

the coast tribes, a good-looking lad of indistinct Malay origin, whose long frizzly hair, tied round with a string, is worn standing straight up. The natives of the inland tribes Mr. GOLDIE states to be entirely different from those on the coast in both appearance and customs, but all, he says, are friendly and good-natured, and not given to the deeds of ferocity lately detailed by us on the authority of the residents at



FIG. 86.—GREATER MOTH ORCHID (PHALAENOPSIS) AT HOME. (SEE P. 587.)

grown in London within the same radius; for the best group or collection of plants, grown within a radius of 8 miles of Charing Cross; for the best window plant grown for more than twelve months by the exhibitor within the same radius; for the best general collection of garden produce—plants, flowers, and vegetables—grown by the exhibitor within the same radius; for the best arranged stand or vase of garden flowers, grown by the exhibitor within the same radius; and for the best arranged bunch of wild flowers, to be

— MR. GOLDIE'S TRAVELS IN NEW GUINEA. —Mr. GOLDIE, the naturalist, who has passed the last eighteen months in New Guinea in search of plants for Mr. B. S. WILLIAMS, of Holloway, has, the *Brisbane Courier* states, collected an immense number of animals, birds, and insects, besides valuable botanical specimens, and believes that a large number of these are entirely unknown. He claims to have found an entirely new species of kangaroo. He has brought with him a native from

a *beche-de-mer* station. Mr. GOLDIE was of the party that made its way to the coast, crossing about twenty flooded rivers, and losing horses and baggage, and states that although they crossed some high ranges they never reached the dividing range, on the other side of which, the general belief amongst the party was, that payable gold would be found. The natives in the interior are, it appears, so awed at the sight of a white man as to obviate any risk of molestation. The custom of

a tribe with whom Mr. GOLDIE's party came in contact, suggested to them the probable origin of the rumpus that have been always current of a race of tailed men in some remote corner of the globe. These natives wear artificial tails of such cunning construction as to entirely mislead a casual observer. They are entirely naked, except for the caudal ornament, which is a plait of grass fastened round their loins by a fine string, and depending behind to about half-way down their legs. Possibly the missing link that has so baffled DARWIN has only lately become extinct in New Guinea, and these descendants, ashamed of their degeneracy, keep up the tradition of a noble ancestry by simulating their distinguishing characteristic. *Australasian*.

— HYBRID POPPIES.—M. GODRON, of Nancy, has lately been intercrossing several species with all due precautions. *P. somniferum*, fertilised with the pollen of *P. orientale*, produced a hybrid which produces flowers all the summer, from May till the first frost. *P. dubium*, fertilised with the pollen of *P. somniferum*, produced a hybrid which flowers a fortnight earlier than either of its parents. *Papaver somniferum*, fertilised by the pollen of *P. setigerum*, yielded seedlings almost exactly like the pollen parent—a circumstance which leads M. GODRON to think that *P. setigerum* is the wild form of the opium Poppy, *P. somniferum*. There is one form of *P. somniferum* which is remarkable in the circumstance that several of its stamens are more or less completely transformed into pistils. This anomaly is reproduced by seed to a considerable extent, and M. GODRON tried to ascertain whether by fertilising the normal flowers with the pollen of the monstrous blossom the peculiarity would show itself in the crossed seedlings, but this was not found to be the case. M. GODRON's paper is one of much interest, and is contained in the *Revue des Sciences Naturelles*, September, 1878. Here we can only give the author's conclusions, as follows :—

"1. All the hybrids raised from the same cross and of the first generation present identical characteristics.

"2. Generally they resemble the pollen-parent more than the seed-parent.

"3. In the fertile hybrids the seedlings have generally reverted to one or other of the parent types, and generally to the pollen-parent.

"4. If one of the parents be perennial and the other annual the hybrid offspring is perennial.

"5. Hybridisation is liable to produce teratological appearances.

"6. That the precautions taken to ensure a fertile cross have never given rise to a mixture of hybrid seedlings with others of the female type."

— ANONA CHERIMOLIA IN ITALY.—The Cherimoyer of Peru (*Anona Cherimolia*), the fruit of which is considered in its native country as the most delicious fruit in the world, is cultivated now to some extent in Calabria, where it is highly valued on account of its exquisite flavour. Two forms of fruit, however, are described as being produced on the same tree—a fact which is interesting both botanically and horticulturally. In one form the fruit is pulpy, edible, and, as before said, of a delicious flavour; in the other form it is quite without pulp, but full of seeds and entirely uneatable. These fruits also differ considerably in appearance and shape; the edible one is cordate-ovate, somewhat spherical, while the other more oblong. The two kinds of fruit being produced on the same tree has led to some confusion and annoyance; trees having been planted in gardens for the sake of their fruits, or even plants presented by one friend to another, have, when they have arrived at fruit-bearing age, proved to produce much larger crops of the uneatable than the eatable fruits.

— THE KENTISH FRUIT PLANTATIONS.—In 1877 there were 13,097 acres of fruit land in Kent, according to the *Agricultural Returns*, while in the last year the Returns show that there were only 11,589 acres, or a decrease of 1408 acres. This, says the *Agricultural Gazette*, is most remarkable, and it is believed to be incorrect, as the tendency has been towards a steady increase in the acreage of fruit land in all parts of Kent during the past few years, and there is not the slightest doubt that there is more land planted with fruit trees at this present time than there ever was before in the county. There must be a great mistake somewhere, either on the part of those who made the returns or of

these who compiled them, as every one who knows what is going on and has been going on lately in the agricultural world of Kent must be aware that there has been a great demand for fruit trees of all kinds, and that planting has been done in all directions, especially in West Kent, East Kent, and Mid Kent. All the other important fruit-growing counties, viz., Devon, Gloucester, Hereford, Somerset, and Worcester, have kept their fruit acreage pretty much the same in 1878 as in 1877, and the fruit acreage of England was rather larger in 1878 than in 1877, or 161,222 acres in the former, against 159,095 acres in the latter year. There has also been every inducement to plant fruit in Kent. Hop cultivation has been most unprofitable of late, and the price obtained for fruit has been fairly good and remunerative upon the whole.

— HOW TO DO IT.—A "special circular" has been issued by the Vegetarian Society, which will probably be read with interest by many of our readers. The Society invites the attention of all holders and occupiers of land to the importance of the cultivation of fruit as an auxiliary food supply, and urges the planting of fruit trees in all gardens, hedgerows, and on waste lands as a profitable, productive, and healthful industry, and in these times of scarcity of food, diseases among cattle, and great national distress, especially commends to landed proprietors and public corporations—on the grounds of both utility and beauty—the systematic planting of fruit trees along railways, roadways, riverways, canalways, and wherever practicable. The secretary of the Society is further desirous of information as to what has been done in this matter in various districts, and would be glad to hear of any measures which would contribute to the planting of hill-sides, waste or unused lands, and to the more general cultivation of suitable fruit trees in hedgerows, cottage gardens, and orchards; and as to whether any method could be adopted whereby the home-grower of fruits would be benefited by being brought into more direct or satisfactory communication with the large body of consumers. [See leading article in *Gardeners' Chronicle*, January 27, 1877.] He also solicits attention to a suggestion which has been made to this Society. It is well known that Government has appointed Inspectors of Fisheries, both of inland waters, for the protection of the salmon fisheries, and on the coast, to protect and regulate the oyster and other sea fisheries; and that, through one of its departments, considerable attention is given to the interests of agriculture. Is it desirable to suggest the appointment of a public officer whose business it should be to foster and encourage horticulture and fruit culture, especially among the numerous smaller holders of land? It has been suggested that an officer of this kind might considerably further and improve both the methods and the results of fruit cultivation among such holders. These are questions which might well serve for discussion at the Horticultural Society.

— BEES AND BEE-KEEPING.—We are glad to see that the Hertfordshire Bee-Keepers' Association is doing good service by instituting lectures on this subject in some of the towns and villages in the district. The Rev. H. PEEL and Mr. CHESHIRE, as we see by the *Herts Advertiser*, have taken the lead in that county, and we could wish their example followed in every county. More than this, we could wish that the elementary principles of agriculture, gardening, poultry-keeping, and the like, were taught systematically and practically in every village school in the kingdom. We have frequently referred to the French and Belgian custom of sending competent gardeners into the provincial districts to explain to the labourers and others the best methods of cultivating vegetables and fruit trees, how best to prune, what sorts to plant, and so forth. Were such a system adopted, we have no doubt whatever that the productiveness of our tight little island might be considerably increased, and the comfort and well-being of the labourers greatly enhanced.

— SWEET-SCENTED RHODODENDRONS.—These beautiful varieties, to which attention was drawn in the report of the Manchester Botanical and Horticultural Society on p. 571, were raised by Mr. ISAAC DAVIES, Brook Lane Nursery, Ormskirk, and not Messrs. ISAAC DAVIES & Co., as reported. The fine variety in Mr. BARLOW's group, named

Duchess of Sutherland, was, in reality, Lady Skelmersdale, a newer form, the labels having become misplaced. In point of merit this ranks next to Countess of Derby, the latter being of rather the best shape, but both are wonderfully free, producing huge trusses of bloom in quite small plants. They force well, and produce their large trusses of flower year after year as if there was no limit to their floriferousness. On quite a small plant of Lady Skelmersdale, in Mr. BARLOW's collection, there were eleven trusses of flower, containing in the aggregate about sixty-five large, well-formed, and richly perfumed blossoms. They are invaluable for conservatory decoration at this season of the year.

— AMERICAN PROGRESS.—We poor Britishers must, it seems, soon put up the shutters. Hear what the President of the New Jersey State Board of Agriculture has to say :—

"The hide-bound prejudices of the Old World are dissolving like mists before the rising sun. Its peoples, over-crowded, impoverished by wars, driven from labour, and paying the penalty of follies not their own, are looking to America as to the promised land. England, so long the favoured home of religion and wholesome law, where 'every rood maintained its man,' which proudly boasts that upon her possessions the sun never sets, seems to have reached the limit of her ability to support her subjects. Her mines are closed, her factories idle, her commerce in despair because America, no longer her customer, is a successful competitor in her own domains. Not only is the poor emigrant fleeing hither from starvation and untold misery at home, but the highest dignitaries find their destiny incomplete without a closer study of our country. Great Britain has sent her future king to learn our ways, and installed a member of her royal house upon our northern border. The Brazilian Emperor has personally studied our institutions with a view to improving his own. China has sent her men of rank to seek friendly intercourse with us, abandoned her policy of a thousand years' standing, and the Celestial Empire now invites our trade. Japan has copied our plans, sent her youth to our schools, and engaged a professor from a New Jersey college to superintend her educational system. Switzerland is alarmed by the successful competition of our watch-makers, and acknowledges their merits. France sees in the abundance of our wine crops the doom of her most prolific source of wealth. Russia no longer holds the monopoly of her fragrant leather and planished iron, her petroleum wells cannot compete with those of Pennsylvania, and her houses are lighted with American oil. We have given to the Old World their best labour-saving machinery, taught them to make paper from wood and straw instead of rags; their books are printed on American presses; their clothing is made with American sewing machines; their carpets woven on American looms, and their crops gathered by American reapers. We taught them the uses of indiarubber and gutta-percha, gave them the telegraph, the telephone, the phonograph—and now we startle them with the possibilities of the electric light. Our Signal Service maps out the course of storms and predicts their weather, and Captain BOYTON has walked their waters, a very thing of life. With so many demonstrations of miracle-working genius they would be either more or less than human if they did not stand awe-stricken, and confess with Bishop BERKLEY's prophetic words, that 'Westward the star of empire takes its way.'"

It is some consolation to find, however, that in some things we may be able to hold our own a little while longer. From the same report a few pages further on we extract the following :—

"These considerations help us to understand why travellers so often speak of the farms of England 'looking like gardens,' cultivated up to the 'very hedge,' and also why the British farmer, naturally so slow to adopt new methods, or new ideas, has, through his own keen and close observation, as well as by the irresistible logic of stern necessity, come to be far in advance of the 'smart Yankees,' in the ranks of agriculture."

— APPLE LONDON PIPPIN.—This is an excellent keeping Apple, and a great favourite in some parts of Kent, where it is also known as the Five-crowned Pippin, because of the presence of this number of ridges round the eye. Some fruit that had been grown on a bush tree on the Paradise stock are of great size and most richly coloured, and being still as plump and fresh in appearance as in October last, it must be set down as a good keeper. It is a culinary Apple, but at this time of the year makes a most serviceable dessert fruit, its rich colour making it additionally attractive on the table. It is claimed by some as a fruit of Kentish origin; it is

undoubtedly a very old English Apple, being, it is believed, known under this name as far back as 1580. It is a variety deserving of extended cultivation, and by the Kentish growers is regarded as a very sure cropper, rarely failing to yield a supply.

— **INSECTS IN THE SPATHE OF DRACUNCULUS VULGARIS.**—The *Nuovo Giornale Botanico Italiano* for January, 1879, contains a long article on the flowering of *Dracunculus vulgaris*, by G. ARCAN- GELI. A great many of the spathes were examined the first, second, and third days after opening, to determine the number and variety of insects which they contained or had entrapped. One, in particular, contained a very large number the first day of opening. This is the list as he gives it:—

| Name of Insect. | Number. |
|---------------------------------------|---------|
| <i>Aleochara fuscipes</i> | 2 |
| <i>Dermestes Frischii</i> | 11 |
| undulatus | 57 |
| <i>Philonthus cervinus</i> | 1 |
| <i>Saprinus semipunctatus</i> | 1 |
| subnitidus | 185 |
| <i>Silpha sinuata</i> | 7 |
| | 264 |

In nearly all the spathes examined *Dermestes undulatus* and *Saprinus subnitidus* greatly predominated, and *Diptera* were very rarely found and only in small numbers.

— **INSTITUTION OF SURVEYORS.**—The next meeting will be held on Monday evening, May 12, when the discussion on Dr. STURGE's paper on "The Disposal of the Sewage of Paris," will be resumed. The chair to be taken at 8 o'clock.

— **INCREASE OF WEIGHT IN PLANTS FROM SEED.**—A writer in the *Philosophical Transactions* for 1719 gives an account of "some instances of the very great and speedy vegetation of Turnips." In less than three days after sowing the Turnips were seen above ground, and in three weeks the roots were as large as Walnuts, and so on. At the end of six weeks a large Turnip was taken up, which, together with its top and long descending part of the root, weighed above 2 lb. 14 oz. Seed of the same kind was weighed in order to ascertain the increase in weight for time. On the supposition that the increase of the Turnip was all along uniform and equal, from the time it was sowed, the grain of seed which it sprang from weighing when it was sowed but $\frac{1}{14000}$ of an ounce, the increase in weight was according to the following proportions:—

| | | |
|----------------------|-----------------------|-------------------------|
| In six weeks | 671,600 | } times its own weight. |
| Every { week | 111,933 $\frac{1}{4}$ | |
| day | 15,992 $\frac{1}{2}$ | |
| hour | 666 $\frac{1}{4}$ | |
| minute | 11 | |

Another Turnip of the same crop was taken up on October 21 (the sowing was July 2), which weighed above 10 $\frac{1}{2}$ lb.; "which unusual and very wonderful bulk it acquired by increasing the weight of the seed it was raised from fifteen times in every minute of an hour, from the sowing to the drawing of it."

— **THE WEATHER.**—The report for the week ending May 5, issued by the Meteorological Office, states that the weather was very fine generally, but some cloud in "England, S. and S.W." on April 30 and morning of May 1; cloudy, rainy weather setting in over the north of Ireland and Scotland at the close of the week. Showers of snow in some parts of England, and unusually heavy snowstorm in Wiltshire on May 1. The temperature was again below the mean; the deficit not great in Scotland (where the thermometer was high in the daytime from the 2d to the 5th), nor in "Ireland, S.," but amounting to as much as 9° over "England, E." The maximum was rather high generally on May 5, ranging from 65° to 70° at the inland stations over the greater part of England. The nights were very cold, and frosts frequent; the lowest reading of all being that at Strathfield Turgiss on the 3d, when the sheltered thermometer fell to 24°. The mean daily range at the inland stations in England varied from 20° to 25°. The rainfall was more than the mean in "England, S." (owing to the heavy snowstorm referred to above), but less in all other districts, particularly in Ireland. Scarcely any rain was measured in our island on the 2d, 3d, or 4th. The wind was generally northerly or north-easterly over England, but shifting to the southward (south-easterly to south-westerly) in Ireland and Scotland during the latter part of the week. South-westerly winds, freshening in the north of Scotland on May 5, with an unsettled appearance.

Home Correspondence.

Hardiness of Lapageria alba.—The shoot of *Lapageria alba* that grew, fully exposed, outside our cool Orchid-house, and which is noticed by "J. S." on p. 568, has died a lingering death from the severity of the past winter. The position it occupied could not be considered a very favourable one, as the aspect was nearly due north, and no part of the shoot came in contact with the glass; the whole of the growth was tacked to the end rafter of the house, and the mean temperature of the house during the past winter was only 47°. This shoot has stood on several occasions 16° and 18° of frost uninjured, and our lowest reading here last winter was only 22° of frost; but the winter was not so remarkable for sharp frosts as for dryness of atmosphere, which lasted a considerable time, and I feel convinced that our plant was more affected by the dryness of the atmosphere than by the severity of the frost. I was sanguine in the middle of the winter that it would live, although the elements were so directly opposed to a moisture-loving plant like the *Lapageria*, but the wiry nature of the shoots and the persistent character of the foliage were deceptive, as they did not show the effects of the weather so quickly as a more succulent plant would have done. I am afraid it will never prove of much value as an outside creeper, as the flowers, from their succulent nature, are much tenderer than the other parts of the plant; I have always found them destroyed by 6° or 8° of frost, and they come very small and bad in colour after the end of September. J. Roberts, Gunnersbury Park.

The Preparation and Planting-out of Flower Garden Plants.—This is a matter that has often been referred to, but it can hardly yet be said to be thoroughly understood, far less exhausted. So far is either from being the case that it is hardly too much to affirm that more plants are crippled or killed in their transition from the shelter of glass to the open air, than succumb to the severities of the previous winter. The only preparation of flowering plants for the open air known or practised by many cultivators is a sort of hasty treatment that is really a semi-killing process. From the warm nooks and corners of glasshouses, pits, or frames, the plants are set in the teeth of the wind, that cruelly whips their shivering stems, and cuts their tender leaves into ribbons. And this cruel process of disfigurement is termed hardening off. Instead of that it is simply destruction carried as far as may be short of destroying the plants. The strength and growth of months are recklessly thrown away at the bidding of a popular fallacy as cruel as it has proved mischievous alike in the vegetable and the animal kingdom. Cold may cripple, disfigure, kill, but cannot harden plants. Light or air may harden, cold never. The sudden transition from shelter to exposure, from heat to cold, weakens not strengthens plants. To believe this is the first step towards an improved, more rational course of treatment. Tender plants should be hardened under shelter, not in the open air. Free exposure to light and air, with the protection from cold when the latter becomes excessive, stiffens the tissues and hardens the texture of plants so much as to enable them to pass from under shelter into the open without injury. Neither should the final change ever be violent or sudden. Plants, if ever so well prepared and hardened under glass, should pass through a series of easy stages from the inside to the open air. Unfortunately, in most gardens there is a sad and serious lack of means for this intermediary protection and gradual hardening off. The individual size, perfect health, and due preparation of the plants, are too often sacrificed to a mere rage for numbers. This is a great mistake, for one fine healthy plant will cover more space in less time than three smaller weakly weedy ones. Properly prepared plants never look behind them. Weakly, imperfectly hardened-off plants lose half the season almost in going back, and at times hardly fill their allotted space till the frost is once more upon them, and cuts them off; and of all disagreeable and trying experiences in decorative gardening, that of waiting for weakly plants to grow into bulk and develop into beauty is one of the most unsatisfactory. With properly prepared plants and skilful planting success is prompt as well as certain. Another point, however, must be carefully attended to before planting, and that is, to see that the roots and the balls of earth are sufficiently moist before turning them into the open bed or border. The planting-out of bedding plants in a dry state cripples or kills thousands of these every year. It can hardly be otherwise, for, put out dry, they continue dry all the year round. Neither rain nor artificial waterings are likely to moisten through the balls of earth and roots, while this moisture finds a much more ready escape in the open ground all round them. Even if put out moist, the soil immediately around the roots is apt to become dry afterwards from their greater hardness. And this brings me to another point of great importance in the planting-out of bedding plants. The

earth in beds and borders must be firmly consolidated around the old balls of earth and the root masses. Unless the roots are very closely matted much disentanglement of them in planting not seldom does more harm than good. Pack the earth firmly round them, and they will speedily bite into the new soil from the old balls. Leave the fresh earth loosely lying against them merely, and they seem quite unable to lay hold of it. The old barbarous mode of stamping the roots in and the soil around them with the foot was more philosophical and more successful than the loose way in which so many modern planters merely toss the soil lightly over the roots. Another end to be carefully avoided is deep planting. This is fatal to the growth of many bedding plants. It matters little in the case of *Verbenas* and other plants that root up their stems however deeply they are planted; but *Pelargoniums* resent having their collars buried almost as much as fruit and other trees. They should, therefore, be kept about the same level when planted out as when they were grown in pots, or if anything more is added it should be such matters as cocoa fibre refuse or manure, at once loose and light of texture, so that it should not wholly bury the collars of the plants. Should the ground be at all dry, a liberal watering gives the plants a capital start and helps them quickly along afterwards, especially if a loose surface is maintained either by frequent scarifying or a slight mulching. D. T. Fish.

Poisoning by Ivy Leaves.—On three separate occasions, after trimming back the Ivy which grows on the walls of my house, I have been troubled with a painful rash upon my hands and wrists which has lasted for about a week or ten days. Can you or any of your readers kindly inform me whether the Ivy leaf is poisonous, and if not to what cause the rash is to be attributed? That it was the result of thrusting my hands amongst the Ivy is quite clear. F. Latreille, South Norwood. [We do not remember to have heard of such a case, but from the rank smell of the leaves we should not be surprised to hear that ill effects were produced on persons with a sensitive skin. May not the results complained of be the effect of puncture by some insect harboured in the Ivy? Eds.]

The Crystal Palace Company as Nurserymen.—We write for information with regard to the announcement in your journal, p. 534, that the Company propose selling cut flowers and surplus plants. Are the Company permitted under their charter or articles of association to trade in plants? If so, will it be wise in trade exhibitors to join in making more effective the exhibitions of a rival nursery company? Nurserymen.

Hardiness of Orchids.—All plants that have withstood the severity of the past winter unprotected may unhesitatingly be placed on the list of hardy plants. The frost-resisting powers of others considered tender will have been tested in a manner that previous winters of recent date have not given. Even our choice exotics are tested, either by defective heating apparatus, or, what may be worse, by the boiler giving way. These accidents invariably occur at this particular season, and at a most inconvenient time—in the most severe weather. One of these unfortunate occurrences took place at Messrs. Jackson & Son's, Kingston-on-Thames. In this case it was the boiler attached to the stoves and the Orchid-houses that gave way. I had heard or read that collectors of Orchids had seen the lovely *Odontoglossum Alexandræ* covered with hoar-frost on its native hills, and I think I heard Mr. Ward, of Leyton (who did these plants so well), say that it did not alarm him if they were at times subject to a freezing temperature. For some cause or other it has not maintained this characteristic at the Kingston nursery. This and *O. Pescatorei* have succumbed, whilst the following have escaped with little or no injury. The actual degrees of frost they resisted I am not able to say, but Mr. Puttick, Messrs. Jackson's foreman, assured me he took some ice off the foliage. *Cyrtorchilus maculatum*, *Odontoglossum grande*, no signs of having been frozen; *O. Rossii majus*, showing spikes; *O. triumphans*, *O. luteo-purpureum*, and *O. gloriosum*, *Oncidium alcinore*, *Masdevallia coccinea*, *M. Lindeni*, *M. Harryana*, showing up eight flowers, and looking the picture of health. These were suspended close to the glass when I saw them, and I believe they occupied that position through the winter. W. P. R.

Gardening at Burghley.—In going round the other day the well-kept gardens of Burghley, under the able management of Mr. Gilbert, I had an opportunity of seeing his improvement on Cattell's Eclipse Broccoli, as grown side by side with the good old variety. As so much has been written of late about late Broccoli, and the past season has been a severe test for the various kinds, I was much interested in the two varieties. There can be no doubt about Gilbert's Improved Cattell's Eclipse; it is dwarfier and more sturdy in growth, and although but few of the old variety have been killed by the past

severe winter, a smaller percentage is killed of the new one. As there is yet time for sowing late Broccoli, I would strongly recommend all gardeners who have not yet ordered Gilbert's Improved Cattell's Eclipse to lose no time in doing so, and should the next winter prove like the past one they will not regret it. I also saw another unique vegetable, which is quite a novelty, viz., a Broccoli-Cabbage, or Cabbage-Broccoli. Walking past a break planted with this wonderful vegetable, one would believe it to be a break of Broccoli, as in growth and habit it resembles one, though, when closely examined, it proves to be a white, tender, and well-hearted Cabbage; and as I had an opportunity to taste this vegetable, I can speak as to its crispness and delicate flavour. Mr. Gilbert told me, and the bed itself testified, that they had been cutting from it for several months, which in a winter like the past is indeed a great acquisition. But probably the most striking things I saw at Burghley were two houses planted with Tomatos and two with Melons. The latter are always well grown at this place, but I think, if possible, the plants looked more promising than usual. At the time of my visit (April 23) the fruit, of which there was a splendid crop, was about the size of a hen's egg. The foliage and seed leaves of the plants were perfect—they are grown in span-roof houses. The Tomatos are planted in two lean-to houses, and trained to an iron trellis about 12 inches from the glass; these plants cover the whole roof, and few can form an idea of the quantity of fruit to be seen in these houses. Vick's Criterion, Hathaway's Excelsior, and The Trophy are the principal ones run upon. The fruit will soon be ripe, when several hundredweights will be gathered from these houses. I have only named a few of the many striking objects which are to be seen here, and I feel sure that should business call any gardeners to the neighbourhood they will be well rewarded by a visit to Burghley. *Isaac Dell, Stoke Rochford, May 6.*

The Eucalyptus in the Midland Counties.—A young plant last summer made vigorous and rapid growth, and attained the top of a trellis, about 12 feet high, on a south wall. It was protected in the winter, and for a long time the stem appeared firm, though the side shoots suffered. The gardener finds he must cut it back, which he has done, to within 6 or 8 inches of the soil. As yet, no signs of revival have been given. He says, "he has no faith in it;" I think this refers to the Eucalyptus family in general, rather than to this now melancholy stump in particular. Should the fate of many lost and saved among choice shrubs and climbers in a lady's garden afford interest to your correspondents, she will be pleased to furnish the details—rough passages in the lives of her favourites. *H. M. E., May 6.* [Please send your list, with note on soil and aspect. Eds.]

Hardiness of the Camellia.—Whilst we have received several accounts of the manner in which the Camellia has withstood the late severe frosts in the southern counties, I have not yet seen any accounts of successful experiments in planting them in our cold midland district. While going over the beautiful spring gardens at Belvoir Castle last week I saw a group of these shrubs, which has for some years occupied a knoll on the side of the Castle hill, which, although they have not received the slightest protection during the winter, are now in good health, and the buds, with which they are well covered, are now beginning to open, although 7° of frost were registered on the morning of my visit. *C. E. Pearson, Chilwell Nurseries, Notts.*

The "Merrie" Month of May has certainly been ushered in with sunshine, but tempered with keen, searching gales from the north and north-east, and nightly frost of extraordinary severity. Apricots and Peaches have set well, but remain almost quiescent, but few Pears or Plums have expanded their blossoms, and these are comparatively safe; a dry, cold temperature, though prolonged, is less destructive to vegetation than a fitful, changeable period alternating between abnormal warmth and frost. So in spite of the present trying weather, I am not without hope of fruit crops in this north midland district. Our weather record of cold in the air and on grass, from May 1 to 7, conveys a better idea than any words can express:—

| | Minimum in Air. | Minimum on Grass. | | Minimum in Air. | Minimum on Grass. |
|-------|-----------------|-------------------|-------|-----------------|-------------------|
| May 1 | 32 | 23 | May 5 | 26 | 15 |
| " 2 | 23 | 20 | " 6 | 40 | 12 |
| " 3 | 23 | 11 | " 7 | 31 | 23 |
| " 4 | 28 | 14 | | | |

W. Ingram, Belvoir, May 7.

The "Horticultural Directory."—We observe in your last issue a letter complaining of inattention

to corrections sent to the Editor of the *Horticultural Directory*. In fairness to the Editor, we beg to say that we sent late in 1878 at least one hundred corrections, all of which have been made in the last issue, a copy of which we received early this year. *C. Freeman, Norwich.*

A Good Late-Keeping Apple.—The continuous series of severe spring frosts which we have experienced during the last several seasons, though disastrous to our hardy fruits, have done good service in indicating which varieties are hardy and worthy of extensive planting. One of these is the Herefordshire Pearmain Apple, of which I saw and tasted an excellent sample on the 3d inst., at the Gardens, Belvoir Castle. They were as plump and firm as when gathered, and good for both dessert and culinary purposes, while Mr. Ingram informed me that his trees of this variety had never missed bearing a good crop during a period of twenty years, proving it to be a variety which ought to be more widely known and planted. *Chas. E. Pearson, Chilwell Nurseries, Notts.*

Spring Onions.—Amid the general wreck of the vegetables grown in the open air for market purposes during the past severe winter the beds of young Onions have come through the ordeal without harm, and it seems scarcely possible that they could look better or be more productive than they are now. Large supplies are now finding their way into the markets, and in a week or two young Onions will be plentiful enough. Parties of workpeople, mostly women, pull the Onions, tie them in bunches (see fig. 87), and load them in baskets for the market wagons, and while they are pulling them the peculiar perfume is carried in the air for long distances. It would be interesting to know how many tons of the White

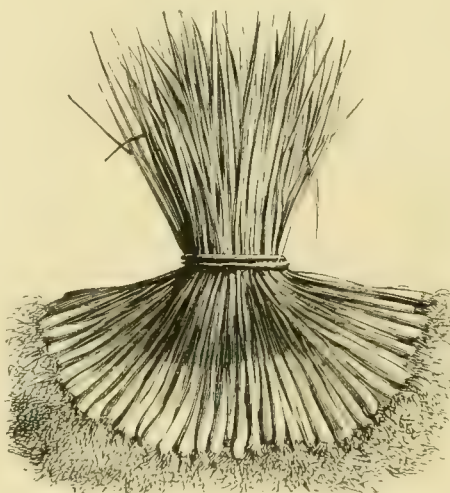


FIG. 87.—A MARKET BUNCH OF SPRING ONIONS.

Lisbon Onion are annually imported into this country for the purpose of furnishing the required supply of young Onions for salad and other purposes. It is a very hardy sort, and the seed being sown thickly the plants protect each other in the beds. The Lisbon Onion is of but little or no value for growing into bulbs and storing, as we do the White Spanish, Brown Globe, &c. It forms a good-sized bulb, but generally with a thick fleshy neck, and it does not keep particularly well. But it does excellent service in the young state, and as there are abundance of fine varieties for storing, at the end of the summer, we can easily condone its want of adaptation to this end.

Effects of the late Winter on Plants.—I enclose list of killed, wounded, and survivors in the struggle for existence during the past winter at this place. I am inclined to think the greater part of the mischief was done by the cutting easterly winds, as where shrubs were protected from this quarter they have escaped, while the same species (e.g., Escallonia macrantha) not so protected is nearly killed. The lowest temperature recorded was 10°, equal to 22° of frost, on January 11, yet it was not till some weeks after that that the shrubs began to look bad. The Eucalypti have their bark split right up. This may have happened on December 11, when, after a fall of snow on the night of the 9th and a bright warm day on the 10th, which partly melted the snow, we had 16° of frost. The melting snow, finding its way into the chinks of the bark and being frozen, would burst the bark as frozen water does a pipe. Plants have suffered so little that I agree with Mr. Ingram in thinking that a hard winter suits any reasonably hardy herbaceous plants. Even such tender Pentstemons as pubescens, Palmeri, speciosus, and Digitalis, have stood well and without any protection, not even

snow, during some of the worst east winds! Iris persica flowered in March for the first time since I have had it planted out (four or five years).

Killed or Severely Injured.

| | |
|---------------------------------|-----------------------------|
| Abelia floribunda | Embothrium coccineum |
| Berberis nepalensis | Eriobotrya japonica |
| Clematis indivisa (w) | Fremontia californica |
| Colletia cruciata | Fuchsia, garden hybrid |
| Convolvulus mauritanicus | Labcedrus Dominiana |
| * Cordyline australis | Mandevilla suaveolens (w) |
| Eucalyptus, four sp., two trees | Opuntia vulgaris |
| about 25 feet high, may | Ozothamnus rosmarinifolius |
| perhaps recover | Phormium tenax |
| Eurybia argyrophylla | Platanthus sp. (Currajong) |
| Eurya latifolia var. | Solanum jasminoides (w) |
| Eugenia Ugui | * Spartium junceum |
| " apiculata | Veronica, shrubby, of sorts |
| * Escallonia various, more or | Widdingtonia cupressoides |
| less injured according to | * Passiflora cerulea |
| position | Polygonum vesperilionis |

Uninjured or Slightly Injured.

| | |
|-------------------------------|---------------------------|
| Arbutus Unedo | Hydrangea japonica |
| " photinifolia | Leptospermum scoparium |
| Aralia japonica | Laurus nobilis |
| Abelia rupestris (w) | Opuntia nana |
| Berberis Wallichii (killed at | " missouriensis |
| Chester) | Osmanthus ilicifolius |
| " japonica | Pinus longifolia |
| Bambusa Metaké | " Devoniana |
| " viridi-glaucescens | " Hartwegii |
| Bupleurum fruticosum | " insignis |
| Callistemon lanceolatum | Pittosporum Tobira (w) |
| Chamaecyparis excelsa (? For- | " tenuifolium (New Zea- |
| tunei) | land) |
| Cistus laurifolius | Piptanthus nepalensis (w) |
| Ceanothus punicus (w) | Photinia serrulata |
| Convolvulus Cneorum | Phygelius capensis |
| Cryptomeria elegans | Podocarpus andina |
| Cupressus macrocarpa | Prumnopsis elegans |
| " torulosa | Retinospora filifera |
| " funebris | " plumosa |
| Desfontainea spinosa | " obtusa |
| Dodonaea ericifolia | " pisifera |
| Diplopappus chrysophyllus | Raphiolepis ovata |
| Elaeagnus japonicus var. | Trachelospermum jasminoi- |
| (killed at Chester) | des (w) |
| Eurybia parvifolia | Rosa rugosa |
| Euonymus japonicus var. | Spiraea Reevesi |
| Forsythia viridissima | " Lindleyi |
| Fuchsia globosa | " Fortunei, &c. |
| " Riccartoni | Skimmia oblata |
| Fabiana imbricata | " fragrans |
| Griselinia littoralis | Stauntonia latifolia (w) |
| Juniperus drupacea | Sciadopitys verticillata |
| Jamecia americana | Viburnum Awafuki |
| Hydrangea hortensis | " Tinus |

Alfred O. Walker, Nant-y-Glyn, Colwyn Bay R.S.O., North Wales, May 5.

—After such a long winter I find that the New Zealand Flax, which has stood so many winters, has been killed, as also have some very large shrubs. The broad-leaved Myrtle has been so severely injured that there is little hopes of its recovery. The frost has punished our rockwork by killing our Phormium tenax and several other varieties. The shrubberies are looking gay with the Camellias, which are now in full flower, ranging in height from 3 to 11 feet, one very fine specimen is 38 feet in circumference and 11 feet in height, and is one mass of bloom: my employer (Mr. Pike) informed me that it had been planted upwards of twenty-five years and has endured this long winter. Some plants were planted out last autumn, but they have dropped their buds though they look in very good condition. I hope that my words may encourage some of the gardeners in the South to try this plant, which I feel confident they will be satisfied with. I should like a little advice from some of your correspondents on a collection of sickly Orchids, such as Oncidiums, Vandas, Aerides, Phalaenopsis, Odontoglossums, and several other varieties: they are now in pots with some bog peat, with hardly root or foliage—can I improve them by blocking some of them? *H. S. K., Cork.*

Lawns.—The constant cutting to which these are subjected naturally has a most impoverishing effect on the roots of the grass, for, unlike pastures where cattle graze, all is carried away, and nothing returned. Rich deep soils will stand this tax for a long time, but with those of a reverse character the case is different, as may be seen by the bare appearance of many lawns, except where they are taken possession of by weeds, for if from any cause the grass plant becomes weak these usurpers soon take its place, and gradually push it out of existence. Daisies are perhaps as bad, or worse than anything, as they not only spread at a great rate by means of runners, but seed freely, and were it not for the numerous heads of flower the mowing-machines take off the surface would soon be overrun with them. So short-stemmed are they, however, that many escape the knives by being pressed down under the rollers in front, and therefore every plant left for a season becomes in one way or other the parent of a numerous progeny, which being the case, and if a fine sward is desired, no effort should be spared to eradicate them. There are various ways of doing this, but the most certain is that of spudding them out with a narrow sharp instrument made for the purpose. The best I have used or seen is one about an inch wide, having a keen chisel-like point, and a slight bend or neck, so as to secure a certain amount of leverage. This thrust in

* Not quite dead—may recover.

(w) On a wall.

just under the crown of the plant, and the handle lowered, severs the root, and makes it leave its hold directly, and being raised it can readily be pulled out and thrown into a basket, or cast aside to be swept up with others afterwards. A few women or children with a tool of this kind will soon get over a large surface of ground, and free it of these intruders, as just at this time of year, with the blossoms appearing, there is no time lost in looking to find out their whereabouts. Next to Daisies Plantain is the most troublesome, but this may be dealt with in the same way, only it must be cut deep below the surface, or the stems will break again, and the shoots find their way through. In moist lawns it not unfrequently happens that Buttercups effect a footing, and to destroy these the tubers must be got out, or they quickly make their appearance again. Another way of exterminating the above-named weeds is to use strong sulphuric acid, a minim or two of which dropped right into the crowns is the means of turning them up. Being of such a caustic nature, great care is needed in handling it, and the safest plan is to carry it in a large-mouthed bottle suspended by a piece of wire, the dose can then be administered by dipping in a stick and with it touching the heart of the plant. It is generally thought that a damp undrained bottom is the cause of moss, but I have always found it proceeds more from poverty in the soil, for where grass grows freely this parasite is rarely if ever found. To effect a riddance of this pest I know of nothing equal to fresh slaked lime and wood ashes mixed, which not only kill it and cause it to shrivel up, but have a most beneficial result on the lawn by stimulating the natural herbage. Where this is really poor and requires assistance I would strongly recommend the use of both the above-named, together with the addition of soot and finely sifted soil, which mixture is far better than guano, nitrate of soda, or other potent manures, that force too much growth for a time, only to be succeeded by increased exhaustion soon after. The first proceeding, however, to cure a mossy grass plat should be to scarify it well over with an iron-toothed rake, followed by a good sweeping after with partly used-up brooms, which will make way for seeds to be sown, and these should be worked in by using the rake as before. This done, the soil mentioned and the ingredients with it will then come in for affording an additional covering, under which it will germinate, and once through make rapid progress. Getting hay seeds for purposes of this kind from mangers where cattle have been fed is the greatest mistake possible, as they are sure to contain those of weeds in abundance, besides which many of the grasses in pastures are too coarse to be suited for lawns, and never form a fine sward. Many of the nurserymen make a speciality of mixtures adapted for such work, sufficient of which to sow on an acre does not cost much, and it is money well spent. March is perhaps the best time for sowing, but it is not too late yet, as with showers and warm weather the plants will get a good hold in a month, and soon spread and cover the ground. In order to favour them as much as possible, the machine should be set high, so as not to cut into the hearts or lay the soil bare for the sun to play on, and if when mowing the grass is scattered instead of being collected by using the box it will be a great help in keeping the roots moist and cool. Were it not for the untidy appearance it presents, and the way it blows or gets littered on to the walks, there is no question that the mulching it forms would be desirable at other times, as it often saves burning when the sun becomes powerful, and its decay would in a great measure give back the gaseous juices and other matter extracted from the earth. J. S.

Vitality of Potato Seed.—Having occasion some years ago to break up a pasture for the growth of garden produce I discovered that one of the most abundant weeds it produced was seedlings of Potato. These came up in clusters and by thousands, many that were left out of curiosity producing small tubers the size of early Peas. On making inquiries of some of the elder residents in the neighbourhood I learned that the field had been a pasture for over twenty years; some of them could remember the land being cropped with Potatoes, but could give no authentic information as to the variety, which no doubt will long since be extinct. Thomas Reid, Chester.

Azorean Tea.—As I see that Tea is being taken up by Señor José do Canto in the Azores with a view to cultivating it on a large scale, I should like, as one who has had some experience of Tea planting, to give a warning. I do not for an instant dispute that Tea may be grown successfully, or that very good Tea may be made in the Azores, in Portugal, or elsewhere, but I very much doubt if it can ever be grown profitably anywhere except in India, China, Java, and other similar countries, where the following conditions are found:—1st, a large extent of fine virgin soil, under forest if possible, which can be bought or rented at a very low price; 2d, a climate

which has a rainy season of at least six months, and a mean temperature during that time of from 75° to 80°; 3d, an abundance of labour at very low wages, not over 10s. to 15s. per month; 4th, a good variety of the Tea plant. What is known as the China sort in India is neither so productive or of so good a quality as the Assam sort or the hybrid between the two. It would be possible, but by no means easy, to import good Tea seed into the Azores from Assam, and in this way only can the plants be got in sufficient numbers to make a plantation at reasonable cost. If we take into consideration that fair China Tea is now selling in the London market at 1s. a pound, and that except for small parcels of fancy Tea 2s. is the highest quoted price, it will be seen that Tea planting, though a very profitable business under favourable circumstances, is not likely to pay; and I think that De Candolle's saying, as quoted by "G—e," that "Vine-growing countries will never produce Tea," is a very true one. If people cared for good Tea and would pay for it, it would not doubt be profitable to grow very fine Tea in many other countries besides India and China, but as long as cheapness is the great desideratum I think the Chinese will have the command of the market, as in no other country, I imagine, would the cultivator be satisfied with the ridiculous price which he now receives. H. J. Elwes, Preston House, Cirencester.

How Cotton Reels are Made.—Amongst the recent additions to the Kew Museum is a series illustrating the manufacture of spools or reels upon which cotton is wound. These, it seems,

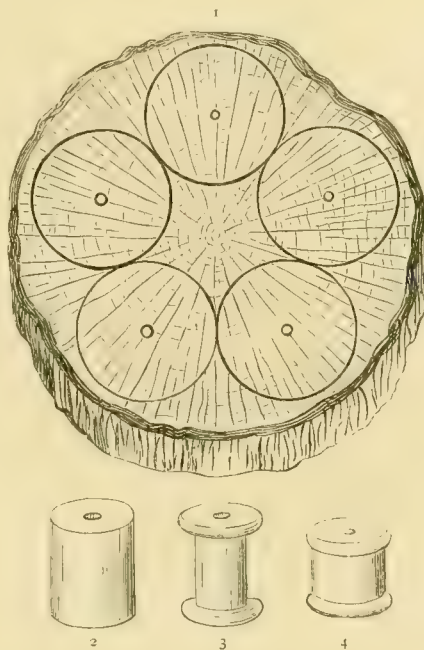


FIG. 88.—HOW COTTON REELS ARE MADE.

are mostly, if not always, made of Birch, the wood selected being of a uniform size, from which circular pieces are cut by a fine endless band saw; the pieces so cut are afterwards finished off to the sizes required, some reels, as is well-known, being much larger and thicker than others. In the illustration (fig. 88) 1 shows a section from a trunk or branch of a Birch tree with five cylindrical pieces cut out by the saw; 2 is one of these cylinders removed, 3 an ordinary reel, and 4 a reel such as is used for sewing machines.

Fruit Prospects.—I wish I could write as hopefully as Mr. Saul respecting the fruit crops, but unfortunately in this district the prospect is not at all encouraging, as on the last night of April we had 8° of frost, and the weather since and for some time previous had been intensely cold, with a strong biting north-east wind blowing, that is so withering in its effects as to render it almost impossible for anything to withstand it. The air has been very dry or things would have suffered much more than they have, but as it is Apricots are almost a total failure, and the spurs and young wood are dying wholesale, which gives the trees a most wretched woebegone appearance. There can be no question, I think, that much of the gumming and canker to which Apricots are so subject is due in a great measure to our cold ungenial springs disorganising the whole system of the plants, as I have always noticed after such seasons we have more losses of branches resulting from it than at any other time. Apricots seem as if they can endure any amount of frost so long as the sap is quiescent and they are without leaves, but when in bloom and the young shoots forming it takes but little to injure

them and cause them to become almost total wrecks. In our dry soil, however, we generally manage to get them up again, and so reclothe the walls during the summer, but in gardens less favoured in this respect the task of doing so is an almost hopeless one, and the losses I fear in many places this year will be great. Up to the present I am hopeful that Peaches and Nectarines have escaped injury, but unless we get a change for the better almost immediately I shall despair of these swelling, although so far they have held so bravely and look green and healthy as yet. The same may be said of the embryo fruit of Cherries, which the frost does not appear to have reached, but on a close examination I find the stigmas projecting from the expanded blossoms look brown and are evidently injured, and if this should prove to be the case they must of course eventually fall off, as fructification with this important organ damaged cannot take place. Happily, however, when this sharp frost occurred there were not many flowers open, and ensconced inside the unfolded petals it is to be hoped these were safe, and that we may yet have a good crop. Standards are very backward and must I think for certain stand, and yet I remember some years ago that although these, as well as Apples and Pears, were in much the same state yet when the time for swelling came the greater part fell off; thus proving clearly that the cold had been too much and had injured some vital organ or ruptured the cells beneath the epidermis of the fruit and in that way impeded the passage of the juices that nourished them. Gooseberries and Currants were just at that critical stage when the frosts were at their worst, and it is therefore very doubtful whether they can pull through as they look blistered on the upper side, but a few days will decide, for when the flowering is over they will either leave the bushes at once or continue their onward course and soon be ready for pies. Taking things altogether I never saw a greater promise than was presented a month back, as all trees were laden with bud, and the lateness of the season gave every encouragement for hope of a good set; but whether we shall get this or not yet remains to be seen, and all we can do is to hope on, as protection, except on a small scale, is quite out of the question. J. S.

Hardiness of Heaths.—Some half-dozen varieties of these, including hyemalis and others of the decorative class, stood the rigours of the past severe weather at the nursery of Messrs. Jackson & Son, Kingston, protected by mats only; these were hooped in the usual way. W. P. R.

The Auriculas at Manchester.—The northern florists are generally looked upon as being very 'cute and particular in their observance of the special points in florists' flowers. The Auricula Society's meeting in Manchester on April 29 must have been an exception, as in the two classes of alpinas (white centres and yellow centres being shown separately) four prizes were awarded to pin-eyed flowers—in two instances the pin-eye protruding fully an eighth of an inch above the thum! This fact was pointed out by me to Mr. E. S. Dodwell, Mr. Ben. Simonite, and other growers, who, if necessary, will verify my statement. Richard Gorton, The Woodlands, Gildabrook, Eccles.

Verbena venosa.—Those who have had to do with Verbenas for bedding know how very difficult it is during a hot summer, in dry scorching weather, to keep them in anything like fair condition, for do what one will by way of watering, they shed their flowers and go quickly to seed, or become smothered with mildew. Purple King is particularly subject to this pest, so much so, that for general purposes I have given it up for years, and use in its place the old seldom-met-with V. venosa, which may always be depended on let the season turn out as it may. Not only are its enduring qualities quite unsurpassed, but it is a softer purple than the one above-named, and therefore blends better with variegated Pelargoniums, besides being far more effective at a distance. Seen in contrast with Purple King it at once shows its superiority, the one being heavy, flat, and lumpish, while the habit and outline of the other is all that can be desired. The quickest way of working up a stock is to sow seed, which, although the season is full far advanced, may yet be got up in heat, and grown on so as to be quite large enough for turning out the first week in June, and being of quick growth they soon cover the ground. Once planted there is no fear of losing them, they being quite hardy underground, where they creep about and break from the joints of the roots after the manner of Mint, so that any one having a few plants may soon increase their numbers by digging them up and cutting these particular parts into lengths, for if each piece has an eye they are sure to shoot, as they are very tenacious of life. The way I manage is to leave them in the beds all the winter, and in spring, when these are being prepared, the roots are forked out and transferred to any fresh position they may be required for. In laying them in after the soil has been deeply dug and enriched, they are placed in drills and distributed

regularly, so that by the end of July they form quite a mass, and are then in full beauty. Their natural habit is such that they require neither pegging nor training, as they spread evenly about, and their hard wiry stems always keep the flowers standing erect. *J. S.*

Odontoglossum vexillarium roseum.—This variety is infinitely superior, as regards colour, to the many pale varieties we see. I enclose you two forms, the pale variety being much larger, produced from a small plant in a 48-pot, bearing twelve flowers from one bulb. The rose variety, as you will observe, has six flowers on the spike; wherever it is seen it is greatly admired, and acknowledged, beyond all controversy, to be perfectly charming; it is much sought after by Orchid-lovers, and rather scarce, comparatively few being found among the large importations hitherto received. The above flowered in the collection of T. A. Titley, Esq., Oakley House, Gledhow, Leeds. *J. D. R.* [Very rich in colour. *Eds.*]

Gardenias.—In any future criticism "W. P. R." may enter into respecting what I have written or may write, I must ask for him to be more exact in quoting from my articles, for instead of advising, in the Calendar to which he refers, the cutting down of Gardenias, as stated by him, what I wrote, and what appeared, is as follows:—"Where Gardenias are required for early blooming, it is now high time to go over them and shorten the branches back a bit, that they may make their growth betimes, as much of the success in getting these plants to flower freely depends on having the wood thoroughly matured by the autumn." Now I need hardly point out that this shortening back is a very different matter from cutting them down, and surely neither "W. P. R.," nor any one else of ordinary intelligence, could misconstrue the meaning of a sentence so plainly put, as the veriest tyro in gardening knows the difference between the two operations, and it is therefore useless to allude to them further. The cultivator whom "W. P. R." mentions as being well known, and who uses shears to keep his plants in bounds, may be very skilful, but I do not think he will get many to follow his practices; at any rate I should not think of employing such tools even to trim Laurels, as "W. P. R." infers or supposes I do. He then goes on to say, leaving the shears out of the question, plants if properly treated should be bristling with buds from January to December, that is, the year through, and I am glad therefore he is going to enlighten us as to how we are to manage them to have them in this very desirable condition, and so prevent us drifting, as he says, into old ruts made twenty-seven years ago. If by his management he can produce anything better than the plants referred to at Bowood at that time, and which were grown under the direction of one of the ablest gardeners in existence, they will be worth going some little way to see. Of course where there is room for huge bushes, there is no occasion for shortening back, but few of us have houses or convenience to accommodate such, or we might plant out and leave them to grow as they will, and thus reap a large harvest of flowers. *J. Sheppard.*

Mushroom Spores Germinating on Sand and Glass.—It is a mistake to suppose that the Mushroom spores will not germinate till they have passed through the stomach of a graminivorous animal, for I have several times seen the spores germinating upon clean glass. I first noticed the fact by accident, after I had left a number of freshly fallen spores under the microscope all night; on looking at the slide in the morning nearly every spore had germinated. But then the spores were perfectly fresh and alive. My observations lead me to think that spores very soon die in unsuitable dry air, or when they fall upon any unsuitable matrix. Many other fungus spores will germinate upon glass, it being always remembered that for this purpose the spores must be perfectly fresh from the hymenium of the parent fungus. Fungus spores will sometimes grow freely upon damp blotting paper; they cannot be seen when upon this material, but they can be easily transferred (by mere contact) to a damp glass slide. No doubt Mushroom spores, if quite fresh, will grow with equal readiness upon sand, if kept moist. Several dung-borne Agarics (as they are often termed), including the Mushroom, are not uncommon on the sea sands, in positions where graminivorous animals rarely disport themselves. *W. G. S.*

Trillium grandiflorum.—Among the many beautiful hardy plants there are suitable for the embellishment of borders, this Trillium is one of the best, as it is also one of the earliest harbingers of spring, for although the weather has been anything but enticing for the unfolding of blossoms, those of the Trillium have already made their appearance. Being of such large size, measuring as they do over 3 inches across, and of spotless purity, they never fail to attract notice, the more so owing to the very peculiar way they are set on the stem supporting the leaf, by which they are

backed up and shown off to the greatest advantage. With us the plant succeeds best in a deep boggy soil, in a shaded situation—conditions which, from its being such a moisture-loving subject, exactly suit its requirements. In cases where an increase of stock is desired it may be readily effected by division, the best time for doing which is just as growth commences, as then the injured parts quickly heal over. Before attempting a severance it will be found the safest plan to take the plant up and shake the soil from it, as then the knife can be guided skilfully and a separation made without sacrificing any portion likely to be of service. As a companion to the above-named, and to grow near it by way of contrast, Trillium erectum is worth having, the flowers being of a rich deep purple, thus making the others appear all the whiter. *J. S.*

Failure with Melons.—With head gardeners it ought to be an infallible rule, that whatever they want doing well they should do themselves. An omission of this precaution brought before my notice a case of palpable ignorance of the caution necessary to be observed in the impregnation of Melons on the part of a trusted foreman, who, to judge from his self-complacency, considered himself quite an omniscient individual. Owing to the extent of the grounds and glass erections, the carrying out of details skilfully depended upon the foreman, who was entrusted therewith. Therefore the repeated failures with Melons created both great surprise and disappointment, more especially as from the germination of the seed to the full expansion of the female blooms, and afterwards, the plants continued in luxuriant health. In taking a survey one day, however, I, to my great surprise, discovered the cause of all the previous failures. The blooms were just in that state that promised an abundant crop, the foreman being busy with the impregnation, but to my ineffable disgust he was performing the operation with a hard bristle brush instead of a camel-hair pencil, and frankly admitted it was the veritable brush he had always used; indeed, he had not the remotest idea that any delicacy of touch was necessary in such an everyday performance. I have no doubt that many of the failures that happen proceed from as glaring a departure from common sense. *Thomas Reid, Chester.*

Berberis Darwinii.—Some time ago I wrote in favour of this as a hedge plant, but looking at the rusty appearance it presents just now I should not be inclined to form such a good opinion of it, for although not much exposed, those we have of it here are sadly cut up by the frost and scathing winds that prevailed for so long a time during the winter. Till this season I do not remember to have seen it in the least injured, and I therefore concluded it was one of the hardiest of the species, which I regret to find is not the case, as many with us will apparently die back to the ground even if they do not succumb altogether. *B. stenophylla*, standing under just the same conditions as to soil and shelter, has not a browned leaf, and being of such an exceedingly graceful pendulous habit, is even more desirable than the above-named for planting in shrubbery borders or sloping banks, the latter being a position in which it shows off its beauties to great advantage. I am now having some potted up with a view to giving it a trial for forcing—a purpose to which, judging from its neat growth and free-flowering character, it would appear specially adapted. Even if allowed to come on of its own accord under glass so as to have it in a month before those in the open, it would, I think, be quite an acquisition, and form a striking ornament in any greenhouse or conservatory in which it may be placed. Shrubs of nearly all kinds are now made use of for forcing, but somehow or other this, although one of the most beautiful, appears to have been overlooked, as I have never yet seen or heard of any one who has given it a trial. I remember its being sent out some twelve or fifteen years back, but know nothing of its origin, whether of foreign introduction or a garden hybrid, but however obtained it is certainly one of the most desirable of all the *Berberis*, and a kind that is not half so well known as its merits deserve. I find it admits of ready increase by layers buried in sharp sandy soil and kept well watered during the summer, as then it roots freely, and the young plants are fit for removal the spring following, a time in which they may be taken off and planted with safety. *B. stenophylla* may likewise be raised from seed, as, like most of the others, it bears a profusion of berries that are a great ornament when fully ripe and coloured, but which, if wanted, must be protected from the ravages of birds. *J. S.* [It is a hybrid between *B. empetrifolia* and *B. Darwinii*, sent out by Messrs. Fisher, Holmes, & Co. It fully deserves all our correspondent says in its praise. *Eds.*]

Forestry: Erratum.—In last week's impression, on the subject of Forestry, a mistake appears, for which indistinct writing is principally to blame. Instead of Buckthorn (*Rhamnus*) read Blackthorn, or Sloe (*Prunus spinosa*). The word Blackthorn,

which is a provincial name for the Sloe Thorn, was misapprehended, and led to the suggestion of what must appear to those who know the Buckthorn (*Rhamnus*) to be a very unlikely plant for the situation for which it was recommended. *C. Y. Michie, May 6.*

Boilers and Pipes for Hothouses.—The past winter, having been a long and trying one, has brought forcibly home to many gardeners how much cheaper and easier it is to keep out frost and maintain a regular degree of heat with an efficient apparatus, to what can be done with a boiler and pipes only powerful and numerous enough to do about half the work allotted them. With such the labour of stoking is almost incessant, and the waste of fuel something considerable, as the water has to be driven to almost boiling point, and kept at that pitch to battle with the cold outside, and prevent it getting the mastery. I well remember many years ago having the care of a whole range of Pine-stoves that had a separate saddle boiler to each, and only a single flow and return-pipe along the fronts and one end, with a flue at the back, and to keep these at anything like 60° we could not in bad weather leave them longer than three hours during the night, and so great was the pressure at times that the water was forced out, and I often wished I could give the proprietor of the establishment a week's spell at the fires, which I thought would bring about some alteration, but as I could not do that the thing went on for years after I left. Now, I believe that the saving that would have been effected even in one winter would have paid for the extra pipes required, but no—they had always done very well, and good Pines had been grown, and the work, so long as I knew the place, was never carried out. This is not an isolated case, as I am acquainted with several other establishments almost as bad, and the gentlemen owning them having no practical knowledge of gardening, and not knowing what is required, do not see the necessity of providing more pipes, and it is often a most difficult matter to convince them that such an outlay would be much to their interest. The mistake is in having people to do the work in the first place who are totally ignorant of the use of plant structures and the purposes they are put to, instead of employing competent horticultural engineers, who know what they are about and seldom make an omission in not putting enough. In heating, money laid out in pipes is always well spent, and pays good interest as it saves a great deal in the coal-bill—an annually recurring expense that is never done with, besides which it adds considerably to the comfort and lessens the responsibilities of those in charge. Bad as my experience was of stoking during my earlier days, I do not regret it now, as nothing sharpens the wits so much as difficulties, and those I had to contend with then set me thinking, and gave me great interest in hot-water work whenever I saw any of it going on. The knowledge which I thus gained and worked on has been of great use since in enabling me to rearrange and carry out a good deal of heating, from which I am now deriving the benefit. So important to gardeners is an intimate acquaintance with this particular branch, that I would strongly advise all young beginners to study the working of it and master it, as with a little instruction from those placed above them the matter is very easy, there being only a few simple rules to understand. By becoming conversant with the details and having a full knowledge of the temperatures required for the different houses, they would be able to give a general supervision, and have the pipes and valves so arranged as to answer the purposes intended, for although there may be plenty of heating surface provided, it is not always well distributed and put so as to be far removed from the foliage. A rush of hot air in close contact with this is productive of much harm, by rendering it thin and flimsy, and not only this but it is sure to engender insects, especially red-spider, the conditions being favourable to bring them about. As regards boilers, the best forms are those which expose the greatest amount of surface to the direct action of the fire, and either by an arrangement in their make or by means of flues, the caloric is kept playing about them, instead of rushing away and effecting its escape up the shaft with the smoke. A boiler may be good and yet lose much of its power by being set badly, which is often the case. I had two such some time ago, conical in shape, through the centres of each of which the flames were carried direct to the chimney without any check beyond that of the damper. One has given place to a more modern make, but the other is still at work, with additions and alterations I have had made, and now works admirably. Being set a foot above the bars, the sides and back of the furnace became red hot, involving with the quick escape of heat through the middle of the boiler serious waste; to obviate which the furnace has three rows of 2-inch tubes around it, and at such a distance apart and from the bricks as to admit of their being nearly enveloped in fire; and connected as they are by means of a flange with the

flow and return, they keep up a rapid circulation with less than half the fuel that was required before. Instead of allowing the fire to pass off in the way mentioned, it is now carried several times round the outside of the boiler in a spiral flue, thus getting as much out of it as possible. It will therefore be seen, with a little contriving, what may be done to quicken the wheels of such a slow coach as an old conical boiler, and I mention the circumstance that others having any of similar construction may improve them in like manner. Those of the tubular form are in great favour with many, but the drawback to them is, that they will only burn coke, whereas almost any rubbish may be consumed in a saddle, some of the improved forms of which leave little to be desired. At one time these were simply arches without backs, which had to be built up with bricks, and there was consequently much loss of heat, but now this is remedied and tubular bars added, as well as additional water-way in other parts. If instead of the under portion and sides of the arch being plain, they were made corrugated, it would be a great gain by largely increasing the surface immediately over the fire and checking the same in its course. There is another matter connected with boilers which is of the greatest importance, and that is the way they are stoked or managed by those in charge, for if not properly fed and looked after, a quantity of fuel may be used to very little purpose. It frequently occurs that ash-pit doors are wide open when they ought to be shut, and dampers out when they should be partly closed, the result of which is, that there is a rapid passage of volumes of cold air continually, instead of being admitted in small quantities when required to carry on the work of combustion. Beyond sufficient for this purpose, all else is sheer waste, as instead of the fire impinging and losing its strength on the boiler surface, it goes with almost lightning speed through the flues. As a rule, the slower the draught after a clear fire is once started the more work will it do, besides which, the temperatures may be maintained with greater regularity and exactness, instead of being quickly forced up and as suddenly let down. J. S.

Foreign Correspondence.

CAPE TOWN, SOUTH AFRICA: *Musa Ensete*.—As an effective and stately-looking plant I know of few things to equal the above when associated with specimen Palms, Tree Ferns, &c. When taking charge of the glass department in these botanic gardens twelve months ago I happened to find a small plant of *Musa Ensete* which was in a very bad condition. I planted it out in a bed in the centre transept of the large conservatory, where it soon commenced to grow rapidly, and, judging from its present appearance and the time of planting out (eleven months ago), I consider as a specimen it stands unequalled, as will be seen from the following dimensions:—Height, 20 feet; circumference, 3 feet; length of leaf, 11 feet; width, 2 feet 6 inches; seventeen fully developed leaves. I may add from the time of planting out I have watered copiously at the roots, with frequent syringings overhead, and owing to the dry, parching climate of the Cape, I have made a practice of keeping all glass structures charged with moisture: to maintain the latter (which is essential) syringing and damping down is resorted to three times daily throughout the summer. I feel confident that with a little perseverance and judicious management very successful results in plant culture may be attained in the Cape. I hope the day is not far distant when horticulture will become more popular, and receive a greater share of attention than at present. If it would be interesting to the readers of the *Gardeners' Chronicle* I shall be most happy to send a list of the most noticeable plants planted out, some of which cause so much diversity of opinion as to their mode of culture in England. *Richd. Johnson, Botanic Gardens, Cape Town.* [Many thanks; we shall be glad to hear from you. EDS.]

VISIT TO THE "POLOSI" TOBACCO ESTATE, JAMAICA.—On our homeward journey from Bath we were invited, by the kindness of — Weitzman, Esq., the proprietor, to visit his Tobacco fields. The weather having been unfavourable some months previous to the time of our visit, it was decided not to plant so large an area as in former years, but that which had been planted was an example of good cultivation. So much depends upon the weather in Tobacco cultivation, that a proprietor cannot without some considerable capital make it pay, as it is only in the averages of several years that the balance will turn in

the favour of an energetic planter in Jamaica. Several varieties of the "weed" are cultivated, of which "Havana," well cured, commands the best price. As for colour and fine flavour it cannot be surpassed; although a variety called the "Bilsa" exceeds it in growth, size of leaf, and is of as good colour, but it cannot surpass it in flavour. This variety is likely to become a favourite, as from its large size it makes more "wrappers" than any other variety. "Fillers," or that Tobacco which composes the centre of cigars, although it may be of the same quality, generally consists of the smaller leaves of the Havana and other varieties cultivated.

The process of growth and curing was described by the proprietor as follows:—A portion of maiden ground is cleared of its thicket of trees, &c., and well dug; in this the seed is sown, maiden ground being chosen, as less trouble is occasioned by the weeds choking the plants than if cultivated ground were selected. After the plants are large enough, and during showery weather, they are transplanted into well-prepared ground in rows 3 feet apart, and placed at about 2 feet distance in the row, more room being given according to the size usually attained by the particular variety planted. They are then weeded at intervals as required until they attain the size for topping, or pinching out the head, which is done as soon as the rudiments of the flowers commence to show themselves. After this the care necessary is simply to remove the lateral growths until the Tobacco is ripe, a stage which only the practised hand of the Tobacco planter can decide. Sometimes some of the lower leaves are stripped first, these have to be threaded on strings for drying, but usually the whole plant is cut off at about 3 inches from the ground and divided into portions having two leaves attached. It is then put astride rods which are hung up in drying-houses built of thatched roofs and low wattled sides—the proportion of height between roof and walls being two to one. This is to obtain as large a space as possible for drying, with a quiet current of air, which has to be regulated to a nicety, for if too much air be admitted the leaves become brittle, and if too little they become liable to rot or mildew, which blisters and spoils them. After being sufficiently dry they are put into bays or side chambers for the sweating process, which, like all the other parts of the manufacture, requires that knowledge which can alone be obtained by practice and observation, to produce a first-class article. After this is finished the article is made up in bales either for home or foreign consumption. The quality of Tobacco produced by this estate has lately been proved to be quite equal to the best "Havana," and no doubt, in time, as the process of curing (wherein lies all the art) becomes better understood, Tobacco will become one of the staple productions of this once called Pearl of the Antilles. *J. H., Kingston, Jamaica.*

CANADIAN NOTES.—We have had an extraordinarily severe and unusually protracted winter, and are even now in the midst of a heavy snowstorm, and amongst our consequent losses may be reckoned Potatoes, which in addition to the destruction in the fall of the year by disease have also suffered from the severity of the frost, which has rendered these desirable roots comparatively scarce. Dessert Apples are not keeping as well as in former years, which perhaps could hardly be expected as some descriptions actually rotted on the trees, but still there was no sign at first of any unusual decay in the bulk of the crop. However, as the crop was generally good, the price has not advanced beyond that of other seasons. The supply of Cabbages is generally sufficient, as they are stored for winter use and brought forward as required. Throughout the winter there is a large consumption of canned fruit and vegetables.

Our Grape Vines have been allowed, according to our regular custom, to remain in their common positions and are quite healthy; but in some neighbourhoods they find it necessary to adopt the Russian plan, and stake them down and cover them with straw to protect them from the frost.

The very severe frosts we have had have been disastrous to most of our apiarians, who have also in some cases lost their hives from starvation. The hives in the bee-houses which were wrapped in thin cases of bran have escaped safely; but we must still confess our ignorance as to the precise temperature required for the preservation of our bees through our very variable winters, and are intently looking to your more

scientific correspondents for information in this important matter.

With regard to the recent frosts, so dolorously complained of by your correspondents, we feel almost amused at them in comparison of ours. What would they say about zero on April 3, which was the temperature here at 5 A.M. on that day? Certainly our florists are frequently puzzled how to combat the occasional severities of our otherwise lovely climate.

We have tapped our Sugar Maple trees, and had a good commencement yesterday, and some delicious molasses as the forerunner of our sugar-making.

The construction of the railway here has occasioned a considerable slaughter of Tamarak and Hemlock trees for the ties, and of Cedars for the telegraph poles (which are much larger than those used in England), and also an extra demand for wood for fuel, and so our forests are, by consumption as well as by periodic fires, being gradually exterminated. We are, however, trying to remedy this misfortune by planting forest trees, principally Maples, along the front of our farms, but many of them die every year. We have frequently also left young trees standing in the fields, but they are mostly blown down—it is presumed in consequence of losing the protection of the larger trees, which prevented their attaining a sufficient amount of independent strength. *J. M., Minesing, near Barrie, Ontario, Canada, April 10.*

Notices of Books.

Sur la Structure et les Modes de Fécondation des Fleurs, et en particulier sur l'Hétérostylie du *Primula elatior*. Par Léo Errera et Gustave Gevaert. (Première partie.) Avec un appendice sur les *Pentstemon gentianoides* et *P. Hartwegi*. Par Léo Errera. (Extrait du *Bulletin de la Société Royale de Botanique de Belgique*, t. 17, 1878.)

The fertilisation of flowers and the various differences in their structure, calling for a corresponding variety in the methods by which fertilisation is brought about, have certainly occupied the attention of botanists to an unparalleled degree, since Mr. Darwin brought the subject prominently forward. So many new terms have consequently been coined that the present work is a useful as well as admirable *resumé* of, apparently, all the different modifications of structure which modern investigators have discovered, so that we here learn that the four terms used by older botanists—hermaphrodite, monœcious, dioecious, and polygamous—have to be increased by some thirty or more to express fully the various relationships between the sexes of flowering plants.

In this department, as in systematic botany, some considerable confusion has unfortunately already crept in, through want of uniformity of application in the terms used. Thus the word "dimorphic" has been employed in at least six senses, not counting that used in fungi, and the authors wisely suggest that it should now be employed in a general sense, specific adaptations of the term being signified by such special designations as they have given.

The authors largely follow Mr. Darwin's works, and, indeed, adopt entirely the most important views and reasonings of that author; consequently they fully accept his now well-known conclusions of the "benefit" to be derived from the intercrossing of distinct plants, and especially of distinct stocks. With regard, however, to the question, how far the "good" effects of crossing and the "injurious" effects of self-fertilisation are hereditary, they only refer to Mr. Darwin's cases of the Pansy and Sweet Pea; but as I discussed these, and I think showed his conclusions to be unsupported by the facts, I will only refer the reader to the passage (*Gardeners' Chronicle*, 1877, p. 560). The authors, however, observe:—"Toutefois un point si intéressant mérite des études plus nombreuses." They formulate the results as follows:—

"In the majority of cases, if not always, allogamy [crossing different plants] is more advantageous than autogamy [self-fertilisation], and that, if individuals resulting from allocarpy, and others from autocarpy, grow side by side in the same ground, the former have the advantage in the struggle for existence, and tend always to replace the autocarpic plants. That is certain."

However, this law requires some reservation, for

Mr. Darwin says of the highly self-fertile white flowered *Mimulus* :—

"From the tallness of this variety, the self-fertilised plants exceeded the crossed plants in height in all the generations from the fifth to the seventh inclusive; and no doubt would have done so in the later generations had they grown in competition with one another." [This] "increased in the later self-fertilised generations, owing to its great self-fertility, to the complete exclusion of the original kinds." (*Cross and Self Fertilisation*, &c., pp. 80 and 67.)

In the appendix M. Léo Errera describes a white *Pentstemon* which he is inclined to regard as a parallel case to the white *Mimulus*. I have elsewhere shown that whiteness is very generally correlated with self-fertilising powers.

Although the authors are strongly imbued with the belief that intercrossing is beneficial, yet it is interesting to see how they cannot avoid suspecting (with Mr. Darwin) that self-fertilisation is somehow and sometimes actually beneficial to plants. Darwin, Axell, Müller and Meehan all allude to it in more or less favourable terms, and the present authors, after quoting Mr. Darwin's words, "Self-fertilisation is apparently in some respects beneficial, independently of the assured production of seeds," observe, "Tel est le point qui mérite une sérieuse discussion;"* and the authors finally remind us that the structure of a flower is a compromise between two different and even opposite tendencies, both advantageous to the plant and consequently submitted to natural selection. The one is the production of the greatest number possible of seeds, the other, the adaptation to crossing by gitonogamy (flowers on the same plant), and still better xenogamy (flowers on different plants).

They then discuss the agents which bring about intercrossing, the structures which attract insects, &c., and the different modifications of structure, such as dichogamy, &c., pointing out the important fact that numberless gradations occur in flowers between such conditions as strong proterandry (earlier maturity of the stamens) on the one hand, and strong protogyny (earlier maturity of the stigma) on the other, as well as the numerous degrees existing in heterostylism. In fact, a strongly proterandrous flower may become self-fertilising, as Mr. Darwin has shown with *Dianthus Caryophyllus*, while one and the same species may bear blossoms which show gradations from one extreme condition to another. Such facts furnish an important caution, lest we presume that because a species is strongly proterandrous or self-sterile at one time, or in one country, it must necessarily be so in another. Indeed, we now know such an idea cannot be relied upon, for Mr. Darwin proved that while *Eschscholtzia* was totally barren with its own pollen in Brazil, it was self-fertile in England, but became barren again in Germany.

After a concluding article on the progressive development of floral structures, which strictly follows Mr. Darwin's views, that plants were originally dioecious, then monœcious, then hermaphrodite, but that some of these latter have again had their sexes separated, the authors add a plate and description of the dimorphic flowers, stigma and pollen of *Primula elatior*, which is a valuable addition to the book.

One of the most important parts of the work is the appendix, which deals with the structure and methods of fertilisation of two species of *Pentstemon*, a mauve variety of *P. gentianoides*, and three (bright red, deep red, and scarlet) varieties of *P. Hartwegii*, and a white variety doubtfully referred to the latter species, but which is in some respects intermediate. The author (M. Léo Errera) observes that the first-named was the only form persistently visited by bees, &c., though all the coloured corollas have honey, and when fallen are equally sucked, but then from the basal orifice. On examining the lengths of the corolla tubes and of the stamens it was found that the latter, in the three red varieties of *P. Hartwegii*, did not allow insects with a short proboscis to reach the nectar; but in two only, the mauve (*P. gentianoides*) and the white variety, the distance from the point of incurvation of the stamens to the bottom of the tube of the corolla was small enough to allow it to be reached. The bees do not entirely neglect the others, but visit the mauve form far the most frequently. The author considers this a case of

a plant where a minute structure is elevated into one of importance, as furnishing a *vera causa* for the origin of one species by the gradual elimination of other forms by natural selection. The white variety, though possessing similar facilities for bees, is less visited. It seems (as one would suspect) that it is less nectariferous, and is probably in a transitional state in re-acquiring self-fertilisation. The proportion of seeds for the different forms is as follows, respectively:—*P. gentianoides* : *P. Hartwegii* (white) : *P. Hartwegii* (bright red) : *P. H.* (deep red) : *P. H.* (scarlet) :: 100 : 59 : 28 : 23 : 20.

A very full description of the flowers and a discussion of the structure and purport of the stamens are given, and three views of its "use" quoted, viz., of Delpino, that it acts as a "guide"; of Kerner, that it excludes unwelcome guests; and Ogle's, that it is of no use. M. Errera adopts and supports Kerner's view. The structure of *Pentstemon* suggests and leads the author into a very interesting account of the morphology of the *Solanaceæ* and the *Scrophulariaceæ*, which latter, he gives reasons to believe, is descended from the former.

The book in its entirety is a very useful *resumé* of sexual structures and nomenclature, while the appendix is a valuable contribution towards elucidating the processes by which the descent of plants is brought about and affinity accounted for. *George Henslow.*

Variorum.

THE FORESTS OF ALABAMA.—That North America has not been disforested to the extent that we are sometimes led to believe from general statements, is evident from a pamphlet by Mr. CHARLES MOHR on the forests of Alabama and their products. He states :—

"The 50,000 square miles which make up the area of this State, were, originally, a nearly unbroken forest—it may be said up to end of the first quarter of the present century, with the exception of a comparatively small area of prairie land, and grassy savannas in the southern portion of its centre. According to the latest statistics, seven-tenths of this forest are still existing, amounting to 20,630,963 acres; some of it culled of its largest timber-growth, but the greater part in its virgin State, scarcely touched by the axe. One half of the land owned by the farmers are yet woodlands. The heaviest timbered lands are found in the southern part of the State, within the great maritime Pine belt, where the forest area amounts to 66 per cent.; in the central counties, situated in the prairie region, and embracing the Cotton belt, it amounts to 45 per cent.; in the broken mountainous part, embracing the mineral region and extending to the waters of the Tennessee River, to nearly 70 per cent.; and in the northern part, with the rich agricultural land in the Tennessee valley, to 60 per cent."

Mr. MOHR's list of trees and shrubs, indigenous in Alabama, numbers 216 species, upwards of a 100 of which are trees, large or small; about fifty are trees of large or medium size. This, it should be remembered, is within an area much smaller than Great Britain. Mr. MOHR defines three forest regions. First, the Pine belt, which covers the southern part uninterruptedly from east to west, and extends from 100 to 150 miles into the interior. This area is almost exclusively occupied by coniferous trees. The undulating, dry and sand upland, is entirely occupied by the long-leaved or yellow Pine, *Pinus australis*, which is the most important and most valuable timber tree of the State. In the more level parts, where the substratum is more retentive of moisture, it is accompanied by the Pond Pine, *P. serotina*, and the Loblolly, *P. Elliottii*. In 1877 no less a quantity than 18,000,000 feet of sawn timber of yellow Pine was exported from this State, besides a large home consumption. The production of resin and turpentine in 1876 amounted in value to 1,200,000 dols. Next to the yellow Pine in importance is the deciduous Cypress, *Taxodium distichum*. This, says Mr. MOHR, grows in great abundance on the perpetually overflowed banks of, and in the marshes skirting, the rivers in the tide-water region, as well as the deep inundated swamps of the Pine region. The trunk attains a height of 100 feet or more, with a girth of 25 to 40 feet. The Juniper, *Cupressus thyoides*, prefers a partially inundated soil, and its wood is gaining favour. The live Oak, *Quercus virens*, has ceased to be a source of timber in this region. The second forest region consists mainly of magnificent Oaks of various species, which form extensive and valuable forests. The third and northernmost region is char-

acterised by Maples, Elms, Hickories, Beech, Tulip-trees, Walnuts, &c., and an almost total absence of the southern types. The same pamphlet contains also a short account of the grasses and other forage plants of Alabama. Amongst the "valuable," or "highly valuable" species unfamiliar to farmers in this country, we note : *Hydrochloa carolinensis*, *Cynodon Dactylon*, *Arundinaria gigantea*, *Panicum sanguinale*, *Panicum Crus-galli*, *Tripsacum dactyloides*, and *Panicum proliferum*. Including a few introduced species, 137 are enumerated.

TREES WEIGHED DOWN WITH ICICLES.—The following extract, from *The Travels of Pallas through the Southern Provinces of Russia*, contains a very interesting account of the effect of frost and rain combined on forest trees (pp. 55). An illustrative vignette is given at p. 88.

"Our curiosity was gratified by the new and uncommon appearance of the trees, of which we had received an imperfect idea in the former part of the journey. The cause of this singular phenomenon is as follows :—Severe hoar frosts had commenced in these regions before Christmas, and were followed by snow mixed with rain or sleet, so that even the smallest branches of the trees were covered with ice an inch thick; by this all the flexible Birch trees had been bent to the ground in semicircles. Their tops and branches were thus buried under the continual snow, which lay upwards of a yard deep, and kept the trees in that recumbent state. The inflexible full-grown Birch and Oak trees had been partly split and partly broken by the weight of the congelation on their tops, while their collateral branches were also bent to the ground. The thaw, which began here towards the latter end of February, and the rays of the sun, had indeed melted the icy incrustation on the upper part of the trees, but it still remained undissolved on the branches which were fixed in the snow. The cylinders of ice on one side all appeared melted into a solid mass; but on the lower part they were crystallised in hexagonal and partly in rhomboidal figures, which thus consisted of hexagonal sections." *M. F. B.*

MANURING LAND WITH FOSSIL SHELLS.—The *Philosophical Transactions of the Royal Society* for 1744 record a very successful innovation in manuring. Near Woodbridge, in Suffolk, there were very extensive deposits of fossil shells, consisting mainly, it is stated, of the common whelk. The narrative continues in the following words :—"The farmer of the ground has, it seems, laid the foundation of an ample fortune from them. He contented himself in the old beaten track of the farmers until a happy accident forced him on a bold experiment. He used to mend his cartways, when broken up by harvest-work, with these shells; in which business his cart one day broke down, and threw the shells out of the cart track into the cultivated part of the field. This spot produced so remarkable a crop the next year that he put some loads on a particular piece, kept the secret to himself, and waited the event. This trial answering expectation, he directly took a lease of a large quantity of poor land, at about 5s. the acre, and having manured it heartily with these shells, in about three years it turned to so good an account that he had 15s. the acre proffered to take the lease out of his hands." This procedure has been successfully imitated, as many of our readers are aware, in the use of coprolites, or fossil dung of animals, as manure. These coprolites are especially abundant in Suffolk.

IMPORTS OF CAOUTCHOUC IN 1878.—Much information on matters connected with the products of various useful plants is often contained in the annual trade reports of the principal dealers or brokers of London, Liverpool, or other large towns; thus in an account of the imports and prevailing prices of the different kinds of caoutchouc known to commerce, issued by one of the principal firms dealing in this well-known commodity, we get some idea of the extent of the rubber trade. Para rubber, as usual, realised the highest price, ranging from 1s. 8d. in the early part of the year to 2s. 0½d. at the close. A much larger quantity of this kind was imported into London during the past year than in previous years, and the total consumption exceeded that of the previous year by 500 tons. Of Ceara scrap, a rubber of good quality, over 60 tons were imported, and it is remarkable that the importation of this kind continues to be neglected. Guayaquil and Carthage also show a permanent decline in quantity, and consequently fetch high prices. The quality of Bornean rubber is stated to have been more satisfactory than in former years, while West India sheet and scrap, a favourite description of rubber, fell off considerably

* For some such discussion I may refer the reader to a series of articles on the Fertilisation of Plants in the *Gardeners' Chronicle* for 1877; as well as to my paper on the Self-fertilisation of Plants in the lately issued number of *Trans. Linn. Soc.*

in quantity, in consequence of which the prices ruled high. The quantity of rubber of all kinds imported into London amounted to 1967 tons, against 1781 tons in 1877. Both years, however, were considerably below the total imports of the six preceding years respectively.

PLOUGH TRIALS IN BOHEMIA.—The Agricultural Society of Bohemia have made arrangements for holding extensive trials of steam and horse ploughs in Czakowitz, near Prague, in September next. The trials will be of a most exhaustive kind, and the acting committee have, in making the regulations and directions for the judges, followed very closely the plans of our Royal Agricultural Society. Numerous Austrian and German makers have already entered implements, and the attention of our plough-makers is called to this extensive field for such implements, as there are in Bohemia alone upwards of 160 factories for the manufacture of sugar from Beetroot, and this entails a most thorough cultivation of the soil. Entries must be made, before June 30, to the Secretary of the Agricultural Society of Bohemia (Landw. Club für Böhmen), Prague, 18, Wenzelsplatz, and from whom prize-sheets, regulations, &c., may be obtained.

KENT COBS AND FILBERTS.—The *Agricultural Gazette* describes the pruning of Filbert trees as a great art, requiring a keen eye, much decision, and a very sharp knife. Some Filbert growers allow their ordinary labourers to cut their trees; others employ regular professional "tree cutters," who do nothing else from November until March, and earn 4s. per day at piecework without much difficulty. It is desirable that Filberts should be cut by the middle of March, before the sap has begun to flow in any degree. It would be far better that they should be cut by March 1, as the fertilisation of the bloom clusters is effected very early in the spring. The remarks made as to Filberts apply equally to "Cobs," which are superseding Filberts to a great extent, as they are more hardy, better bearers, and their nuts are much larger and more handsome for dessert purposes. They have not, however, the same flavour as the genuine old Kent Filberts, but they make more money per pound in the "Garden," which is the grand point for the growers. The trees are much like Filbert trees. Their habit is coarser and more vigorous, with somewhat larger and rounder leaves, though they do not do so well under standards, and are not quite so early.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, May 7, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DEDUCTIONS from Glaisher's Tables 6th Edition. | WIND. | | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|------------|----------|-------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | | Direction. | Average. | |
| May 1 | In. 29.99 | +0.22 | 51.2 | 35.0 | 16.2 | 40.7 | -9.1 | 35.0 | 81 | N.N.E. 0.19 |
| 2 | 30.17 | +0.40 | 51.0 | 32.2 | 18.8 | 40.9 | -9.2 | 32.1 | 71 | N.N.W. 0.00 |
| 3 | 30.27 | +0.50 | 52.0 | 30.9 | 21.1 | 42.5 | -7.9 | 33.4 | 71 | N.E. 0.00 |
| 4 | 30.33 | +0.56 | 52.1 | 33.5 | 18.6 | 41.5 | -6.3 | 35.4 | 70 | N.E. 0.00 |
| 5 | 30.22 | +0.46 | 52.3 | 35.1 | 17.2 | 49.7 | -1.5 | 36.5 | 61 | N.E. 0.00 |
| 6 | 29.91 | +0.16 | 50.5 | 38.0 | 12.5 | 42.0 | -9.6 | 36.6 | 82 | N.E. 0.17 |
| 7 | 29.86 | +0.11 | 48.7 | 32.9 | 15.8 | 39.1 | -12.6 | 31.9 | 76 | N.E. 0.01 |
| Mean | 30.11 | +0.34 | 51.4 | 34.0 | 17.4 | 42.8 | -8.0 | 34.4 | 73 | N.E. 0.37 |

May 1.—Fine, partially cloudy. Shower 2.30 P.M. Heavy rain, hail, and snow, 5.30 to 9 P.M. Cloudless at night. Raw cold day.
2.—A fine bright day. Few drops of rain at times. Very cold. Cloudless at night.
3.—A very fine bright clear day. Cold (sun warm). Cloudless at night.
4.—A very fine cloudless day. Cold. Warm in sun.
5.—A brilliantly fine cloudless day. Much warmer. Cloudy at night.
6.—Overcast and wet till 9 A.M.; fine, but cloudy after till evening, then cloudless. Very dark and gloomy at 9 A.M.; gas necessary. Raw cold. Windy.
7.—Fine day, but generally very cloudy till evening; then cloudless. Hail fell at 9.45 A.M. Raw cold unseasonable day.

Note.—The mean temperature of the air for the twenty-eight days (April 10—May 7) ending to-day, May 7, was 42° 4, being 6° 9 below the average of sixty years' observations.

LONDON: Barometer.—During the week ending Saturday, May 3, in the vicinity of London the readings of the barometer at the level of the sea increased from 29.63 inches at the beginning of the week to 30.31 inches by the evening of the 29th of April, decreased to 30.15 inches by mid-day on May 1, and increased to 30.49 inches by the end of the week. The mean reading for the week at sea level was 30.17 inches, being 0.51 inch above that of the preceding week, and 0.22 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 59° on the 27th of April, and 57° on May 3, to 51° on April 28 and May 1 and 2; the mean value for the week was 54°. The lowest temperatures of the air observed by night varied from 31° on May 3, and 32° on the 2d, to 42° on April 27; the mean value for the week was 35°. The mean daily range of temperature in the week was 18° the greatest range in the day being 26° on May 3, and the least 13° on April 28.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—April 27, 48° 6, —0° 1; 28th, 43° 4, —5° 5; 29th, 42° 6, —6° 5; 30th, 44° 2, —5° 2; May 1, 40° 7, —9° 1; 2d, 40° 9, —9° 2; 3d, 42° 5, —7° 9. The mean temperature of the air for the week was 43° 3, being 6° 2 below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 132° on April 29, 126° on the 27th, 123° on the 30th, and 130° on May 3; on the 28th of April the reading did not rise above 58°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 26° on May 3, 29° on the 2d, and 30° on April 29; the mean of the seven lowest readings was 32°.

Wind.—The direction of the wind was N. and N.E., and its strength moderately strong.

The weather during the week was fine, but very cold and wintry; the sky was partially cloudy.

Hail fell frequently, and snow fell on May 1.

Rain fell on three days during the week; the amount measured was 0.24 inch.

ENGLAND: Temperature.—During the week ending Saturday, May 3, the highest temperatures of the air observed by day were 62° at Cambridge, 61° at Nottingham, and 60° at both Truro and Norwich; the highest temperature of the air at Liverpool was 53°, and at Hull was 54°; the mean value from all places was 57°. The lowest temperatures of the air observed by night were 25° at Nottingham, 27° at Hull, 28° at Cambridge, 28° at both Bristol and Sheffield, 28° at Leicester, and 29° at Wolverhampton; the lowest temperature of the air at Liverpool was 39°, and at Sunderland was 36°; the mean from all stations was 31°. The extreme range of temperature in the week was the greatest at Nottingham, 36°, and the least at Liverpool, 13°; the mean range of temperature from all places was 26°.

The mean of the seven high day temperatures was the highest at Truro, 57°, Cambridge 55°, Plymouth 54°, and Blackheath 54°; and the lowest at Hull, 50°, and Liverpool, 50°; the general mean from all places was 53°. The mean of the seven low night temperatures was the lowest at Cambridge and Wolverhampton, both 34°, Hull 34°, Blackheath and Nottingham, both 35°, and Leicester 36°; and the highest at Liverpool, 41°, and Plymouth 40°; the mean value from all stations was 37°. The mean daily range of temperature in the week was the least at Liverpool, 8°, and the greatest at Cambridge, 21°; the mean daily range from all places was 16°.

The mean temperature of the air for the week from all stations was 43°, being 9° lower than the value for the corresponding week in 1878. The mean temperature of the air was the highest at Truro, 46°, and Plymouth, 45°; and the lowest at Hull, 40°, and Wolverhampton, 41°.

Rain.—The amounts of rain measured during the week were generally small, and varied from 0.68 inch at Brighton, 0.47 inch at Bradford, and 0.37 inch at Plymouth and Liverpool, to 0.02 at Nottingham. At Leicester and Norwich no rain was measured; the average fall over the country was 0.19 inch.

The weather during the week was fine, but very cold, with sharp frosts; the sky was generally cloudy. Thunder was heard at Cambridge and Liverpool on April 27, and snow fell at many places on May 1.

SCOTLAND: Temperature.—During the week ending Saturday, May 3, the highest temperatures of the air observed by day varied from 60° at Paisley, to 51° at Aberdeen; the mean value from all places was 57°. The lowest temperatures of the air observed by night varied from 28° at Perth, 29° at Paisley, 29° at Edinburgh, and 29° at Leith, to 33° at Greenock; the mean from all stations was 30°. The mean range of temperature in the week from all places was 27°.

The mean temperature of the air for the week from all stations was 43°, being 7° lower than the value

for the corresponding week in 1878. The highest was 45° at Paisley, and the lowest 41° at Aberdeen.

Rain.—The heaviest falls of rain were 0.46 inch at Aberdeen, and 0.34 inch at Edinburgh; and the least fall was 0.05 inch at Dundee. At Greenock and Paisley no rain was measured; the average fall over the country was 0.17 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

AMARYLLIS: Messrs. Ireland & Thomson. Your seedling, from the form and fragrance of its blossoms, evidently belongs to *A. solandrifolia*. Though for want of expansion it is not so showy as some others, it is a very interesting plant to add to a collection on account of its distinct form, and quite desirable on the score of perfume. The crimson striping is brighter than in any of the varieties of *A. solandrifolia* to which we have been able to refer, but is confined to the inner surface.

CANNAS, &c.: F. Paynter. The Cannas will not require water until they have made some progress, and the weather becomes hot and dry. Both them and the Lilies may be watered moderately—the Cannas most freely of the two—when the summer heat sets in; but if the weather proves showery we should not give much artificially, at least to the Lilies. The Christmas Roses like heavy soil, moderate shade, and to be left undisturbed. If your soil is very light you would benefit them by a top-dressing of loam, which would get gradually worked down amongst the roots, but we should have preferred using a portion of good sound loam at planting time.

CHRYSANTHEMUM CULTURE: J. Jones. Mr. Newton's little book is out of print.

CINERARIAS: J. Churchfield. Showy, varied, and well adapted for home decoration, but nothing more.

DENDROBIUM NOBILE. We are informed that the plant figured in our last number is the property of W. C. C. Thornhill, Esq., and that it was grown by his gardener, Mr. J. Wainwright.

DEUTZIAS: C. J. P. Cut them back rather closely, partially shake out, repot in well enriched light loamy soil, and grow on in a mild genial heat. After the young shoots are fully developed gradually harden off, and subsequently see that the young wood is thoroughly ripened.

ESPARTO, PYRETHRUM, &c.: W. Hannaford. The botanical name of the Spanish grass imported as Esparto, and used for paper making, is *Macrochloa tenacissima*. The ordinary Pyrethrum used as an insecticide is *P. carneum* and allied species. We know nothing of the name you mention. Loudon's *Amateur Gardeners' Calendar*, published by F. Warne & Co., will suit you best, but it costs a few shillings more than the sum named.

FERNS: Constant Reader. We cannot advise you where to send Devonshire Ferns "to make a little profit." Indeed this kind of wholesale destruction of wild plants for private ends should be altogether discouraged.

INSECTS: F. A. D. The eggs of the Lackey Moth, *Bombyx neustria*.

NAMES OF PLANTS: P. P. 1. the double Jonquil; 2, *Narcissus biflorus*; 3, *Narcissus Jonquilla*; 4, a Maple, which we cannot name for certain; it may be *Acer platanoides*. Why not take a little more trouble and send good specimens, properly packed?—*J. MacD.* 1, *Libocedrus chilensis*, Chili; 2, *Biota orientalis japonica*, Japan; 3, *Pinus cembra* (Zucc.), Mexico; 4, *Juniperus phoenicea*, Levant, Russia, &c.; 5, *Buxus balearica*, Corsica, Turkey, &c.; 6, *Oxalis Acetosella*; 7, *Juniperus chinensis*, China.—*H. K.* *Cupressus torulosa* var. *elegans*, Hort.—*J. F.* *Peperomia resediflora*.—*Anon.* *Streptocarpus polyanthus*.—*W. M. C. D.* 1, *Helleborus viridis*; 2, *Clematis montana*; 3, *Begonia semperflorens*; 4, *Solanum marginatum*; 5, not recognised; 6, *Narcissus bicolor*.

ORCHARD-HOUSE TREES: O. P. The tree, which is badly infested with scale, should be removed before the insect has spread over the rest. Probably had it been dressed in winter you would have been spared the presence of the scale. We concur in your opinion that such a dressing is beneficial, but it requires to be done cautiously when the fruit-buds are prominent.

PANSIES: J. B. They are large and showy enough, and may, as you say, sell remarkably well in the markets, but they are not florists' flowers.

PEACH TREES: J. P. The disease affecting your Peach trees is by no means new to us, but its cause has never been satisfactorily explained. We take it to be a sign of weakness, and have noticed that with liberal feeding and good treatment in other respects, the trees soon grow out of it. If they do not improve write again, and send further specimens.

PEAR TREES: T. S. P. The remarks you refer to apply equally to Pears as to Apples, and indeed to all other orchard fruit trees.

POSITION OF HOTHOUSES: G. L. Your object will be best attained by running the ridge of your houses north and south.

RHODODENDRON: Messrs. Ireland & Thomson. The *Rhododendron* has very much the general aspect and characteristics of *R. calophyllum*, a Bhotan species, figured in Henderson's *Illustrated Bouquet* some years since. The leathery leaves rusty beneath, and the size, colour, and fragrance of the flowers, quite correspond with the species above named. Being of stocky habit and bearing large pure white flowers of exquisite fragrance, it is of course a handsome plant, but we recommend you to compare it with *R. calophyllum*. Perhaps it was a seedling of that

[species, 'the supposed cross with R. Gibsoni having failed?

SOY OR SOJA BEAN : C. D. R. The Soja hispida, an erect-growing hairy herb, is too tender to be cultivated as an outdoor crop in this country. It would require to be reared in a hothouse temperature. "It is much cultivated in Tropical Asia, on account of its beans, which are used for preparing a well-known brown sauce (Soy) used both in Asia and Europe for flavouring."

STRAWBERRY : A. L. Your Strawberry appears to us to be the "rogue" known to most growers of large collections under the common name of the Chilean Strawberry. It is a free-growing but otherwise worthless plant, which has no doubt got into your collection by accident. There is also another sort with hairy leaves which makes its appearance in the same mysterious way. No quarter should be given to either of them.

TEA PLANTATIONS : E. B. The best advice we can give you is to put yourself in communication with Mr. Smith, Curator of the Royal Gardens, Kew.

VINES : C. Everest. The "disease" has not been caused either by wireworm at the roots or fungus in the soil, and is nothing more than the result of sun-scorching after the Vines have experienced cold and chills. In seasons like the present sun-scorching is always more or less prevalent, and we know of many cases as bad as yours—if that is any consolation to you.—*Somerset Gardener*. Your Vines have probably been weakened by over-cropping, and possibly the roots may also have got down into the cold subsoil, as you suppose.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

CATALOGUES RECEIVED.—Messrs. E. G. Henderson & Son (Pine-apple Nursery, Maida Vale, London, W.), Spring Catalogue of Soft-wooded, Bedding, and other Decorative Plants.—J. Linden (Ghent, Belgium), General Catalogue of Plants.—Messrs. Dickson & Robinson (12, Old Millgate, Manchester), List of Select Bedding Plants.

COMMUNICATIONS RECEIVED :—J. E. (Broccoli).—J. C. & Co. (thanks).—W. M.—J. R.—T. B.—A. D.—H. A. B.—J. F. R.—D. W.—T. M., Philadelphia.—G. H.—E. G.—H. W., Herrenhausen.—J. E. H.—W. G. S.—R. H.—T. S. P.—A. G. S.—G. S.—W. H. F.—W. T. T. D.—E. S. M. (next week).

Markets.

COVENT GARDEN, May 8.

The improvement in trade has prevented any fall in our market, though prices have been barely maintained the last day or two, supplies being somewhat more plentiful. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pine-apples, per lb. | 2 0-4 0 |
| Grapes, per lb. | 6 0-15 0 | Strawberries, per lb. | 6 0-12 0 |
| Lemons, per 100 | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 4 0-.. |
| Jerusalem, bush. | 6 0-.. | Lettuces, Cabbage, | |
| Asparagus, Fr. sprue, | | per doz. | 1 6-.. |
| per bundle | 1 6-.. | Mint, green, bunch. | 0 8-.. |
| Eng., per bundle | 7 0-.. | Onions, per bushel. | 6 0-7 0 |
| Fr. giant, p. bun. | 8 0-15 0 | young, per bun. | 4 0-6 0 |
| Toulouse, bun. | 2 6-3 0 | Parsley, per lb. | 1 0-2 0 |
| Beans, French, p. 100 | 2 0-.. | Peas, per quart | 5 0-.. |
| broad, per lb. | 1 0-.. | Potatoes, new, per lb. | 0 6-0 9 |
| Beet, per doz. | 1 0-2 0 | Radishes, Fr., bunch | 0 6-.. |
| Cabbages, per doz. | 1 0-2 0 | New Jersey, doz. | 2 0-.. |
| Carrots, per bunch | 0 4-0 6 | Rhubarb, doz. | 6 0-8 0 |
| New Fr., p. bun. | 2 0-.. | Shallots, per lb. | 0 6-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Seakale, per punnet | 2 6-.. |
| Celery, per bundle | 1 6-2 0 | Spinach, per bushel | 3 6-.. |
| Chilis, per 100 | 2 0-.. | Sweet Potatoes, per lb. | 0 6-.. |
| Cucumbers, each | 0 9-1 6 | Tomatoes, per dozen | 2 6-3 0 |
| Eudive, Batav. dozen | 1 6-.. | Turnips, p. 12 bunch. | 3 0-6 0 |
| Garlic, per lb. | 0 6-.. | New Fr., bunch | 1 0-1 6 |

Potatoes :—Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|---------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Arum Lilies, 12 blms. | 3 0-9 0 | Narcissus, 12 bunch. | 6 0-12 0 |
| Azaleas, 12 sprays | 0 4-1 0 | Pelargoniums, 12 spr. | 1 0-2 0 |
| Bouvardias, per bun. | 1 0-4 0 | zonal, 12 sprays | 0 6-1 6 |
| Camellias, per dozen | 1 0-6 0 | Primroses, single yellow, | |
| Carnations, per dozen | 1 6-4 0 | low, 12 bunches | 0 6-1 6 |
| Cineraria, 12 bunches | 6 0-12 0 | double white, 12 | |
| Cyclamen, 12 blooms | 3 0-1 0 | bunches | 1 6-3 0 |
| Daffodil, 12 bunches | 2 0-6 0 | Primula, double, per | |
| Deutzia, 12 bunches | 4 0-12 0 | bunch | 0 9-1 6 |
| Eucharis, per doz. | 4 0-12 0 | Roses (indoor), doz. | 1 0-9 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Stephanotis, 12 sprs. | 2 6-9 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Tropeolum, 12 bun. | 2 0-6 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberose, per dozen | 3 0-6 0 |
| Hyacinths, 12 bnch. | 4 0-12 0 | Tulips, 12 blooms | 0 6-1 0 |
| Lily of Val., 12 sprays | 1 0-3 0 | Violets, 12 bunches | 1 0-2 0 |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|----------------------|-------------|-------------------------|-------------|
| Arum Lily, or Rich- | | Ferns, in var., p. doz. | 4 0-18 0 |
| ardia athiop., doz. | 9 0-18 0 | Ficus elastica, each | 2 6-15 0 |
| Azaleas, per dozen | 18 0-60 0 | Foliage Plants, vari- | |
| Begonias, per doz. | 6 0-18 0 | ous, each | 2 0-10 6 |
| Bouvardias, per doz. | 18 0-24 0 | Fuchsias, per dozen | 9 0-18 0 |
| Cinerarias, per doz. | 6 0-18 0 | Genista, per dozen | 6 0-24 0 |
| Cyclamens, per doz. | 9 0-30 0 | Mignonette, per doz. | 6 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Dielytra, per dozen | 9 0-18 0 | Palm in variety, | |
| Dracena terminalis | 30 0-60 0 | each | 2 6-21 0 |
| —viridis, per doz. | 18 0-24 0 | Pelargoniums, per | |
| Erica hyemalis, doz. | 9 0-30 0 | dozen | 12 0-24 0 |
| —ventricosa, doz. | 24 0-42 0 | —scarlets, zonal, p. | |
| —perspicua nana, | | dozen | 6 0-12 0 |
| per dozen | 24 0-42 0 | Roses, per dozen | 12 0-42 0 |
| —Willmoreana, per | | Spiraea, per dozen | 6 0-24 0 |
| dozen | 9 0-24 0 | —palmata, per doz. | 18 0-48 0 |
| Euonymus, var., doz. | 6 0-18 0 | | |

SEEDS.

LONDON : May 7.—Our market to-day was very thinly attended and but little business was done. No change is to be noted in the value of red Clover, but English is now very little enquired for, while, on the other hand, the attention of many people is being directed towards American and Canadian red, as a medium of speculation, its good condition rendering it eminently suitable for keeping over, and, in consequence of this speculative demand, holders are very firm. There is very little doing in either white Clover or Alsike, but Trefoil is scarce and in good demand, owing to the unfavourable accounts of the growing crop. There is still a good sale for Italian and perennial Ryegrasses at full rates. Mustard is in fair request, as is also Rape seed; the latter is in short supply. Spring Tares of all kinds are very scarce and dearer. Other articles unchanged. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday trade was dull. Fine dry English Wheat was rather scarce, but there being very little trade the quotations drooped. Foreign Wheat was in pretty good supply, and a reduction in price was submitted to where there was any pressure to sell. Barley was slow of sale at the prices of last week. Malt was without change. Oats were quiet on rather lower terms; Maize, too, was weaker. Beans were in moderate request, and prices firm. Peas were quiet, at about late rates; and flour was tolerably steady.—The tone of the trade on Wednesday was a trifle firmer. English Wheat was in short supply, and the better qualities found buyers at previous quotations. Foreign Wheat was pretty well held, but the trade was miserably slow. Barley was much the same. Malt was dull, but unaltered in price. Oats and Maize were in limited request, and rates were with difficulty sustained. Beans were firm. Peas were without material change, and a steady market prevailed for flour. Average prices of corn for the week ending May 3 :—Wheat, 40s. 9d.; Barley, 30s. 1d.; Oats, 21s. 9d. For the corresponding period last year :—Wheat, 52s. 1d.; Barley, 40s. 6d.; Oats, 25s. 8d.

CATTLE.

At Copenhagen Fields on Monday a better tone prevailed in the cattle trade. In the sheep trade the tendency of prices was against the buyer. Lambs were quiet, calves steadier than last week, and pigs sold at about late prices. Quotations :—Beasts, 4s. to 4s. 8d., and 4s. 10d. to 5s. 2d.; calves, 5s. 6d. to 6s. 8d.; sheep, 4s. to 5s., and 5s. 6d. to 6s.; lambs, 8s. to 8s. 6d.; pigs, 3s. 8d. to 4s. 8d.—On Thursday the cattle trade generally was quiet. The supplies of stock were not large, but about sufficient for the demand. Beasts and sheep sold quietly at the rates current on Monday. Lambs were firm, and rather dearer. Calves steady.

HAY.

The Whitechapel report for Tuesday states that with a moderate supply trade was steady, and prices were as follows :—Prime Clover, 100s. to 108s.; inferior, 85s. to 95s.; prime meadow hay, 75s. to 84s.; inferior, 40s. to 70s.; and straw, 30s. to 37s. per load.—On Thursday, there being a short supply of fodder on sale, a brisk trade prevailed, at dearer prices. Prime Clover, 100s. to 110s.; inferior, 85s. to 95s.; prime meadow hay, 75s. to 87s.; inferior, 40s. to 70s.; and straw, 30s. to 37s. per load.—Cumberland Market quotations :—Superior meadow hay, 88s. to 96s.; inferior, 70s. to 80s.; superior Clover, 108s. to 116s.; inferior, 88s. to 95s.; and straw, 34s. to 40s. per load.

POTATOS.

The Borough and Spitalfields markets reports state that supplies have been rather limited, but there has been only a quiet demand, and prices show no material change. Regents, 120s. to 140s.; Champions, 95s. to 110s.; German reds, 110s. to 130s.; flukes, 140s. to 180s.; Victorias, 140s. to 160s. per ton.—During last week 42,875 bags of Potatoes were received from Hamburg, 3045 Bremen, 3161 Ghent, 5278 Antwerp, 1108 Boulogne, 339 boxes 227 packages 571 cases and 120 casks Malta, 991 bags Dunkirk, 600 bags 428 tons Stettin, 88 sacks Rouen, and 393 packages from the Brazils.

Government Stock.—On Monday the closing price for Consols was 99 to 99½ for delivery and the account—the record for Tuesday was 98½ to 98½. On Wednesday business closed at 98½ to 98½ for delivery, and 98½ to 98½ for the account. Consols for money closed on Thursday at 98½ to 98½, and for the account at 98½ to 98½.

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NARCISSUS, for the Trade.—It is now time for ordering these articles, to be delivered in August or later in the autumn. Double Roman Narcissus especially will be scarce. Orders are now booked. Special prices are given by correspondence.

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PUMILA MAGNIFICA, Brighton, 2s. 6d.

CINERARIA MARITIMA (silvery foliage), 5s. per 100.

PETUNIAS, Double, striped and white, 2s., crimson, 1s. 6d.

per dozen.

CENTAUREA CANDIDISSIMA, 2s. per dozen, 12s. 6d.

per 100.

ALTERNANTHERAS, 8s.; MENTHA, 5s.; STELLARIA,

golden, 2s. 6d.; PYRETHRUM (strong), 2s. per 100.

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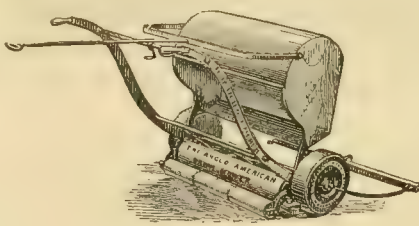
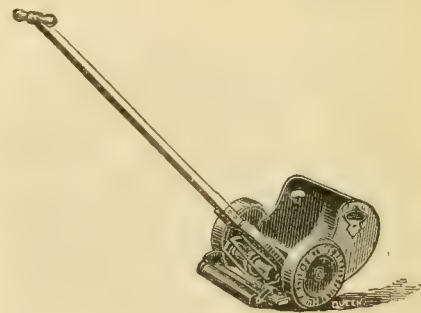
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Prepared by JOHN KILNER, Wortley, Sheffield.

GISHURST COMPOUND.—
Used by many of the leading Gardeners since 1859,
against Red Spider, Mildew, Thrips, Greenfly, and other Blight,
in solutions of from 1 to 2 ounces to the gallon of soft water, and
of from 4 to 16 ounces as a winter dressing for Vines and Fruit
Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d.
Wholesale by PRICE'S PATENT CANDLE COMPANY
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EWING'S MILDEW COMPOSITION,
in bottles, 1s. 6d. and 3s. each; one-gallon cans (to make
104 gallons of mixture for syringing), 12s. each; two-gallon
cans, 20s. each. Mildew or Red Spider are also effectually
prevented or destroyed by merely painting the hot pipes with
the composition mixed with whitewash; no direct application
to the foliage is then necessary.
EWING AND COMPANY, Royal Norfolk Nurseries,
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By Permission of the Hon. Board of Customs,
Free of Duty.

NICOTINE SOAP.
A NEW AND UNRIVALLED INSECTICIDE
FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing
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ounces sufficient for one gallon of water for ordinary use.

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THE LONDON TOBACCO JUICE.
TOBACCO PAPER, CLOTH, and CORD.

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For COVERING, TYING, and PACKING,
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STABLE and COACH-HOUSE PAVINGS in every
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THE ABOVE and many other PATTERNS
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Good substantial made GREENHOUSES, Glazed, ready for
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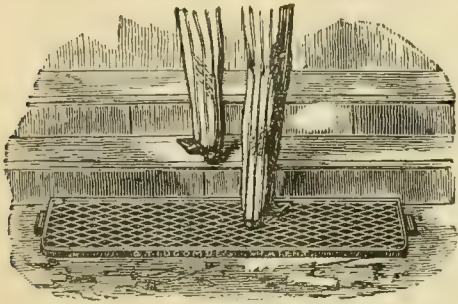
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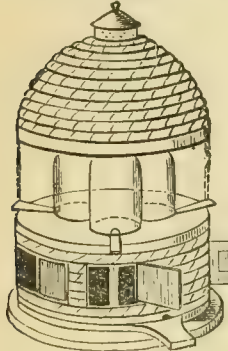
Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

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The **IMPROVED COTTAGE BEEHIVE**, as originally introduced by G. Neighbour & Sons, working three bell-glasses, is neatly and strongly made of straw; it has three windows in the lower Hive. This Hive will be found to possess many practical advantages, and is more easy of management than any other Beehive that has been introduced.



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Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows, Wheelbarrows, Garden Tools, Fancy Wirework, Birdcages, Hammocks, and all kinds of Garden Furniture at lowest marked prices. Catalogues post-free. 5 per Cent. for Cash.

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TIFFANY of various kinds always on hand. Netting and Shading in pieces 30 yards long, by 1½ yard wide. Tiffany in pieces 20 yards long, 38 inches wide. Also Tiffany mineralised.

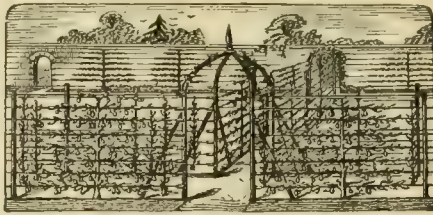
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HOTHOUSE SHADINGS.
FINE NETTING, 5d. per square yard; No. 6A, 8d.; No. 6, 9d.; No. 6, improved, 9½d.
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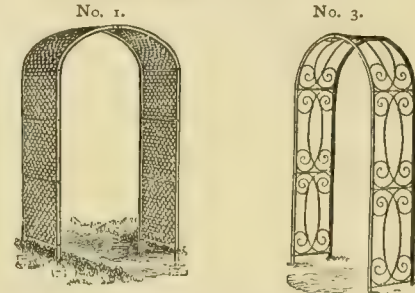


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Estimates given free of charge for Espalier Trainers for Fruit Trees, &c. The Espalier can be easily fixed, wood or stone blocks being unnecessary. In writing for Estimates please give exact lengths required, with a rough sketch showing angles, if any.

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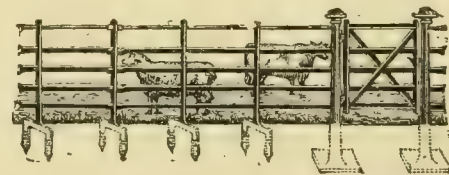


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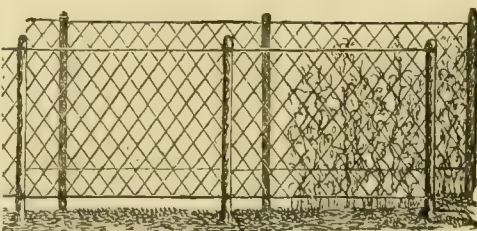
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For Wire applied to Horticultural Purposes.

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For Training Peas, instead of Sticks.

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NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard.

TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.

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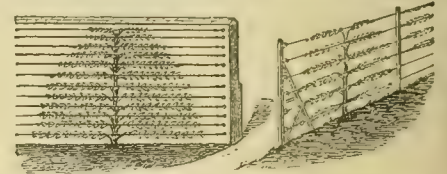
Tiffany and Elastic Netting (REGISTERED), with Canvas and all other Shading and Protecting Materials, manufactured and sold by

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Samples and prices on application.

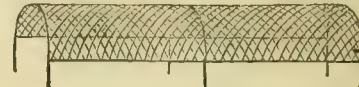
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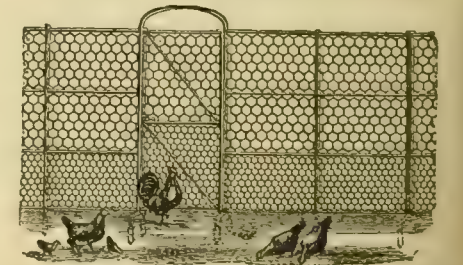
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NEW and IMPROVED POULTRY FENCES.



This fence is a much stronger description of fencing than the lattice panels with loose standards, and is more portable, being made in lengths 6 feet long with double pronged feet. A run or pen can be formed of any length or shape without extra cost; it is easily fixed or removed; the gate can be placed in any part of the fence.

PRICES:—
6 feet high, including all necessary Bolts and Nuts .. 5s. per yard.

Doorway complete, 2 feet wide, including Standards and Arched Stay .. 13s. 6d. each.

Angle-iron Pillars for Corners, with Cast Ornaments .. 3s. each.

Carriage paid on orders of 40s. value. Orders executed on receipt.

From STEPHEN MARTIN, Esq., Raveley, Bournemouth.

"Gentlemen, I am very pleased to inform you that the Poultry Fencing you supplied has given every satisfaction, being strong, durable, and neat."

To avoid delay, cash or reference with first orders is respectfully requested.

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FOR PLANTS

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PARASITE ANNIHILATOR

An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites infesting Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—From Mr. D. THOMSON, Gardener to His Grace the Duke of Buccleuch, Drumlanrig Castle.—“I duly received the jar of your Insect ‘Annihilator’ and sprayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied it to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into a reddish-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems ‘done for’ in about ten minutes, after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis, Dracenas, Marantas, and Crotons, and not one of these are in the least injured.” Sold in Bottles, containing one pint at 1s. 6d., 1 quart at 2s. 6d., and 2 quarts at 4s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each.

SPEED'S VINE AND ROSE MILDEW ANNIHILATOR.—An effectual and instantaneous destroyer of Mildew. It is perfectly harmless to the Grape Vine, the Rose, and the Peach, and may be applied to the most tender foliage. The fruit may be dressed with it in any state with perfect safety, even before the thinning period. It is non-poisonous to animals, although it is instantly destructive to all Fungi. It is simple and easy to apply, and may be rinsed off in ten minutes after its application, leaving no sediment, taste, or smell. It will be found of inestimable service in checking all disease caused by Fungi in the Rose, Grape, Peach, Hollyhock, Potato, &c. Testimonial from ROBERT HOGG, Esq., LL.D., F.L.S., &c., Pomological Director of the Royal Horticultural Society.—“I have great pleasure in bearing my testimony to the magical effect which your mixture has upon the Mildew of the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the foliage of the Vine, was so destructive and so instantaneous, as to leave no doubt on my mind as to its perfect efficacy in destroying the Mildew. On examining the foliage with a magnifying glass after the application, I could find no trace of the disease.” Sold in Bottles at 2s., 3s. 6d., 6s., and 10s. each; to make 1 quart, ½-gallon, 1 gallon, or 2 gallons, ready for use. Full directions for use enclosed with each bottle. Vaporisers for applying the Annihilators, 2s. each.

N.B.—The “Parasite Annihilator” and the “Mildew Annihilator” are quite distinct preparations, and are prepared only by ALFRED LOWE, Chemist, Chesterfield. May be obtained through any Chemist or Seedsman. London Agents:—F. Newbery & Sons, W. Edwards & Son, J. Sanger & Sons, W. Sutton & Co., J. Veitch & Sons, Hurst & Son, Corry & Soper, Dick Radclyffe & Co.

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IN OPEN COMPETITION,

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THE “INVINCIBLE”
LAWN MOWER
IS ADAPTED FOR EVERY
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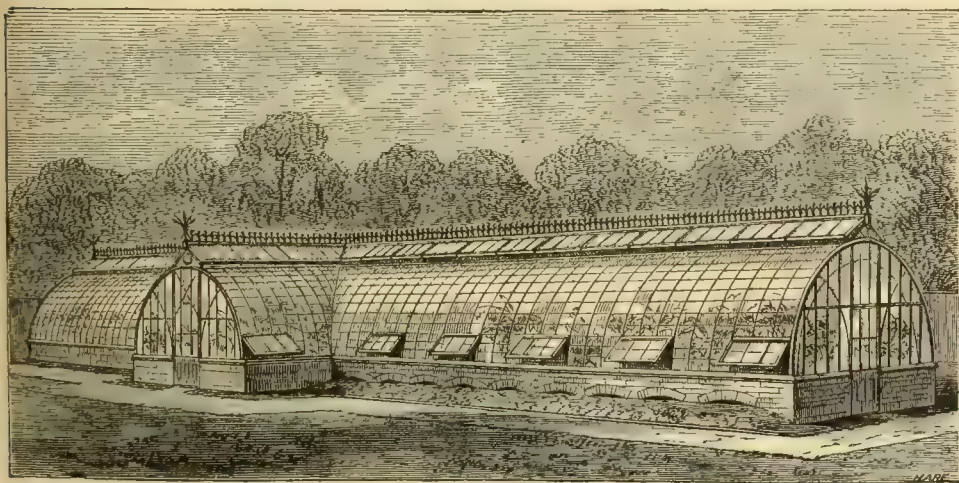
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RANGE of PATENT BENT WOOD CURVED VINERIES, PLANT HOUSES, &c., recently erected at Croydon.

These Houses are light, strong, durable, and of elegant appearance. Can be made as cheaply as a plain, straight House, and no Bent Glass need be used.

Illustrated Sheets sent, post-free, on application, and Estimates given without charge.

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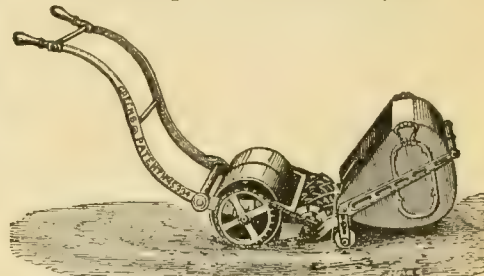
THE GREAT SUPERIORITY OF

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Over those of all other Makers is universally acknowledged.

They will Cut either Short or Long Grass,
Bents, &c., Wet or Dry.

These advantages no other Lawn Mowers possess.



They are the simplest in construction, the easiest to work, the least liable to get out of order, make little noise when in use, and are the most durable Lawn Mowers extant.

The above machines have proved to be the best, and have carried off every prize in all cases of competition.

Every Lawn Mower is guaranteed to give entire satisfaction, otherwise it may be returned at once, free of cost to the purchaser.

The largest stock of Mowers kept in London, and including all sizes from 6 to 48 inches, is to be seen at our London establishment, 54 and 55, Blackfriars Road, where purchasers can select out of several hundred machines, and have their orders executed the same day they are received.

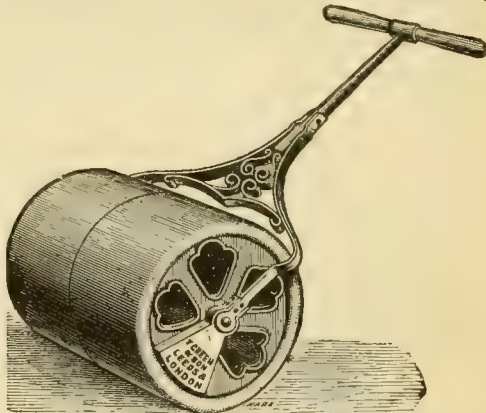
N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London establishment, where they will have prompt attention, as an efficient staff of workmen is kept at both places.

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For Lawns, Drives, Bowling Greens, Cricket
Fields and Gravel Paths,

SUITABLE FOR HAND OR HORSE POWER;

And STEAM ROAD ROLLERS for ROAD MAKING,



They can be had of all respectable Ironmongers and Seedsman in the United Kingdom, or from the Manufacturers,

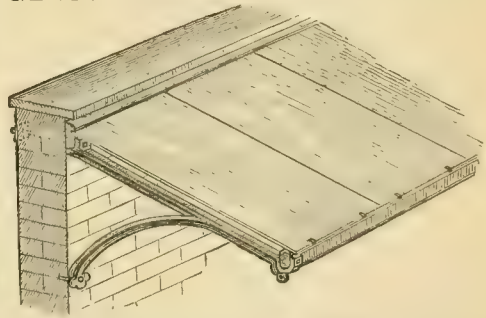
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No. 281.—VOL. XI. { NEW SERIES. }

SATURDAY, MAY 17, 1879.

{ Registered at the General Post Office as a Newspaper. } Price 5d. POST FREE, 5½d.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

Alteration of Date.

THE GREAT ROSE SHOW and SHOW of the PELARGONIUM SOCIETY will be held in the Gardens of the Royal Horticultural Society, on **TUESDAY, JULY 8**, instead of Tuesday, June 24, as formerly announced.

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N.B.—Application for space to be made to the Superintendent, Royal Horticultural Society, South Kensington, S.W. Entries close Friday, May 23.

Note.—Medals to be awarded for Implements, &c., see p. 6 of Schedule.

ROYAL BOTANIC SOCIETY,

Gardens, Regent's Park, N.W.
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SEEDLING PEDIGREE ROSES.—The

greatest floral novelties of the age are H. Bennett's "Pedigree Seedling Roses." Will be ready the first week in June.

To ensure good plants order at once, as there is only a small stock of each variety. Descriptive LISTS gratis and post-free.

H. BENNETT, Manor Farm Nurseries, Stapleford, Salisbury.

Manor Farm Nurseries.

WILLIAM FLETCHER offers clean

healthy plants in 48-pots, now coming into bloom, of all the leading varieties. Price on application.

Ottershaw Nursery, Chertsey.

Verbenas from Store Pots.

WILLIAM BADMAN offers clean, healthy,

well-rooted cuttings of Purple, White, Scarlet, Crimson, and Rose Verbenas, 6s. per 100; 50s. per 1000. Twelve choice Show Varieties, 8s. per 100. Package included. Terms cash.

Cemetery Nursery, Gravesend.

VERBENAS, VERBENAS.—All good

strong, well-rooted, and healthy, of the following varieties, at 6s. per 100, 50s. per 1000:—Purple, White, Crimson, and Pink, &c. Package free for cash.

T. FLETCHER, Florist, &c., Chesterfield.

FOR SALE, VERBENAS, Purple, White,

Scarlet, and Pink. Good plants, 6s. per 100, package free. Cash with order.

S. BIDE, Alma Nursery, Farnham.

FOR SALE, strong healthy Cuttings of

Purple, White, Scarlet, and Pink VERBENAS, 3s. per 100. Twenty good exhibition varieties, 4s. per 100, free by post.

Cash with order.

S. BIDE, Alma Nursery, Farnham.

ROMAN HYACINTHS for the Trade, to be

delivered in August, or later in the autumn. Special prices are given by correspondence. Early orders desirable.

E. H. KRELAGE and SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland.

Raphia.

HURST and SON have this week received

a small consignment, of fine quality. Price on application.

6, Leadenhall Street, London, E.C.

WANTED—ROSES, Maréchal Niel, and

others; also CUT FLOWERS of all descriptions. Best market price by return.

H. STANLEY, Wholesale and Retail Florist, St. John's Market, Liverpool.

Prickly Comfrey—Solid-stemmed Variety.

WANTED, a quantity.—State lowest price for good sets.

STUART, MEIN and ALLAN, Kelso.

WANTED, 12,000 DRUMHEAD

CABBAGE PLANTS, Autumn-sown.—Write, stating price to

SAMUEL SKINNER, Teeds, Maidstone.

CARTER'S GOLD MEDAL LAWN

GRASS.—Price 1s. (post-free 1s. 4d.), 1s. 6d., and 2s. 6d. per packet. 25s. per bushel. 20s. value carriage free. Awarded First Prize Paris Exhibition.—237 and 238, High Holborn, W.C.

IMPORTANT CAUTION.—The beautiful

Lawns so much admired on the Trocadero at the Paris Exhibition, awarded the First Prize and only Gold Medal (beating all other competitors, English and Continental), were produced with CARTER'S FINE LAWN GRASS SEEDS, and no other English seed house was awarded a gold medal for lawns. In sealed packets only, as above.

CARTER, The Queen's Seedsmen, 237 and 238, High Holborn, London, W.C.

Vines—Vines—Vines.

W.M. CUTBUSH and SON have a fine lot

of Planting Canes yet to offer, of all varieties; also strong Fruiting Canes of Buckland's Sweetwater and Muscat of Alexandria.

Highgate, London, N.; and Barnet, Herts.

Vines—Vines—Vines.

J. COWAN, The Vineyard, Garston, near

Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

FRUITING PLANTS

of PEACHES, NECTARINES, APRICOTS, and

GRAPE VINES, a large and fine stock, now offered for Sale.

THOMAS RIVERS and SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE

of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps.

CATALOGUES of ROSES and ORCHARD-HOUSE TREES post-free on application.

THOMAS RIVERS and SON, Sawbridgeworth, Herts.

TODEAS.—Healthy young plants of T.

superba and T. hymenophylloides (pellucida), free and

safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.

ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

LOBELIA PUMILA MAGNIFICA

(Williams).—4000 fine Plants, all from cuttings, established

in single pots, 16s. per 100. Free on rail here.

GEO. ROSE, Queen Street, Barnsley.

PRIZE SPECIMEN EXHIBITION FINE

FOLIAGE PLANTS for Sale.—Clean and healthy: the

best new kinds.

Particulars as to size and price can be had on application to

WILLIAM PAYNE, Plant Merchant, The Laurels, Taunton.

COLEUS—COLEUS—COLEUS.—Four of

the best new Coleus of 1878 post-free for 2s. 6d., viz.,

Garnet, George Bunyard, Fascination, and Exquisite, a perfect

gem. Cash with order.

PERKINS and SONS, Park Nurseries, Coventry.

To the Trade.

POLEMONIUM CERULEUM

VARIEGATUM, at 15s. per 100.

HOWDEN and CO., The Nurseries, Inverness, N.B.

To Amateurs and the Trade.

AURICULAS and PANSIES.—Now ready,

the above, in choice named exhibition varieties. Prices

on application.

J. BOOTH, Florist, Failsforth, Manchester.

CATALOGUES.—His Excellency Pierre

Wolkenstein will feel greatly obliged if Nurserymen and

Seedsmen will kindly send him their Catalogues. They should

be forwarded (by post) to

S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société

Imperiale d'Horticulture de Russie, St. Petersburg.

PELARGONIUM VOLUNTE

NATIONAL.—The most beautiful Geranium ever intro-

duced, strong plants 3s. 6d. each, free by post 3s. 9d. in stamps.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

DR. DENNY'S ZONAL PELARGONIUMS

(Sixth Set), are now ready for distribution. For descrip-

tive CATALOGUE apply to

JOHN BALAAM, Vine Nursery, Hackney Downs Road, Lower Clapton, N.E.

Pelargoniums.

PELARGONIUMS.—Strong healthy plants,

in single pots, fit for immediate shifting, consisting of

Show, French, and Fancy varieties, 35s. per 100, packing

included. Cash with order.

HOLDER and SON, Crown Nurseries, Reading.

W.M. POTTEN can still supply Select

GERANIUMS, PETUNIAS, &c., as advertised in

Gardeners' Chronicle May 10.

To the Trade.

ASPARAGUS, Giant, 1, 2, 3, and 4-year.

JAMES BIRD, Nurseryman, Downham.

Gentlemen's Gardeners, Amateurs, and Others

REQUIRING

GARDEN POTS of best quality,

are requested to send their orders to

J. MATTHEWS, Royal Pottery, Weston-super-Mare.

Price List on application.

SALES BY AUCTION.

Beckenham, Kent, S.E.

Five minutes' walk from Beckenham Junction Station.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Victoria Nursery, Bromley Road, Beckenham, Kent, S.E., by order of Mr. G. Nunns, on THURSDAY, May 22, at 11 for 12 o'clock, about 12,000 well-grown BEDDING PLANTS, viz.:—4000 Vesuvius, 4000 Geraniums in variety, 3000 Calceolarias, Pyrethrus, Fuchsias, Hardy Ferns, Iresine, &c., Greenhouse and Stove Plants, Dracenas, Crotons, Corypha australis, Seaforthia elegans, Tea and other Roses, Pelargoniums, &c.

May be viewed the day prior to the Sale, and Catalogues had on the Premises, also of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

Hornsey, N.

ELEVENTH ANNUAL BEDDING PLANT SALE.

IMPORTANT UNRESERVED SALE of about 80,000 unusually well-grown GREENHOUSE and BEDDING PLANTS, in rich assortment, consisting of Verbenas, Fuchsias, Heliotropes, 25,000 choice Geraniums, the whole of which are wintered plants, including Mrs. Pollock, Madame Vaucher, Vesuvius, and other well-known varieties; 10,000 Lobelias, 4000 Calceolarias, 5000 Alternantheras, of sorts; choice Roses in pots, Spiraeas, Pelargoniums, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above stock, on the Premises, The Nursery, Hornsey, N., on TUESDAY, May 27, at 12 o'clock, by order of Mr. J. Page (successor to Mr. Cleall).

On view three days prior to Sale. Catalogues, post-free, from the Nursery, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

IMPORTANT ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Exotic Nursery, S.W., by order of Mr. R. Parker, on THURSDAY, May 29, at 1 o'clock, a large quantity of extra stock of STOVE and GREENHOUSE PLANTS, in healthy and thriving condition, choice Orchids in variety, Exotic Ferns, selected Palms, specimen Camellias and Rhododendrons, and a fine assortment of Succulents and Hardy Herbaceous Plants.

May be viewed. Catalogues obtained on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Hammersmith, W.

In the Fulham Road, and opposite the Convent of the Good Shepherd, near the Broadway, Metropolitan, South-Western, and District Railways.

To GENTLEMEN, NURSERYMEN, FLORISTS, and OTHERS.—CLEARANCE SALE.

MR. J. A. SMITH, having received instructions from Mr. F. Herridge, will SELL by AUCTION, on the Premises, The Nursery, Fulham Road, Hammersmith, W., on WEDNESDAY, May 21, at 1 o'clock punctually, about 40,000 PLANTS, all well selected for bedding and greenhouse, in first-rate condition, and comprising about 13,000 GERANIUMS, including Princess of Wales, Grand Duchess, Czarevna, Miss Herridge, Gloire de Corbeny, Mrs. Pollock, Lady Plymouth, Model, Flower of Spring, Bijou, Madame Vaucher, Master Christine, Madam Hardy, Rose Rendatler, Madame Mézard, l'Éléante, Lucius, Vesuvius, and many other very choice varieties; 2000 CALCEOLARIAS, Golden Gem, &c.; 6000 MESEMBRYANTHEMUMS, HELIOTROPIES, IRESINES, ALTERNANTHERA, PYRETHRUM, and COLEUS; 4000 LOBELIAS, Blue Gown, pumila magnifica, &c.; thousands of PELARGONIUMS, FUCHSIAS, and others of the best varieties, splendid growth, and most approved selection.

The whole may be viewed the day prior and morning of Sale. Catalogues at the Nursery, and at Mr. J. A. SMITH'S Auction, Land and Estate Offices, 58, King Street East, Hammersmith, W.

Car Colston, Nottinghamshire.

To NURSERYMEN, MARKET GARDENERS, and FLORISTS.

MR. J. M. POTT is instructed to SELL by PUBLIC AUCTION, at the Mart, Wheeler Gate, Nottingham, on WEDNESDAY, June 4, at 4 for half-past 4 o'clock, subject to the Conditions to be then produced, an excellent NURSERY and MARKET GARDEN, in a very high state of cultivation, with complete and extensive Range of Greenhouses, Conservatories, and Forcing Pits, comprising about 3 acres, with the good Dwelling-house situate upon the same, with Stable, Cart-shed, and Barn, now or late in the occupation of Robert Cragg. The situation is extremely favourable for a Nurseryman, a Market Gardener, or a Florist, being within easy distance of Nottingham and three other market towns. Also Three COTTAGES adjoining the above premises; also Two GRASS FIELDS, known as "The Nervings," containing about 5½ acres, and One ARABLE FIELD, known as "The Moors," containing about 2½ acres. All the above premises are freehold, and are situate in or near to the village of Car Colston, in the county of Nottingham. They will be sold together or in lots.

For further particulars, apply to Mr. J. FLETCHER, on the Premises, to the Auctioneer, Eldon Chambers, Wheeler Gate, Nottingham; or, to Messrs. DOWSON AND WRIGHT, Solicitors, Weekday Cross, Nottingham.

Valuable Imported Orchids.

MR. J. C. STEVENS has received instructions from Mr. F. Sander, of St. Albans, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 22, at half-past 12 o'clock precisely, a large importation of the beautiful ONCIDIUM MACRANTHUM; also the magnificent NEW ODONTOGLOSSUM POLYXANTHUM (Reich.)—flowers 4 inches in diameter, petals broad and golden-yellow barred with dark red; the dried flowers on view will give some idea of the beauty and grandeur of this beautiful Odontoglossum; a small but very healthy importation of NANODES MEDUSÆ, and 500 extra fine ODONTOGLOSSUM ALEXANDRÆ, fine ODONTOGLOSSUM TRIUMPHANS, just received per steamer "Don"; at the same time will be offered a splendid importation of ORCHIDS from Mexico, including grand masses of Odontoglossum Rossi majus, O. maculatum superbum, Cattleya citrina, Lælia furfuracea, a fine lot of Oncidium concolor, and other good Oncidiums and Odontoglossums.

On view morning of Sale, and Catalogues had.

Rare Ferns, Orchids, &c.

MR. J. C. STEVENS has received instructions from A. Wills, Esq., of Esher, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., about the end of JUNE, magnificent Specimen GLEICHENIAS, a choice collection of Filmy Ferns (some quite new); a small collection of ORCHIDS in good condition, HEATHS, and miscellaneous STOVE and GREENHOUSE PLANTS.

For further particulars see future advertisements.

Highly Important Sale of Stove and Greenhouse PLANTS, FERNS, &c., grown at Darnley, Leith.—In consequence of the Messrs. Fraser having resolved not to exhibit or compete, they have instructed

MR. MASSON, AUCTIONEER, to SELL, in the Music Hall Buildings, during the SECOND WEEK in JUNE, their well-known Collection.

Catalogues and further particulars, with cards to view, may be obtained from Messrs. FRASER; or the Auctioneer, 115, Union Street, Aberdeen.

London, S.E. (4648).

FOR SALE, an excellent NURSERY-MAN'S, SEEDSMAN'S, FLORIST'S, and FRUITERER'S BUSINESS in a main thoroughfare of great traffic. Shop, Greenhouse, Showhouse, and ¼ Acre of Land. Price about £400. Open to an immediate offer.

Apply to PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.

Nursery and Seed Business for Sale.

FOR IMMEDIATE DISPOSAL, a first-class NURSERY and SEED BUSINESS, established fifty years and doing a large and increasing trade. The Nursery is well situated for railway accommodation, extends to about 45 Acres, and is stocked with a well-selected variety of Forest, Fruit, and Ornamental Trees and Shrubs. A large selection of Roses. Probable value of stock about £10,000.

Apply to "NURSERY X," E. Marlborough & Co., 51, Old Bailey, London, E.C.

MR. CHARLES BURLEY, HORTICULTURAL AUCTIONEER and VALUER, undertakes SALES, in any part of the country, with strict economy.

Office: Brentwood, Essex.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

New Dahlias now ready.

CLARA, GEORGE SMITH, REV. J. GOODDAY, Also all the best varieties over 1-yr. old, 4s. 6d. per dozen. RAWLINGS BROS., Romford, Essex.

Special Offer.—Extra Strong-rooted Plants.

F. AND A. SMITH will be pleased to send LIST of the above, with Prices; also quotations for BEDDING and GREENHOUSE PLANTS, of which they have an immense Stock.

The Nurseries, West Dulwich, S.E.

RICHARD WALKER has to offer the following Roots:—LEMON THYME and PENNY-ROYAL, 8s. per 100; SAGE and BLACK THYME, 5s. per 100; SWEET WILLIAMS, 8s. per 100; PICOTEEs, seedlings, from all best sorts, 10s. per 100; WALLFLOWERS, 5s. per 100; DELPHINIUMS, 1s. per dozen.

Market Gardens, Biggleswade, Beds.

NEW ENGLISH ROSES.—The following twelve new English-raised Roses for 25s. basket and packing free for cash with order:—May Quennell, Mabel Morrison, Robert Marneock, Dean of Windsor, Richard Laxton, John Bright, Mrs. Laxton, Penelope Mayo, Red Dragon, Marchioness of Exeter, Magna Charta, and Lady Mary Keith, all extra fine plants. List of Roses in pots (Tea-scented, new French varieties of 1879, &c.), gratis and post-free.

GEORGE COOLING, Nurseryman, Bath.

Azaleas Coming into Bloom.

JAMES IVERY AND SON, having a large stock of the above in all the choice varieties (home-grown), beg to offer them at the following low prices:—Plants in large 48's, with good heads, well set with bloom, from 18s. per dozen.

Also a quantity of smaller stuff, nice plants, in small 48's, at 12s. per dozen.

Extra plants will be sent to compensate for carriage.

The Dorking Nurseries, Surrey.

Established upwards of a Century.

DICKSONS AND CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, will be glad to send, post free, on application, their new Descriptive CATALOGUE OF FLORISTS' FLOWERS, including early and late Phloxes, Bedding Violas and Pansies, Show and Fancy Pansies, New Primulas, Winter-flowering Zonal Geraniums, and all kinds of Bedding-out Plants.

Stocks, Asters, Hollyhocks, &c.

MESSRS. BIDDLE AND CO. can offer good HOLLYHOCK plants, at 3d. each, 2s. 6d. per dozen, 4s. 10s. per 100; fine plants of PANSIES, CARNATIONS, and DIANTHUS, 1s. per dozen, carriage unpaid. STOCKS and ASTERS, the finest varieties, 6d. per score, post-paid. CATALOGUE, containing over 500 illustrations, post-free on application.

The Penny Packet Seed Company, Loughborough.

Lilies of the Valley—for the Trade.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland, are now booking Orders for Lily of the Valley, clumps or spikes, for forcing, to be delivered in October or November next. As usually, the stock, of superior quality, is unequal to the ordered quantity, early orders are desirable. E. H. K. & Son are well-known to supply a superior stock of these articles. Special prices are given by correspondence.

New Strawberry, Duke of Athole.

MESSRS. DICKSON AND TURNBULL have much pleasure in offering the above valuable addition to the Strawberries already in cultivation. A first-class variety for market or exhibition.

Descriptive CIRCULARS on application.

Price, 6s. per 100, 10s. per dozen. Quantities less than 50 at dozen rate.

The Nurseries, Perth, N.B.

LINNEAN SOCIETY,

Burlington House, Piccadilly, London, May 13, 1879.

The Anniversary Meeting of the Linnean Society of London will be held here, on SATURDAY, the 24th of this month, at 3 o'clock precisely, for the Election of a Council and Officers for the ensuing year.

FREDERICK CURREY, Secretary.

HORTICULTURAL CLUB, 37, Arundel

Street, W.C. Prospectuses and all information given on application to H. HONYWOOD D'OMBRAIN, Sec.

BATH and WEST OF ENGLAND SOCIETY

(Established 1777) and

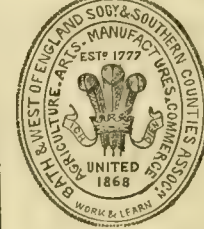
SOUTHERN COUNTIES ASSOCIATION.

Patron—H.R.H. the PRINCE OF WALES, K.G.

President—The Right Hon. the EARL OF MORLEY.

EXETER MEETING, JUNE 2,

3, 4, 5, and 6, 1879.



GREAT EXHIBITION of LIVE STOCK, POULTRY, MACHINERY, IMPLEMENTS, WORKS of ART and HORTICULTURAL SPECIMENS:—COMPETITION of SHOEING-SMITHS, &c.

JOSIAH GOODWIN, Sec., 4, Terrace Walk, Bath, May, 1879.

Horticultural Shows, Season 1879.

Before making their final arrangements, Secretaries should send for particulars of the Music and Entertainments of

THE ROYAL HANDBELL RINGERS and GLEE SINGERS (Poland Street, London), by which the cost of an expensive Band may be saved, and a handsome profit for Societies' funds may be realized. References to Secretaries of Coventry and Warwickshire, Oundle, Buckingham, and other Local Societies. Full particulars from the Conductor,

DUNCAN S. MILLER, 53, Richmond Terrace, Clapham Road, London, S.W.

Legion of Honour.

PARIS EXHIBITION, 1878.—We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the pecuniary merits of our exhibits at the above exhibition. See Times Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON AND SONS, The Queen's Seedsmen, Reading, London and Paris.

SMITH'S BALSAM.—Seed of the above can

be had from most Seedsmen throughout the world, in 1s. and 2s. packets mixed, and in 2s. 6d. collections of nine colours; also CINERARIA, PRIMULA, and CALCEOLARIA, in 1s., 2s., 6d., and 5s. packets, or direct from F. AND A. SMITH, The Nurseries, West Dulwich, S.E. N.B.—Blooms from our superb collection of Cinerarias sent per post on receipt of four stamps.

Pyrethrus, Double Flowered.

ROBERT PARKER begs to announce that he can supply strong, healthy, well-established Plants, in 100 named varieties, from 5s. to 18s. per dozen.

Descriptive LIST on application.

Exotic Nursery, Tooting, S.W.

Rhododendrons—Rhododendrons.

G. FARNSWORTH has to offer large quantities of the above, Hybrid and Pontica mixed—3-yr. seedlings, 5s. per 1000; 3-yr. and 2-yr. bedded, 6s., 20s. per 1000; extra transplanted, 6 to 10 inches, 70s. per 1000; 1 to 1½ foot, bushy, 130s. per 1000. A reduction will be made for large quantities of seedlings. Samples may be had on application at

The Nurseries, Matlock.

TO THE TRADE.

TEA-SCENTED ROSES, strong plants, in 48-pots, 75s. per 100.

NOISETTES, Maréchal Niel and others, ditto, 75s. per 100;

and 6 feet plants, in 7-inch pots, 18s. per dozen.

CLEMATISES, of leading varieties, 60s. per 100.

AMPELOPSIS VEITCHII, 50s. per 100.

IVIES, best variegated kinds, 50s. per 100.

The plants are of last year's growth and fit for immediate planting out. LISTS of varieties on application.

W. C. SLOCOCK, Goldsworth Nursery, Woking.

JULES DE COCK, NURSERYMAN, Ghent,

Belgium, offers, per 100 plants, in store-pots:—Araucaria lutescens, 40s.; A. rubra, 30s.; Chamaerops Fortunei, 3s.; C. humilis, 8s.; Cocos Weddelliana, 10s.; Corypha australis, 20s.; Euterpe edulis, 25s.; Latania borbonica, 10s.; Pandanus utilis, 25s.; Glazouia insignis, 4s.; Phoenix reclinata, 20s.; P. tenuis, 12s.; P. sylvestris, 16s.; Seaforthia elegans, 25s.; Caryota sibirica, 50s.; C. urens, 40s.; Thrinax elegans, 40s.; Aralia Sieboldii, 6s.; Dracena indivisa, 6s.

FORTY THOUSAND Dwarf, Tea-scented,

and other ROSES, in pots, at 15s. to 18s. per dozen, at

£5 per 100.

Extra fine Tea-scented ROSES, well established in 6-inch

pots, for Greenhouse culture or Conservatory, at 30s. per dozen.

Address

WM. WOOD AND SON, Woodlands Nursery, Maresfield,

near Uckfield, Sussex.

GERANIUMS, &c., for Bedding.—Strong

autumn-struck plants from store pots, of Vesuvius, Dr. Lindley, Indian Yellow, Christine, Stella, Tom Thumb and other varieties, 10s. per 100; Madame Vaucher, Crystalline Palace Gem, Flower of Spring, Bijou, Perilla, Beauty of Calderdale, &c., 12s. per 100.

HELIOTROPE, Light and Dark, 6s. per 100.

CENTAUREA CANDIDISSIMA, autumn-struck, good

plants in large 60's, 30s. per 100.

Package free for cash.

S. BIDE, Alma Nursery, Farnham, Surrey.

SPECIMEN PALMS, DRACENAS, &c.

to be sold cheap. See advertisement in *Gardener's*

Chronicle of May 3, p. 550.

W. JACKSON AND CO., Nurseries, Bedale.

A RAUCARIA IMBRICATA, Seedlings of last year, £1 per 100, £3 15s. per 1000.
LATANIA BORBONICA, Seedlings of last year, 10s. per 100, £4 10s. per 1000.
CHAMÆROPS EXCELSA, Seedlings of last year, 7s. 6d. per 100, £3 10s. per 1000.
 15s. to 25s. per 100, £5 to £10 per 1000.
SEEMANN AND GOEPEL, Wandsbeck, Hamburg, Germany.

DOUBLE ROMAN and PAPER-WHITE NARCISSUS, for the Trade.—It is now time for ordering these articles, to be delivered in August or later in the autumn. Double Roman Narcissus especially will be scarce. Orders are now booked. Special prices are given by correspondence.
E. H. KRELAGE AND SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland.

VERBENAS, VERBENAS, VERBENAS.—Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100, 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s.
HELIOTROPES, strong, healthy, well-rooted cuttings, of light and dark named varieties, 6s. per 100.
IRENE LINDEN, HERSTH and ACUMINATA, strong young plants, from stores, 5s. per 100.
FUCHSIAS, 100 plants in 12 splendid varieties, from store pots, for 8s. Terms cash.
H. BLANDFORD, The Dorset Nurseries, Blandford.

FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including **JACKMANNI**, &c., at 12s. to 30s. per dozen. Selection left to ourselves.
 Descriptive CATALOGUES free on application to **WM. WOOD AND SON**, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ILLUSTRATED CATALOGUE OF FERNS.—The above, comprising 80 pages of illustrations, synonyms, "Notes on Cultivation," &c., is the most complete Fern List in the Trade, and will be forwarded on application. Postage *ad.* Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

To the Trade.
MANGEL WURZEL and TURNIP SEEDS.
H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown **MANGEL WURZEL**, and **SWEDS** and other TURNIP SEEDS of 1878 growth, and raised from transplanted Bulbs.
 Seed Growing Establishment, Wisbech.

Special Cheap Offer.
TO SEEDSMEN, MARKET GARDENERS, and OTHERS
PEA, **Jeyes'** or **Payne's Conqueror**. About 20 quarters, Hand-picked, 15s. per bushel, 12s. per quarter. Samples on application to **W. BALL AND CO.**, Bedford Road Nursery, Northampton.

THE VICTORIA COLLECTIONS OF CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.
 No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.
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ALFRED FRYER offers the following good Bedders, at per dozen for Cash:—Golden Tricolors; Peter Grieve, 6s.; Prince of Wales, 6s.; Isle of Beauty, 4s.; Lady Cullum, 3s. 6d.; Mrs. Pollock, 2s. 6d.; Sophia Dumas, 2s. 6d.; Sir Robert Napier, 3s. 6d.; Silver Tricolors; Lass o' Gowrie, 3s. 6d.; Mrs. John Clutton, 2s. 6d.; Prince Silverwings, 2s. 6d.; Queen of Hearts, 2s.; Happy Thought, 4s. 6d.; Distinction, 2s. 6d.; or one of each for 5s. 6d. Post-free for 6d. per dozen extra. Hamper and packing 1s. per dozen, or 3s. 6d. per 100; half price for packing out of pots. For Priced LISTS apply to **ALFRED FRYER**, The Nurseries, Chatteris, Cambridge-shire.

TEA ROSES for Bedding.—April and May are the best months for planting out Tea-scented Roses for summer and autumn flowering.
 Strong Plants in pots, worked on seedling Brier, 12s., 15s. to 18s. per dozen.
 Tea Roses for greenhouses and conservatories, in 7 and 8-inch pots, now coming into bloom, 30s. per dozen.
 List of sorts on application.
CLEMATIS JACKMANNI, for bedding, 9s. per dozen.
CLEMATIS, twenty to thirty leading varieties, 12s. to 18s. per dozen.
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PRIMULA CORTUSOIDES, AMENA, GRANDIFLORA.—Flowering plants in six varieties of these most charming Primroses, which have proved quite hardy through the late severe winter, free by post, 6s. 6d. Price to the Trade on application.
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TEA and NOISETTE ROSES in pots, for planting out during spring and summer, or for conservatory decoration all the year round; also new **FRENCH and ENGLISH ROSES** in pots. The above are a special feature in our Nurseries, and our stock is one of the largest, finest and healthiest in the country. Write for a Pot Rose LIST to **EWING AND CO.**, The Royal Norfolk Nurseries, Eaton, near Norwich.

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CALCEOLARIA FUCHSIFOLIA.
RODGER, MCCLELLAND and CO. are now sending out this wonderful plant. For full description see *Gardener* of March 29, which also contains a coloured plate. Price 7s. 6d. each.
 We can also offer the following species, all autumn and winter flowering, except the last:—
CALCEOLARIA BICOLOR 1 6
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VIOLACEA 1s. 6d. and 2 6
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Special List of Cheap and Desirable Kinds.



B. S. WILLIAMS, having recently received from his Collectors and Correspondents in different parts of the world large consignments of ORCHIDS, and through having purchased several Collections in this country, is now in a position to offer good young healthy Plants of the following species and varieties at more reasonable prices than it has been possible hitherto to sell at. An inspection is respectfully invited:—

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| major .. 7 6 | MAXILLARIA venusta .. 10 6 |
| CATTLEYA Mendellii .. 10 6 | tenuifolia .. 3 6 |
| (imported) .. 10 6 | lutea alba .. 7 6 |
| Aclandiae .. 10 6 | MESOPHIDIUM .. 7 6 |
| citrina .. 3 6 | sanguineum .. 7 6 |
| Trianae .. 10 6 | ODONTOGLOSSUM .. 7 6 |
| Warszewiczii deli- | Inseleyi leopar- |
| cata .. 15 0 | dium .. 5 0 |
| Warneri .. 15 0 | Hallii .. 7 6 |
| lobata .. 10 6 | hystrix .. 10 6 |
| crispa .. 5 0 | cirrosum .. 3 6 |
| maxima .. 15 0 | pulchellum mjus .. 3 6 |
| Regnellii .. 15 0 | Phalaenopsis (im- |
| Mossiae .. 5 0 | ported) .. 7 6 |
| speciosissima .. 10 6 | Rossii majus (im- |
| marginata .. 10 6 | ported) .. 7 6 |
| CALANTHE Veitchii .. 7 6 | Alexandrae (nice |
| vestita luteo oc- | plants, import- |
| culata .. 2 6 | ed), from .. 7 6 |
| rubro oculata .. 2 6 | Pescatorei (im- |
| CELOGYNE cristata .. 5 0 | ported), from .. 5 0 |
| corrugata .. 7 6 | gloriosum .. 10 6 |
| CYMBIDIUM eburne- | grande .. 5 0 |
| um .. 15 0 | Lindleyan .. 3 6 |
| Mastersii .. 15 0 | membranaceum .. 5 0 |
| CYPRIPEDIUM bar- | Cervantesii .. 5 0 |
| batum superbum .. 3 6 | rubescens .. 5 0 |
| insigne .. 2 6 | ONCIDIUM aurosum .. 5 0 |
| spectabile .. 3 6 | Bauerii .. 5 0 |
| Boxallii .. 5 0 | spheclatum .. 5 0 |
| Pearcei .. 3 6 | incurvum .. 7 6 |
| Harrisonianum .. 7 6 | verrucosum .. 5 0 |
| niveum .. 5 0 | concolor .. 10 6 |
| Crossii .. 7 6 | flexuosum .. 3 6 |
| DENDROBIUM for- | Papilio .. 7 6 |
| mosum giganteum .. 5 0 | Krameri .. 5 0 |
| chrysotis .. 10 6 | bicallosum .. 7 6 |
| cretaceum .. 3 6 | cucullatum .. 3 6 |
| Pierardii .. 3 6 | pulvinatum .. 5 0 |
| pulchellum purpu- | Warnerii .. 15 0 |
| reum .. 3 6 | ORNITHIDIUM so- |
| Findleyanum .. 10 6 | phronites .. 10 6 |
| bigibbum .. 7 6 | PHAJUS grandifolius .. 3 6 |
| nobile .. 3 6 | albus .. 7 6 |
| chrysanthum .. 3 6 | PLEIONE lagenaria .. 3 6 |
| Gibsoni .. 7 6 | Wallichiana .. 3 6 |
| densiflorum .. 10 6 | SACCOLABIUM am- |
| Bensoniae .. 5 0 | pullaceum .. 5 0 |
| rhodocentrum .. 10 6 | Blumei majus .. 7 6 |
| thyriflorum .. 10 6 | curvifolium .. 7 6 |
| DENDROCHILUM .. 21 0 | giganteum (fine im- |
| filiforme .. 21 0 | ported plants), |
| glumaceum .. 21 0 | from .. 15 0 |
| EPIDENDRUM vitel- | STANHOPEA tigrina .. 7 6 |
| linum majus (im- | VANDA tricolor insig- |
| ported), from .. 2 6 | nis .. 10 6 |
| GOODYERA discolor .. 3 6 | tricolor .. 10 6 |
| LÆLIA cinnabarina .. 7 6 | Roxburghii .. 15 0 |
| elegans .. 21 0 | ZYGOPETALUM .. 5 0 |
| Dayana .. 10 6 | Makayi .. 5 0 |

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Begin respectfully to inform their Friends that their SPECIAL LIST, No. 43, is now published, contents as follows:—Colombian, Mexican, Japanese and East Indian Orchids; and the finest representatives from each country, embracing *Odontoglossums*, *Cattleyas*, *Oncidiums*, *Aerides*, *Dendrobies*, *Vandas*, *Celogynes*, *Cypripediums*, *Pleiones*, *Saccolabiums*, *Lælias*, *Maxillarias*, &c. This List contains both the Prices for Established and Imported Plants, and the Prices range from 2s. 6d. upwards.

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Fine samples, for Seed, of this and other leading kinds. Prices on application to
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Pyrethrums, Double, strong flowering

clumps from ground, in twenty-five varieties, 6s. per dozen, 40s. per 100; smaller roots, free by post, 4s. 6d. per dozen. Now is the time to plant these most beautiful hardy perennials to flower this season. Trade price on application.
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GERANIUMS, *Vesuvius* and other best scarlets, from single pots, 2s. per dozen; stores, 12s. per 100. *Master Christine* and *Madame Vaucher*, single pots, 2s. 6d. per dozen, 15s. per 100. **CALCEOLARIA**, *aurea floribunda*, from single pots, 1s. 6d. per dozen; 10s. per 100. **VERBENAS**, from single pots, 1s. 6d. per dozen; stores, 6s. per 100. **LOBELIAS**, *Emperor William*, best blue, 5s. per 100; seedlings, 2s. 6d. per 100, or 20s. per 1000. **AGERATUM**, dwarf and tall blue, 2s. 6d. per 100, 20s. per 1000. **PYRETHRUM**, *Golden Feather*, 2s. 6d. per 100, 20s. per 1000. **MUSK**, *Harrison's Giant*, 1s. per dozen.

Terms cash. Package free, and extra Plants for carriage.

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 Descriptive priced CATALOGUES free on application. Special quotations to the Trade for large quantities.
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Strong, on own roots, 2-yr. old, in 5½-inch pots.

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CHEAPEST PLANTS EVER OFFERED.

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Rooted Cuttings of extra fine varieties of Plants at very low prices. Other Plants equally cheap.

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Cash with orders. Trade price of Roses on application.

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VERBENAS—VERBENAS.—150,000, all strong, healthy. Plants, of Purple, White, Scarlet, Crimson, Pink, and Rose, at 6s. per 100, 50s. per 1000; extra strong, 8s. per 100, 70s. per 1000. Package free for cash with order. T. FLETCHER, Florist, &c., Chesterfield.

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12 Stove Plants, DRACÆNAS, CROTONS, MARANTAS, IXORAS, &c., 12s.

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Box 1s. extra. Money returned if not approved.

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ALTERNANTHERA amena, amena spectabilis, magnifica, amabilis latifolia, paronychioides.

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At 8s. per 100, or 70s. per 1000.

MENTHA, SEDUMS, CERASTIUMS, LOBELIAS, &c. per 100, 40s. per 1000.

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Designs Furnished, and Beds Planted in any part of the country. Estimates given.

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THE LARGEST AND BEST STOCK IN EUROPE.

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**MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS**

Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

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Respectfully invites the Nobility and Gentry to an inspection of the above.

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THE LAYING DOWN OF LAND FOR PASTURE.**AGROSTOGRAPHIA,**

THE BEST TREATISE on the CULTIVATED GRASSES:

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Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

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UPPER HOLLOWAY, LONDON, N.**PLANT NOW HYACINTHUS CANDICANS.**

Now is the best time to plant this magnificent Hyacinth, which is considered generally to be one of the finest ornamental summer plants. The large spikes bear a great number of white pendulous flowers, which are extra for bouquet-making; a fine bedding plant, too, it doubtless will become by-and-by a general favourite. We possess the largest stock of it in the world. We sell bulbs in three sizes:—

First size, extra strong, 10s. per dozen, £3 15s. per 100, £30 per 1000.

Second size, good flowering, 8s. per dozen, £2 10s. per 100, £20 per 1000.

Third size, medium, perhaps, flowering, 5s. per dozen, £2 per 100, £15 per 1000.

Discount to the Trade. Orders are executed till the end of May.

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Remarkable Cover Plant.

RODGER, McCLELLAND AND CO. beg to offer **ELYMUS GLAUCA** at the following low prices. It is nearly blue in colour, grows 3 to 4 feet high, and spreading in all directions, forming so close a tangled mass that no person can walk through it. 5s. to 10s. per 100.
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WM. PAUL & SON,

PAULS' NURSERIES, WALTHAM CROSS, HERTS,

Beg to offer the following New Roses.

Good Plants will be ready on and after May 26, Price 7s. 6d. and 10s. 6d. each.

DUCHESS OF BEDFORD (H.P.).

First-class Certificate from the Royal Horticultural Society.

First Prize (as the best New Rose) at the National Rose Society's Crystal Palace Show.

Flowers dazzling light scarlet-crimson, surpassing in brilliancy any known Rose: large, full, and of perfect globular shape. An exceedingly free flowerer and a splendid autumnal bloomer.

"A grand new H.P."—*Gardeners' Chronicle*.

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COUNTESS OF ROSEBERY (H.P.).

First-class Certificate from the Royal Horticultural Society.

First-class Certificate from the Royal Botanic Society.

First-class Certificate from the National Rose Society.

Flowers brilliant carmine-rose: large, full, and finely cupped. A vigorous growing variety, blooming freely all through summer and autumn.

"A grand Rose."—*The Garden*.

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Flowers deep maroon-crimson, very rich in colour, and of grand effect in the garden: extra large, full, and cupped. Free, vigorous, and hardy.

THE NEW FRENCH ROSES of 1879, 30s. per dozen.

THE NEW FRENCH ROSES of 1878, 21s. per dozen.

Good Plants of the Older Roses in Pots for present planting and for greenhouse culture, 9s. to 18s. per dozen, £3 15s. to £6 per 100.

The same, of extra size, 24s. per dozen and upwards.

Priced Descriptive CATALOGUES post-free on application.

FOR SALE, 30,000 BEDDING GERANIUMS, comprising Vesuvius, Madame Vaucher, Master Christine, Flower of Spring, Bronze, Crystal Palace Gem, &c., in small and large 6's, from £7 10s. per 100 dozen.
J. B. BUTTERFIELD, Nurseries, Baker Street, Enfield.

ROSES—ROSES—ROSES.—Dwarf Roses, on Manetti, 25s. per 100, £10 per 1000, for cash. Extra fine plants, being transplanted end of March, and are as backward as though it were February. No risk in moving them, the season being backward: will all flower this summer.
R. LOCKE, Rose Farms, Red Hill, Surrey.

Bedding Geraniums.

GEO. POULTON has thousands of strong plants of **VESUVIUS** and **WONDERFUL** to offer; also **MADAME THIBAUT**, the best pink Geranium extant. Strong plants, in single pots, 2s. per dozen.

GOLDEN PYRETHRUM, 2s. per 100.

Terms cash. Packages free.

Fountain Nurseries, Angel Road, Edmonton.

Cheap Plants, by 100 or 1000.

WILLIAM BADMAN offers the following Plants at very low prices for cash. The present is a good time to repair any losses sustained during the winter:—

VERBENAS, purple, white, scarlet, rose, crimson, rooted cuttings, 6s. per 100, 50s. per 1000, or plants from single pots, 10s. per 100.

„ Twelve choice sorts, 8s. per 100, or from pots, 14s. per 100.

LOBELIA Emperor William, the very best dark blue Lobelia, rooted cuttings, 2s. 6d. per 100, 20s. per 1000, or plants from small pots, 10s. per 100.

CALCEOLARIA, yellow, from stores, 5s. per 100, or fit to plant out, 10s. per 100.

PELARGONIUM Vesuvius and Jean Sisley, 7s. per 100, finest scarlets.

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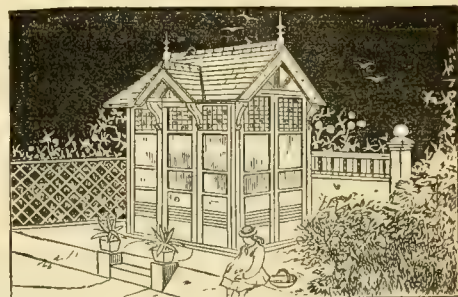
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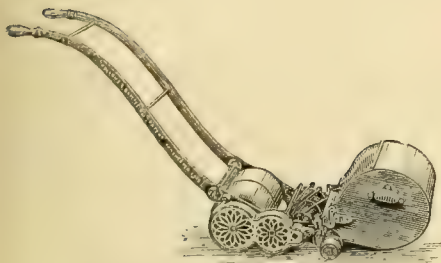
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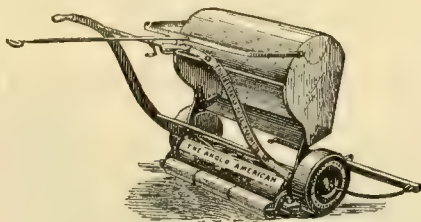
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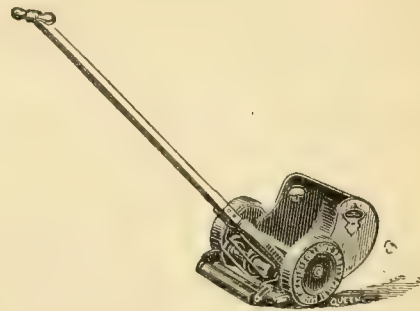
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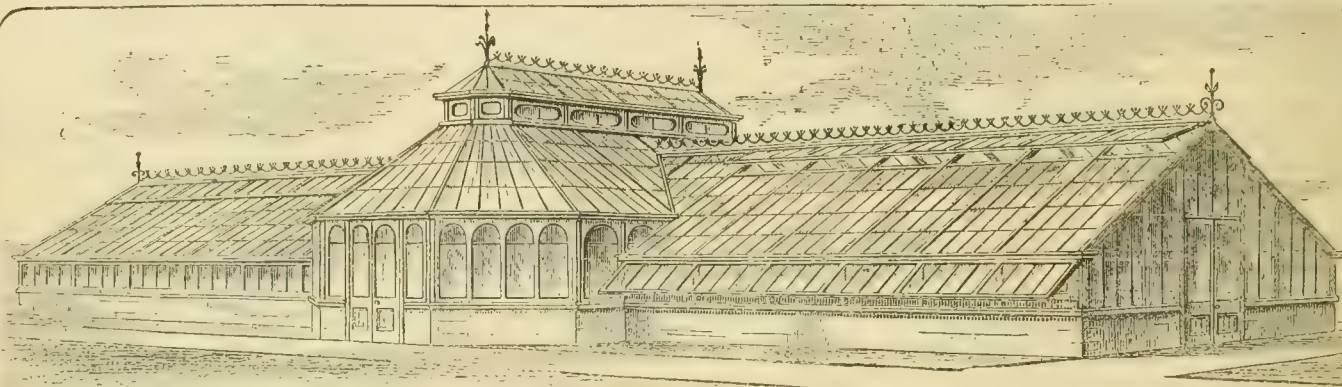
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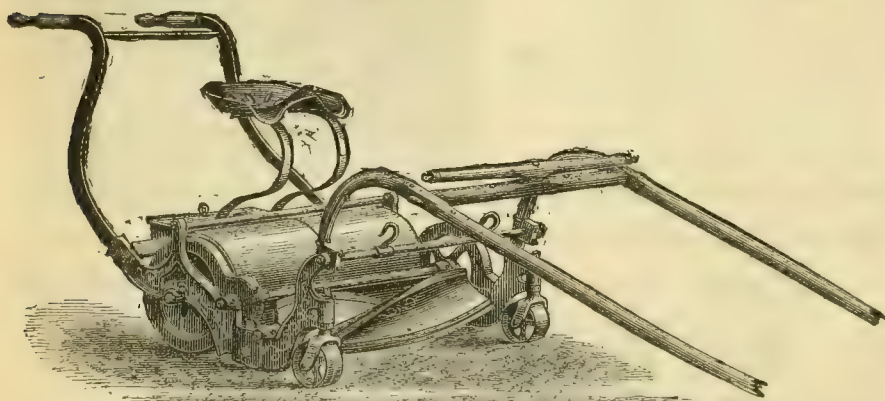
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SATURDAY, MAY 17, 1879.

HAWARDEN CASTLE.

HIGH up upon a mound in the valley of
the Dee, in Flintshire, between Cheshire
and Mold, stands the keep of Hawarden Castle.
Mr. Gladstone's modern house, of mixed Gothic
and Elizabethan architecture, is about a couple
of hundred yards distant. The mullioned
windows of his study look due west across a
lawn, at the end of which are the ivied fragments
of the ancient walls, with the keep high above,
and trees and a rookery round about. The
relics have become the ornament of the states-
man's residence. The lawn slopes gently
upwards from the modern house to the broken
walls, and the intermediate green space is
planted with exactly the proper number of
trees, and evergreens in bold clumps. It is as
sweet a bit of lawn as you will find between the
Thames and the Dee. A good bold sweep of
uninterrupted grass admits of a full view of the
interesting piece of rockwork in the distance,
and the trees and shrubs are well disposed out-
side the line of vision. Two months since a
great Beech was discovered with a flaw at the
core, and, instantly, the Lord of Hawarden
condemned him on the spot, and put him down
with his own axe. There is not a tree or shrub
now upon the lawn at Hawarden too many or
too few.

The house is built of grey sandstone, like the
older edifice, and might be no less old in
appearance, but for the lesser crop of Ivy upon
the walls. The extreme hardness and non-
absorptive character of the building-stone em-
ployed in the keep of the old Castle has pre-
served it from the growth of wall-staining, wall-
destroying lichens and mosses, and it remains
as clean as it was in the reign of King John.
The modern house has been tastefully planted
with Magnolias, Roses, and other plants and
creepers, which well perform their allotted part
of climbing the walls and twining around the
windows.

The house is as you may deem it, large or
small. It is not so large as Windsor Castle,
but considerably bigger than any house that
Burns, Shakespeare, or even prosperous Pope
or well-connected Cowper ever lived in; it is
bigger than Burke's house was at Beaconsfield,
bigger than wealthy Waller's mansion as it
now stands, much enlarged, in the same inter-
esting parish; and twenty times as big as the
cottage at Chalfont where Milton completed
Paradise Lost. At the same time Hampden
House, in the same historic county, which is
now occupied by the great patriot's descendant,
the aged Earl of Buckingham, is twice as
big as Hawarden Castle. There is no account-
ing for houses; they may be large or they may
be small, and so may be their owners; and the
greater man may live in the smaller house.

I must pick one hole in the very pretty
grounds here, namely, in the spacious and
elaborate geometric garden on the south front
of the house. This arrangement I am told by
eminent gardeners is "going out," and so much
the better. In May you may say of these
formal and Quixotic little patches of bare earth,
"they will be pretty presently;" but what can
you say of them on that terrible day of Septem-
ber or October when Jack Frost spoils their
beauty for six long months to come? There is
a lawn on the north side of the house which,
I venture to say, is pretty always. It has been
so all through this last dreary spring, and even
in the winter it cannot help being pretty, for
its materials are green smooth grass and ever-

greens. There is a Quince tree in the middle—a handsome shrub which ornaments the lawn before the Duchess of Athole's windows at Dunkeld, on the banks of the Tay—and banks of Yew and Rhododendrons at the rear and sides, which are always handsome, whether in or out of blossom.

The landscape from the windows is formed of as capital a slice of English land as a patriot's eye could find to roam over. It includes the fertile plains of Cheshire and Salop as far as the Peckforton Hills and the abrupt height of Beeston Castle. On the east are the towers of Chester and hills of Lancashire beyond; the estuary of the Dee is on the north, and "wild Wales" on the west. Buckley Mountain is the nearest; and the tall shafts of collieries at its foot are, no doubt, pleasing to the eyes of those who own the land. Mr. Gladstone owns two collieries out of sight of his house, but between it and Queen's Ferry, the railway station, 2 miles distant. Beyond Buckley Mountain is one of the most conspicuous heaps in Wales, isolated and conical, and called appropriately Moel Famau (the mother of mountains), her numerous offspring crowding around in Flintshire and Denbighshire.

A stream from Buckley Mountain runs through Mr. Gladstone's park very audibly after April showers. You enter the park by the great gates in the village, and in wending and winding onwards towards the house round the old Castle mound you have the cheerful noise of the stream on the one hand, in its ravine, and that of the rookery from the tree-tops growing out of the dry ditches and disused ramparts of the ruin above. When the jaded statesman has listened through the long night to the cawing and clapper-clawing of a slow debate within the walls of Parliament, how he must long for such freshness as you may find in the park at Hawarden. Day breaks upon the stale scene. The motion is withdrawn; the perfunctory performers have all had their solemn say; the House is up; the carriage is at the door; the coachman drives the statesman home, and in going to bed by daylight he sighs for his rooks and mountain stream, and for his axe and a good big tree.

It is a libel that the illustrious feller has cut down the trees here too freely. The park is well planted with several sorts of trees, especially with Oaks, and hundreds may be spared yet. His practice is to sally forth with axe on shoulder at about 3 P.M., and to chop away with scientific vigour, in his shirt-sleeves, till seven or eight. He deigns only to put down the biggest trees. Near the dry moat of the Castle, where during my visit the breeding rooks and jackdaws were vociferous amidst the spray of Limes and Chestnuts, I observed a levelled surface sown with grass seeds, where the great axe-man had lately felled a large Beech tree. There were some chips lying about, and I gathered up a few and sent one to a friend, labelling it rather vaguely, "High Wycombe; Beech chip; Chiltern Hills." I found it afterwards in a basket of some cost with the motto of a great Tory chief—*Forti nihil difficile*—added to my inscription.

To avoid the waste of timber the Gladstone axe is driven with great skill from the circumference of the tree downwards and inwards. The labour is greater than in using the saw, but the object is attained—the volcanic forces find their vent, and the earthquake is averted Floreat! for England! H. E.

New Garden Plants.

RANUNCULUS LYALLII.*

We were glad to see a flowering plant of this noble Buttercup at Messrs. Veitch's nursery lately. The species is a native of New Zealand, where it is known under the name of the Rockwood Lily. Our first knowledge of the plant was derived from letters of Sir Charles Dilke, who mentioned it in his work *Great Britain*, published in 1860. The first technical description is in the work cited beneath. It is a plant from 2–3 feet high, with the root-leaves peltate, bright green, sometimes as much as 13–14 inches across, resembling those of a Nelumbium but quite glabrous. The flowers, which measure 3 inches and more in diameter, are in loose erect,

much branched panicles, and of a pure white colour, something like those of Anemone Honorine Jobert, but of a more opaque porcelain-like appearance. The plant grows in moist shady gulleys at a height of 3000–3600 feet, and is, in the words of those who have seen it in its native country, "really magnificent." We have little doubt that the plant will in suitable situations prove hardy, though we imagine it to be somewhat difficult to manage, as, unless we are mistaken, it has been introduced before and lost. Messrs. Veitch's plants are growing as bog plants with sphagnum in a cool frame, and plants at Kew are grown under similar conditions. We are informed that Mr. Peter Veitch himself introduced the plant from New Zealand to the Chelsea nurseries, by whom it was introduced to Kew we do not know.

PHALÆNOPSIS CORNINGIANA, n. sp.*

A very striking surprise! This species belongs to the company of *P. sumatrana*, *viola*, *Liddemania*, *Mariz*, *pallens* (*Trichoglottis pallens*, Lindl.). It has the top of the column furnished with a membranous border of rough teeth—not of many very delicate denticuli as in *P. sumatrana*—a curious instance so well represented by Mr. Fitch, in *Bot. Mag.* 5527; its lateral sepals are just hanging, as in *P. sumatrana*, but the callosity at the base of the lip is totally distinct, not to speak of the difference in colour, for in lieu of the transverse bars, so remarkable in *P. sumatrana*, there is here a very distinct arrangement. The superior sepal has longitudinal purple-brown stripes, and only a few transverse bars on its base; those longitudinal stripes merge into numerous blotches, which make a hieroglyphical impression. The petals have only longitudinal stripes and blotches; the lateral sepals are almost wholly purple-blown, with a few yellowish-white spots and border, the outer surface being of a yellowish-white, with blunt keels on the middle line. The lip is bent immediately before its nail, standing thus forward; the upright side parts are ligulate retuse, with a small bristle on their superior angle, white, yellow on the callus in the middle, the central part oblong ligulate, of a rich purple-violet, with a tuft of hairs on the anterior middle line. The column is white, with purple-violet base. I have to thank Messrs. Veitch for this extraordinary species. It is dedicated with *empressment* to Erasmus Corning, Esq., the pioneer of Orchid growing in America, and whose collection at Albany, New York, is now so famous. H. G. Rehb. f.

ADONIS VERNALIS MAJOR.

LET the reader imagine a tuft of slender stems reaching on the average about a foot in height, each clothed with finely cut leaves, and each surmounted by a large yellow flower, which is resplendent in its golden glitter during sunshine, and he will have before him an ideal *Adonis vernalis*—a very old resident of our gardens, and one of the finest of those hardy herbaceous species which blossom usually during March and April, but which, in backward seasons like the present, are found glorifying the month of May. The flowers are 3–4 inches across, brilliant yellow, composed of numerous oblong petals, after the fashion of those of the Anemone, and like them expanding to a shallow cup when under the influence of sunshine. The species is a native of the Alps of Europe, and of Siberia. The variety major, represented in the annexed woodcut (fig. 89), is the counterpart of the plant above described, except that the flowers are larger, and the plant is in that degree more showy and ornamental. We have no information as to its history, but it is possibly the Siberian form, which is said to have larger flowers.

The plant requires to be planted in a deep soil, and to be left undisturbed by officious digging, transplanting, &c., the cultural attention being confined to surface-stirring and top-dressing. Under these circumstances, which also suits its ally, the Christmas Rose, it gets well hold of the ground, springs up vigorously, and blooms freely, lasting, moreover, for some time in blossom, if the season and surrounding conditions are favourable. It will grow in any fairly enriched garden soil, but prefers a deep, light loam. T. M.

* *Phalænopsis Corningiana*, n. sp.—Affinis *P. sumatrana*: sepalis impari cuneato-oblongo obtuse acuto, sepalis paribus subæqualibus deflexis approximatis nec porrectis, emibibus sepalis obtusis exsertatis; tepalibus cuneato-oblongoligulatis obtusis acutis; labello brevissimo lateque unguiculato a basi columnæ angulato, tripartito, partitionibus lateralibus ligulatis retusis superne breviter aristatis, umbone medio, partitione mediana oblongo-ligulata medio dilatata obtuse acuta; carina in basi superpositis lamellis duabus contiguis serratis apice aristulatis; columnæ androclino serrato, fundo utrinque sub fovea angulato.—Sepala et tepala alba-flavida intus brunneo-purpureis hieroglyphice striata et trabeculata et maculata. Labelli partitiones laterales albidæ umboibus flavis; partitio mediam purpureo-violaceam utriusque columnæ ceterum albæ. H. G. Rehb. f.

JAPAN PRIMULAS.

THE beautiful and varied collection of *Primula amœna* [Sieboldii] grown by Mr. R. Dean at the Bedford seed-grounds, and exhibited at South Kensington on Tuesday last, is probably unique of its kind, and undoubtedly merits the attention and interest of all lovers of hardy plants. It comprised some twenty or more distinct kinds, and although in some cases, as in many other families of plants, the divergencies are not wide, there is already seen a remarkable development of the powers of the florist over Nature in the production of variety, quality, and colour. Following early after the winter-blooming Chinese Primulas, the most fertile of seed of all the greenhouse kinds, these Japan Primroses continue for several weeks longer the special beauties and charms incidental to their race as greenhouse decorative plants.

As far as our knowledge extends, the rearing of seedling kinds since the introduction of *Primula amœna* and its allies, alba, lilacina, and grandiflora, has been limited to a couple of raisers—Mr. Dean, of Bedford, and Mr. James Allen, of Shepton Mallet; and as examples of all Mr. Allen's best kinds are now at Bedford, the collection is probably as complete as it can be at present made. That plants so free of growth and fertile of bloom should produce such a limited amount of seed is explicable only on the ground that up to the time Mr. Allen produced some seedling forms, every flower was what is by florists technically called pin-eyed. A few of Mr. Allen's blooms are thrum-eyed, and it will be a matter of interest to observe whether these may prove more fertile. The throat of the tube is very small, and is almost entirely filled by the pin-head of the style. The stamens are placed in this case half-way down the tube about the fourth of an inch from the style, and therefore difficult for insects to reach. In the case of the thrum-eyed flowers the positions of the respective organs is exactly reversed, and in such case the least disturbance of the pollen should induce it to fall upon the style and promote fertilisation. Whilst in this case the difference between pin-eyed and thrum-eyed flowers is so minute as to escape the notice of an ordinary observer, it is possible that the production of these latter may lead to the greater production of seed—a great desideratum.

Two special characteristics mark all the various flowers, the edges of the petals in the one case being smooth or even, and in the others charmingly fringed. The florist who has the greatest affection for a smooth-edged flower finds in *amœna*, *maxima*, *Ophelia*, *cœrulea alba*, *lilacina perfecta*, and *alba grandiflora* the roundness and evenness he admires. On the other side *rosea laciniata*, *lilacina*, *Pink Beauty*, *Snowflake*, *laciniata*, and *rubra laciniata* present in their beautifully fringed petals and modest drooping habit, just those features that attract the attention of lovers of the graceful, whose minds have not been, in relation to flowers, constrained by any hard-and-fast rules. Of the kinds that have been raised at Bedford the most striking rounded flowers are those of *maxima*, an improved *grandiflora*, the face of the flowers pure white and back rose-red; *cœrulea alba*, very fine and solid the face white, the back shaded blue; *purpurea*, a fine flower, the darkest of the mauve-purple shades; and *lilacina perfecta*, a smooth-edged form of the well-known *lilacina*. Of fringed kinds very charming are *rubra laciniata*, reddish-rose; *laciniata*, deep rich red, the darkest yet raised; *rosea laciniata*, white face and red back; and *Pink Beauty*, a tinted-edged flower.

Mr. Allen has raised *alba grandiflora*, a fine improved form of alba, and more robust; *Ophelia*, a handsome flower of reddish mauve colour; and *Hernia*, closely resembling the previous one in colour. These are smooth flowers. The only fringed form from Shepton Mallet is the French-white *Snowflake*, a singularly graceful drooping kind. It is thus worthy of note that whilst in the one case fringed flowers are numerous at Bedford, a batch of seedlings that flowered for the first time last year having produced several other handsome kinds, a Shepton Mallet fringed flowers have been quite the exception and smooth-edged flowers the rule.

The full and luxuriant beauties of this charming race of Primulas will not be seen until the stock of them is sufficiently abundant that they can be grown in large clumps either in pots or in the open air. Although perfectly hardy in every respect, few would yet be disposed to entrust these new and pleasing kinds to the tender mercies of our cold winters and

* *Ranunculus Lyallii*, Hook. f., *Handbook of the New Zealand Flora* (1867), p. 4.

springs, whilst hot scorching days in July and August are perhaps even more dangerous, as they are inimical to all Primulaceæ. As amoena, lilacina, grandiflora, and alba have all done well in the open ground in sheltered places, so may it be expected that all their progeny will prove as hardy when it is necessary to put this quality to the test.

For pot culture it is well to break up the clumps of plants as little as possible, as the foliage and trusses of bloom are both more numerous and finer when so treated, than is the case when broken up and repotted. Clumps in 8-inch pots left over from the previous year untouched are carrying from eighteen to twenty heads of flower, and present charming bunches of colour that are very effective.

Single crowns will do well the first year in a small

DROSOPHYLLUM LUSITANICUM.

AMONGST the many interesting plants of Southern Europe, perhaps none so well deserve the attention of botanists as this representative of Droseraceæ. To the anatomist and physiologist it has opened up a field of successful investigation, while the interest which is connected with it in relation to systematic botany and geographical distribution are equally engaging. M. Aimé de Soland (*Étude sur le Drosophyllum lusitanicum*: Angers, 1870) gives a *resumé* of the different opinions which have been expressed as to where the plant should be placed in botanical systems, and adds the localities where it has been found growing. In Mr. Darwin's classical work, *Insectivorous Plants*,



FIG. 89.—ADONIS VERNALIS MAJOR. (SEE P. 620.)

60-pot; the second year they may be shifted into large 60's; then on from year to year until they are established in 24's; and then after the second year should be divided and be repotted into 48's; and so again working onward to a larger size. In this way, when the stock becomes abundant, a grand supply is maintained of one of the most charming and graceful Primulas that has yet been introduced into this country.

MAGNOLIA CONSPICUA. — The two large and handsome trees of this rather tender subject which form such conspicuous objects in the flower garden at Syon House, do not appear to have suffered much from the severe weather of the past winter. At the present time they are literally covered with their large white flowers, contrasting most pronouncedly with the pale green tint of the budding trees forming the background.

a whole chapter is devoted to Drosophyllum, which in its carnivorous habits differs considerably from Drosera rotundifolia. The writer of these lines, who during a ten years' stay in fair Lusitania had often occasion to observe this Droseracea in its natural habitat, has published in the *Linnaea*, tom. xli., fasc. 4, some notes on the same plant. A pupil of Professor Göppert, M. Otto Penzig, has consecrated his "Inaugural Dissertation" to anatomical studies of this peculiar genus (*Untersuchungen über Drosophyllum lusitanicum*: Breslau, 1877). Perhaps, then, a short sketch of the history of the plant may—as a botanical curiosity—interest some of your readers, and a few hints on its cultivation in gardens may be of some value to those who may like to include it with their other insectivorous plants.

An Englishman, Gabriel Grisley, gave the first notice (*Viridarium Lusitanicum*: Lisbon, 1661), de-

scribing the plant under the startling name of Chamæleontioides. Soon afterwards Tournefort, in his *Institutiones rei herbariæ*, united it to Ros solis, the present genus Drosera—"Ros solis lusitanicus, foliis Asphodeli minoris;" Salisbury, ignoring the two previous names, constituted for our plant a new genus, Ladosia. In Plukenet's *Phytographia*, Tournefort's name is kept up. Linnaeus contracts the two genera, Ros solis and Ladosia, in the generic name Drosera, and cites this species as "Drosera lusitanica, scapis radicatis foliis subulatis subtus convexis" (*Species Plantarum*, 1753; sp. 403). Brotero throws the whole synonymy down, and tracing some analogy in the axillary insertion of the ovules and in the position of the placenta with some Caryophyllaceæ, places it in the old genus Sparganium with the specific name droseroides. Nevertheless his description is a very exact one (*Flora Lusit.* ii., 215). Link, recognising Brotero's error as to genus, makes a new one—Drosophyllum—but leaves our plant in the same family, Caryophyllaceæ; and Sprengel considered it as belonging to the Capparidææ. Subsequently, Geoffrey de St. Hilaire pointed out the affinity with Droseraceæ, and De Candolle finally placed it amongst the Droseraceæ, of which M. Payer's Drosophyllaceæ might perhaps form a division.

A very limited space between 35° and 40° N. lat. and 9° and 16° southward from Ferro embraces the home of Drosophyllum, which was formerly considered peculiar to Portugal. Bory de St. Vincent found the genus at Teneriffe and in Andalusia. In Jussieu's *Herbarium Lusitania* is given as its native home. Goudot met with it in Tangier and Gibel Kiber; Schousboe sent dried specimens from the same locality. Dr. Teilleux discovered Drosophyllum during his travels in Algeria and Spain, and Willkomm (*Iter Hispanicum*) mentions Drosophyllum as a mountainous plant—"Habitat in glareosis arenariis aridis montium prope oppidum San Roque. Altit. 2000." Bourgeau as well as Boissier (*Voyage en Espagne*) met with it in Spain: Granada, Cadiz, Tarifa, Algesiras. Dr. Lemann and Mr. Maw fell in with it on the rock of Gibraltar, and Sir Joseph Hooker found it in Morocco. The late Dr. Welwitsch collected specimens of our plant in the province of Alemtego. After him several botanists became acquainted with the plant in quite an opposite direction in the kingdom.

The first acquaintance I made with Drosophyllum was in the vicinity of Coimbra. A thousand plants, or even more, were thriving together; they were just in full bloom, and presented with their large sulphur-coloured flowers and peculiarly formed leaves a most charming picture. In fact, I thought that even amongst the riches of Kew this little pet would be welcome; so I dug out a few plants with the utmost care, and dispatched them thither, with what result see *Bot. Mag.*, tab. 5796 (1869). Soon afterwards I became quite familiar with Drosophyllum, meeting with it near Porto, and afterwards at Setuval and Mafra, not far from Cintra.

Our plant forms a little shrub, about 12 inches in height, and the great quantity of glandular hairs, which cover the whole plant, give it a most peculiar aspect, something *hors ligne*—indeed there is no type in the whole flora of Europe which resembles it. If its native habitat were unknown and a botanist should guess at it, I am sure he would feel more inclined to take it for an African or even an Australian citizen, than to look for it in the southern part of our continent. It may be that this Droseracea has outlived several geological revolutions, and judging from its present habitats, growing, as it does, on very limited spots, where it may be termed a social plant, and then again disappearing for many miles where not a single specimen is to be met with, it seems not unlikely to me that it will gradually die out. If we take it for a very characteristic genus of the Mediterranean flora, it appears strange that the plant does not inhabit the province of Algarvia, where the flora is the best in the kingdom.

Following Lecocq (*Géographie bot. de l'Europe*), who takes for each species one central point, from which it is spreading out, the primitive home of a great many South European, viz., Portuguese types, appears to be doubtful. Taking Drosophyllum, for instance, we have on one side two European countries, Spain and Portugal—the Peninsula where Link, Boissier, Willkomm, Bourgeau, Welwitsch, and others, traced our plant; on the other side there are four African territories, Tangier, Morocco, Algeria,

and Teneriffe, where Schousboe, Teilleux, Hooker, and Bory de St. Vincent first met with it. If we compare the floras of North and South Africa as a whole with that of South Europe we find a good many African types settled here either as naturalised or subspontaneous species; and with only very few South European species is this the case in Africa. It would be too hazardous, as far as regards *Drosophyllum* to draw a conclusion out of this, and to consider North Africa as the true habitat; nevertheless the specific name, *lusitanicum*, seems to give a wrong notion of the origin of our plant. Professor Grisebach (*Die Vegetation der Erde*) writes:—"The true country of *Drosophyllum* is evidently to be looked for in Portugal, whence it has extended to three neighbouring countries, north up to Galicia, south to Andalusia and Morocco. It is the aspect of the present country from which this may be concluded." Perhaps I do not rightly understand the latter sentence, and I may be wrong in taking it purely for an hypothesis. Professor A. de Candolle's affirmation, that genera with only one species are either limited to a small island or a narrow archipelago, or show a very wide distribution, cannot be applied to our plant.

In more than one respect *Drosophyllum* stands unique amongst the Droseraceæ. As a family character, these plants belong to swamps and very shaded localities. *Drosophyllum*, on the contrary, grows only in dry Pine forests, and even on naked rocks. But it draws a great deal of moisture out of the atmosphere; even on very hot summer days I found the leaves covered with water drops, which I certainly did not mistake for the glandular viscid exudation. The size, shape, and colour of the seeds are much like some of the Caryophyllæ—for instance, of *Lychnis Githago*.

Link was mistaken in stating that the seeds of *Drosophyllum* do not ripen and germinate well, and that the plant reproduces itself by suckers. If the weather is fair, which generally is the case in the splendid clime of Lusitania, the plant is in full bloom at the beginning of April, and the seeds begin to ripen about the end of June. It happens very often, however, that they lie dormant a year before they germinate as well in their natural habitat as under cultivation. The plant presents much similarity to a Tree Fern in miniature did it not ramify, and during the winter, when it loses its leaves, the *Drosophyllum* might be taken for a small Northern shrub.

I felt rather disappointed that Sir Joseph Hooker, in his most interesting paper, "The Carnivorous Habits of Plants," did not say a word about *Drosophyllum*, though *Drosera* and *Dionæa* have such a large share of attention. But Mr. Darwin's splendid work, *Insectivorous Plants*, appeared soon afterwards, and much time and attention the learned author appears to have given to my favourite (chapter xv., pp. 332-342). English readers will be too familiar with Mr. Darwin's writings to necessitate my giving a *résumé* of that chapter, but I may be allowed to correct two small mistakes as far as regards *Drosophyllum*. First, Mr. Darwin gives only Portugal and Morocco as its native habitat. He further describes the roots as very tender and similar to those of other Droseraceæ. But the roots are of woody substance, and quite young plants with a tap-root penetrate the dry and often stony soil, and as they grow older this root gets very deep, so that transplanting is a most difficult task. With tender fibrous roots it would be impossible to thrive well and live long under a burning sun, and in a quite exhausted soil.

It would take me too long to write *in extenso* of M. Otto Penzig's recent publication, though his anatomical studies of the different organs of *Drosophyllum* present some new and very interesting points.

I shall, therefore, conclude with a few remarks on the cultivation of this plant. The best way of trying it is by seed, which can easily be procured from Dr. Julio Henriques, the director of the Botanic Garden, Coimbra. Young plants may arrive well in England, and even thrive for a time, but will never last long. The seed must be sown in well-drained pans, filled with rotten peat and a third of sandy loam. A little bottom-heat is very convenient for starting them, but as soon as the young plants begin to show the pans must be placed on shelves in a stove where they will get plenty of light, and can be shaded if required. Water with the greatest care, as the young seedlings

very easily damp off. The whole pan must be covered with a bell-glass, to prevent small insects from becoming attached to the viscid tentacles, as sudden death is the consequence of it. This proves, I should think, that only quite fully grown plants—at least under artificial treatment—can exercise their carnivorous habits without injury to themselves. I even believe that all insectivorous plants in a state of Nature only function in this way when they are most fully developed; small or weakly looking plants will run into destruction when their voracious inclination is allowed to try the whole system.

Returning to our *Drosophyllum* seedlings. They must by-and-by get accustomed to more light and air, but always be preserved from much moisture. When transplanting becomes necessary, choose very narrow but somewhat high pots, and add a little more loam to the soil. By degrees they must be taken to a conservatory, and the glass bells be gradually removed. Afterwards they may be treated like the *Ericas* from the Cape, and be subjected during the winter to almost absolute dryness. Plants cultivated in this way will last for many years, and add to the charms of our conservatories. Edmund Goetze, *Inspector of the Botanic Garden, Greifswald, Pomerania*.

GOLD-LACED POLYANTHUSES.

WHEN a year or so ago I addressed a caution to buyers of named Polyanthuses to be careful what they purchased, it was thought by some that I was too hard on certain vendors, and that I was in danger of imputing dishonesty to men who were without reproach. I made no imputations of this kind. I believed named Polyanthuses were palmed off on honourable men, who purchased and sold in perfect good faith, and I was desirous of placing these, as well as those who purchased to cultivate, on their guard. Last winter I bought two plants of Buck's George IV., and three of Cox's Prince Regent. Previous to buying, I particularly requested the vendor not to send if he had any doubt as to the sorts being true to name. He replied to the effect that he had obtained them from the neighbourhood of Manchester, and from a person he thought he could implicitly trust. The prices were high; but, if true, the venture was a right one, and I ordered the plants named. One of the George IV. has flowered, and is quite true, and I have every reason to think the other is correct. Of the three plants of Prince Regent two have bloomed; they are quite distinct in character, but as far removed from the true form as a common candle is in brilliancy from the electric light. Neither is worth a place in the border. I have little hope of the third coming up to a higher standard of merit. If Cox's Prince Regent in its true old form were in cultivation in the neighbourhood of Manchester, it would, no doubt, have put in an appearance at the recent Auricula show at Manchester, but there was no sign of it. Pearson's Alexander has found its way into the South. Mr. Douglas and I have it from the same source, and though it is a decidedly good thing, we are told it is not true. The same is said of Beauty of England, though the source from which I obtained mine is so unexceptionable that I hope it is correct. It has not done well with me, and it did seem to lack something of its character for refinement as it was grown by Mr. Douglas, but this has not been a Polyanthus year.

When in Manchester a few days ago I made inquiries about Kingfisher. One exhibitor told me he had it, but others said it was not the true sort. As figured in the *Birmingham and Midland Gardeners' Magazine* for July, 1852, it is represented as an exceedingly bright red flower, the colours pure, proportionate, and distinct, with a golden centre and lacing, deeper in colour than the flower referred to, and altogether brighter in expression. I think that all who are growing the old-fashioned gold-laced Polyanthus would do well to look after and preserve all the coloured illustrations that can be met with, as they will be of assistance in testing the identity or otherwise of any that may come under notice.

The Polyanthuses staged for exhibition at Manchester carried but one truss of flowers, the same as in the case of Auriculas. If it be a good rule in relation to the showing of the Auriculas, and especially in so far as it secures the highest refinement in the pips, it is as desirable in the case of the Polyanthus. In the North I did not see a single plant staged for exhibition with more than a single truss, and

the fine character of the flowers was very striking. The sorts were circumscribed in number, but they were all good, viz., Lord Lincoln, Exile, in rare form; Cheshire Favourite, Lancer, President, and William IV. The former has a singularly bright and effective golden centre, not so deep as Exile, but yet quite luminous, and the pip being of fine shape and the lacing perfect, it was very pure and good. It is a dark variety that will take a lot of beating. Exile was very fine, pure in colour, and flat and well-formed in the pip; a little manipulation had something to do with this in all probability, but it was richer altogether than we get in the South. Cheshire Favourite was large and beautifully laced, the rich glossy black ground contrasting with the golden lacing. Lancer was finely shown—so bright and effective, and with the most regular lacing of all the named varieties. Hilton's President, which for years in my own experience has been deficient in the lacing, was this year nearly perfect. When caught in good form it is very bright in the centre: it is an excellent grower and a model trusser.

We sometimes talk and write of overpotting Auriculas and Polyanthuses, but it was interesting to note what large pots the Polyanthuses were growing in in the North. In the case of Mr. John Beswick, who had the 1st prize for the best three, the plants were in 24-sized pots; but they were in excellent health and very robust, and yet without any taint of coarseness. Mr. Beswick grows his in some good sweet fibrous loam, sand, and thoroughly decomposed manure, keeping his plants in a cold frame, and giving a little weak liquid-manure made from cow-dung at blooming time. The trusses of bloom contained from five to seven and eight pips—pips of the right size, and well displayed. This is the way in which gold-laced Polyanthuses should be shown; it displaces mere bulk and puts correct development in its stead, and places growers on a better footing of equality on the exhibition table.

The impetus given to the culture of the gold-laced Polyanthus in the South by the establishment of the southern section of the National Auricula Society, is reacting on the North. A very few years ago and but few plants of gold-laced Polyanthuses could be seen at the Northern Auricula Show, now there is a decided change for the best—the competing examples have increased, the number of exhibitors doubled, and the raising of seedlings is being pursued with avidity. The two new varieties that came to the fore at Manchester, viz., Brockbank's John of Gaunt and Bolton's Seedling, will not displace any existing varieties, but they illustrate the activity that is at work. The establishment of a class for the best seedling Polyanthus is a step in the right direction, and it would be well if a similar class were added to the schedule of prizes of the southern section of the National Society. There is some talk of a class for the best seedling Auricula, which will make a capital feature. Perhaps the class for the best seedling Polyanthus will follow in due course.

Mr. Samuel Barlow, of Stakehill House, Chaderton, Manchester, is this season blooming a number of seedlings raised from some good crosses, and he has already secured three or four flowers of much promise. With others travelling along the same line both North and South there is much hope of the future, and it may be that what is to be obtained will be as far ahead of past attainments as the ideals of men shining over their earthly lot transcends the dull uneventful plodding lives they are passing on the face of the earth. R. D.

CINCHONA IN INDIA.

It is with much satisfaction that I have to report encouraging progress in the great undertaking of which I am treating. A fear exists in some quarters that too much will be attempted in the multiplication of Cinchona plantations, but at present there is no reason for such an apprehension, as it is not probable that more than one-tenth part of the bark used by the manufacturers in all parts of the world comes from all these new sources put together. The comparative yield of young plantations and old secular forests is well shown in a letter from Mr. Ledger, October 7, 1877:—

"I see that 2½ lb. bark, as the yield of eight-year-old trees, is the average in Ceylon. Of course I could not tell the age of trees I have seen cut down by my contractors, but I well remember a particularly fine tree being cut down in 1851 that yielded more than 500 lb. dry bark—that is, *tabla* from the trunk, *charquesillo* from thick branches, and *canuto* from thin branches. The

trunk and all the branches were covered with silvery and bright pink moss."

I have often said, and now repeat it, that in my opinion the cultivation of the best forms of Cinchona will permanently yield a profit. The present state of Dutch Government of Java confirms me in this view. The selves of the services of an eminent chemist (Moen), and by means of his very numerous and careful experiments have ascertained which form of trees are worth preserving for seed, whilst the others are being by degrees weeded out. In the *Pharmaceutical Journal* for July, 1873, I pointed out the great superiority which these experiments indicated in the sort resulting from seeds collected by Mr. Ledger, and on this account called Calisaya Ledgeriana. I have now before me more than 120 analysis sent me from Bolivia, which are the result of the above wise and beneficent oversight in the last quarter of 1878. I wish our own Indian Government would follow this example. Without troubling you with details (less interesting to your readers), I may say that these experiments make it very evident that the success of the cultivation for the future will be much connected with the propagation of this form of the plant. Next to this comes the C. officinalis, and the renewed bark of the C. succirubra, which yields about three times as much quinine as the ordinary bark, and is worth more than three times as much to the manufacturer.

The so-called "Calisaya javanica" * of the importations of Hasskarl and Schuhkraft are of little value. The "Angelica" is somewhat better.

The Dutch authorities are now quite alive to these points of wise management, and not only give us the advantage of their experience, but also furnish supplies of seed to various planters in British India and Ceylon, in which they were helped by the great abundance of these seeds last year. In Java, also, the planting of the Ledgeriana is going on rather fast; as in the government and private plantations together there are about a million seedlings ready to be planted in the open air in the next monsoon. The young trees are doing very well, and the greater part present all the characteristics of the mother tree. My correspondent is able to select from a garden all the good trees, so that if he numbers those with different *habitus* from one to four, the analysis shows in No. 1 the most quinine, and in No. 4 almost none. This may surprise those who are not acquainted with the great tendency to sport in all these plants. I have fifteen plants of the Ledgeriana, from Java seed, growing under glass. One of these had variegated leaves when young, and is now developing itself into a variety frutescens, which would never rise above the dignity of a small shrub. The others resemble the forms which I have represented as A, B, C, in my *Quinology* of the East Indian plantations, and (with perhaps one exception) will, I hope, give me fine plants of this noble species, which is nothing else than the true Calisaya! † (*facile princeps*!) This I conclude from specimens which the late lamented Dr. Weddell gave me after his second journey in Bolivia in 1851, and consequently after the publication of his *Histoire*. These are, from the province of Yungas three, and one from Larecaja; and are called respectively Calisaya *sambita*, *verde*, and *morada* (from the colour of the leaves). The bark, alike in all the samples, presents the characteristics of the Ledgeriana of Java. I have before noticed that at first sight the small seed vessels or capsules showed me that the contents of the bag of seed which Mr. Ledger sent over resembled the variety microcarpa, which, as given me by Dr. Weddell, I was the first to publish in my *Quinology*. This is the *samba* of the "cascarilleros," and differs little, it is to be presumed, from the *sambita* (a colour somewhat less dark). I may here remark, in passing, that in all varieties of Cinchona more is to be learned from the bark, which is absolutely characteristic, than from the leaves, which are apt to vary considerably (even on the same tree) as to colour and other particulars.

Dr. Weddell was not so fortunate as to meet, in his first journey, with those splendid forms of Calisaya

only found now in the less accessible parts of Bolivia. The beauty of the leaves and the brightness of colour, under favourable circumstances, are indeed surprising. I have found leaves of a kindred sort exactly to resemble the colour of the Mulberry in the unripe, and again in the ripe stage. Some of my plants will, I think, tend to the *rojo* colour under a brighter sun; but others are of the *verde* tint (green leaves). I attach no botanical importance to these colours, which have no reference to the product of quinine, as I have shown in the work referred to above. Mr. Ledger writes me (Jan. 2, 1878): "You ask for my candid opinion of the plates [of the *East Indian Quinology*]. They are all beautifully done. The Angelica I like best of all. The large red, or rather purple leaf, is such as the *Rojo* or Ledgeriana in Plate IV. should have. Still, all the plates show the Cinchona remarkably true. I must say the Angelica seems to me as the Calisaya legitima of the Bolivian Yungas."

I have noticed "one exception" amongst my Ledgerianas, and this brings me back to the question of hybridity, respecting which much has been written, but little so satisfactory to my mind as the remarks of my correspondent. A German, Mr. Otto Kuntze, has recently visited the plantations, and has published his views on this subject. My friend says that he obtained all his information from an overseer, who, in addition to the misfortune of being deaf, still more unfortunately did not know German. At all events he differs widely from Mr. Kuntze's deductions on this subject; as I am also compelled to do, for I do not believe that hybridisation has anything to do with the excellence of the Ledgeriana. The impregnation of the stigma of the Cinchona flowers is not done by wind, but, in Java, by the mediation of a great bombas (drone), which is always to be found on the Cinchona flowers, flying from flower to flower, and having his proboscis, head, and tarsi full of pollen. My correspondent is not versed enough in the claims which a flower presents to the eyes of an insect before he thinks it beautiful, and so admits that it is possible Mr. Kuntze is in the right when he decides that insects will disdain Cinchona flowers because they are not beautiful enough, but my informant thinks them (as I also do) very fair. The bombas should be called in to settle this controversy. Mr. Ledger informs me that bees abound very much in the Yungas in South America, and they are probably the instruments there.

The only peculiarity which Ledgeriana has in common with micrantha is in the small white flowers which are "nutantes" in both, but far more so in Ledgeriana. "If it were a hybrid it ought to have more cinchonine" (indeed the product instead of being almost pure quinine ought to be about half-and-half); "and the theory of Kuntze, that quinine increases with more hybridisation, disagrees wholly with the facts."

All the trees of Ledgeriana which according to Mr. Kuntze were sterile, have flowered last year, and have given an abundance of good ripe seeds.

My correspondent does not deny that hybridisation happens, and that it is the natural consequence of the mediation of the drones when they fly from one species to another. This he conceives to be the reason that their first Ledgeriana seedlings in Java sported a great deal more than they do now; as the chance was far greater for impregnation with pollen of another species, when only one or two trees flowered, than now, when a whole garden blossoms, and only pollen from the same species is transferred from one tree to another.

I may add that the above remarks are quite confirmed by the experience of another correspondent of mine in the Wynaad (British India), who has succeeded completely in growing there the true Ledgeriana and in obtaining the same bark, with the like extraordinary amount of quinine. This is about 10 per cent., or more than three times that of the renewed succirubra bark mentioned above, and it will be remembered that this was itself three times as rich as the ordinary red bark. In addition to this the quinine is of great purity. John Eliot Howard, F.R.S., Lord's Meade, Tottenham.

A GREAT NOVELTY.—In a recent number of the *Bazaar* we notice the following advertisement from Suffolk:—"I can spare a few well-rooted plants of the beautiful new Ageratum, Zulu King; grows into a beautiful compact shrub about 1 foot high and 3 feet or 4 feet in circumference, one mass of lovely blue all the summer." Pray what is this?—is it a "sell"? Suffolk also contributes another advertisement of "The largest Pea in the world," Cleopatra's Needle: pods more than 6 inches long. Thirty-six Peas for fourteen pence. Really, the comic periodicals must look out, for the pages of the *Bazaar* give some mirth-provoking descriptions of gardening subjects,

THE SPECIES OF FOURCROYA.

IN the present paper I propose to attempt a concise synopsis of Fourcroya, uniform with that which I have already sketched out for Agave, there being nothing of the kind at present in existence, and consequently no ready means of determining the forms. Fourcroya, spelt "Furcroya" by Endlicher, and "Furcroea" by Ventenat, was first characterised as a genus by the last-named author in the nineteenth volume of *Uster's Annual* in 1796, and was also constituted as a genus the same year by Willemet in his *Hortus Mauritianus* under the name of Funium. There may be some doubt as to which of these two names can claim priority, but as the first has been generally adopted it is not necessary to reopen the question. Fourcroya is not distinguishable from Agave by any character of habit or leaf, but when in flower may be known at a glance by the differences in the inflorescence, perianth, and stamens. Instead of having a distinct tube above the ovary, and ascending perianth-segments, the latter spread horizontally from the top of the ovary; and instead of a filiform style and filaments much longer than the perianth-limb, the genitalia are only about half as long as the segments, with the filaments much thickened in the lower half, and the style furnished with three great hunches to fill up the whole space between the hunches of the six filaments.

The following is the best general key to the forms I am able to make, founded necessarily upon habit and leaves, as the species which have been known to flower are remarkably uniform in floral structure:—

SERIES I.—CORIACEÆ.—Leaves rigidly coriaceous, furnished generally with large spines down the margin, which is entire between them, but these spines in one of the groups generally absent.

1. Group of *F. gigantea*.—Trunk distinct below the rosette of leaves, which are bright green and generally without marginal spines.
2. Group of *F. cubensis*.—Trunk none or short below the rosette of leaves, which are bright green and generally furnished with large pungent marginal spines.
3. Group of *F. undulata*.—Trunk none or short below the rosette of leaves, which are dull green and furnished with smaller marginal spines than those of the last group.

SERIES II.—FLEXILES.—Leaves thinner and more flexible in texture, minutely denticulate all down the edges, never furnished with the large marginal spines so common in the other series.

Group I.—Trunk distinct below the rosette of leaves, which are bright green, and generally without marginal spines.

1. *F. gigantea*, Vent., in Uster, Ann., vol. xix., p. 54; DC. Plantes Grasses, t. 126; Bot. Mag., t. 2250; Tussac. Ant., tab. 25, 26; Reich. Exot., tab. 202; Regel, Gartenflora, 1852, t. 3; Wight, Ic., tab. 2025; Kunth, Enum., vol. v., p. 841; Jacobi, Monogr., p. 268; Agave foetida, Linn. Sp. Plant., p. 461; Jacq. Ic., tab. 379; Fourcroya foetida, Haworth, Synops., p. 73; Funium filiferum, Willemet, Hort. Maur., p. 26.—Trunk reaching a height of 2–4 feet below the rosette of leaves. Leaves, 40–50, in a dense rosette, lanceolate, 4–6 feet long, 4–6 inches broad at the middle, rigidly coriaceous in texture, bright green, channelled down the face, narrowed to 2½–3 inches above the base, ½ inch thick in the centre, full of fibre, narrowed to a small brown pungent point, the margin usually quite entire, rarely (var. *Willemetiana*, Roemer) furnished with a few prickles near the base. Scape, including the panicle, reaching a height of 20–30 feet. Panicle about as long as the barren part of the scape, furnished with 30–40 spreading or ascending compound branches, of which the central ones are the longest. Flowers distant, the lower ones in twos or threes, on articulated cernuous pedicels ¼–½ inch long; bracts minute, imbricated; ovary green, clavate, ¼ inch long; segments ascending, oblong, about 1 inch long, milk-white inside, greenish on the back outside, ⅝–¾ inch broad. Stamens more than half as long as the perianth segments.

The oldest and best known of all the species, now universally spread through Tropical America, and widely cultivated for its fibre in the tropical regions of the Old World, especially in India and Mauritius. Like all the other Fourcroys it produces copious oblong bulbillæ in place of flowers, which falling, take root, and reproduce the plant. It has often flowered in cultivation, the last time at Kew being in the autumn of 1874. I cannot by the description

* See Plate VII. and Plate VIII. of my *Quinology*

† Extract of letter from Mr. Ledger, February 26, 1877:—"Undoubtedly the *Rojo*" [purple-red] *sangre toro* [colour of bull's blood], as called by the natives of Yungas, is a Calisaya. I have often inquired the meaning of Calisaya. It is properly pronounced and spelt Calisaya, and means 'best of barks.' A single *Rojo* tree will be met with in a patch of good Calisaya. The cutters call it the *tata*, or father tree. They look upon it as the oldest. When picking bark for packing a *Rojo* slat is seen at once; it is heavier, darker colour, closer grained." [In fact it is the male plant: see my Plate IV., *Quinology*. J. E. H.]

alone definitely distinguish specifically *F. atroviridis*, Jacobi, and Goeppert, Monogr., p. 273; Nachtrage, ii., p. 90.

Group II.—Trunk none or short below the rosette of leaves, which are bright green, and generally furnished with large marginal spines.

2. *F. tuberosa*, Ait. Hort. Kew., edit. ii., vol. ii., p. 302; Kunth, Enum., vol. v., p. 842; Jacobi, Monogr., p. 276; Nachtrage, i., p. 53; *Agave tuberosa*, Miller, Dict., edit. vi., No. 4.—Stem reaching a height of 6–8 inches below the rosette of leaves, and a thickness of 2–3 inches, tuberos at the base. Leaves about thirty in a rosette, lanceolate, 2–3 feet long, 2–3 inches broad at the middle, narrowed to an inch above the base, rigid in texture, bright green, smooth on the concave face, scabrous on the under side, the point not pungent, the margin entire between the copious regular hooked ascending brown spines, which are $\frac{1}{2}$ – $\frac{1}{4}$ inch long. Scape, including the panicle, 12–15 feet long. Branches of the panicle simple; flowers solitary, sweet-scented. Expanded limb of the perianth $2\frac{1}{2}$ –3 inches in diameter, the oblong segments yellowish-white inside and greenish on the back; ovary pilose, $\frac{3}{4}$ –1 inch long. Genitalia half as long as the perianth-segments.

Widely spread in Tropical America. There is no published figure of this species, but there is an excellent drawing in the Kew collection, sent many years ago by Dr. Fenzl, from a plant that flowered at Vienna in 1863. We have a dried specimen in flower of what I take to be the same plant gathered by Mandon (No. 1192) in the Andes of Bolivia, near Sorata, at an elevation of 2600 metres above sea-level.

3. *F. geminispina*, Jacobi, Monogr., p. 282.—Stem reaching a length of a foot and a diameter of half a foot below the rosette of leaves. Leaves 40–50 in a rosette, lanceolate, 3–4 feet long, 6–8 inches broad at the middle, narrowed to $3\frac{1}{2}$ –4 inches above the base, rigid in texture, bright green and smooth on the hollowed face, very scabrous on the back, the short brown point sub-pungent, the edge armed with copious hard brown curved spines $\frac{1}{2}$ inch long, the upper ones curved upwards, the lower ones downwards, many, especially in the centre of the leaf, confluent in pairs so as to have a hook pointing both ways. Inflorescence unknown.

Tropical America. My description is taken from a very fine specimen which has been many years in the Cactus-house at Kew, but has never flowered.

4. *F. Sellowii*, K. Koch; Jacobi, Monogr., p. 289; Hook. fil. in Bot. Mag., t. 6148.—Trunk none or very short below the rosette of leaves. Leaves 30–40 in a dense rosette, lanceolate, 3–4 feet long, 3–4 inches broad at the middle, narrowed to 2½ inches above the base, very rigid in texture, bright green, channelled down the face, sub-pungent at the short brown point, the edge regularly armed with deltoid uncinat upcurved brown spines, $\frac{1}{2}$ – $\frac{1}{4}$ inch long. Scape 10–12 feet long below the panicle. Panicle 5–6 feet long, 3 feet broad; lower flowers 2–3-nate; pedicels $\frac{1}{2}$ inch long, articulated at the tip; bracts minute, lanceolate or deltoid, scarious. Ovary clavate, green, 1 inch long; expanded limb of the perianth 3–3½ inches in diameter, the oblong segments white, much tinged with green, the outer ones $\frac{1}{2}$ inch, the inner $\frac{3}{4}$ inch broad. Stamens less than half as long as the segments.

A native of Mexico and Guatemala. It flowered at Kew in 1874, when it was figured in the *Botanical Magazine*, and again in 1877.

5. *F. Commelyni*, Salm-Dyck; Kunth, Enum., vol. v., p. 842; Jacobi, Monogr., 286; *Agave americana tuberosa minor*, Commelyn, Hort. Amstel., vol. ii., t. 19.—Trunk none or very short below the rosette of leaves. Leaves about thirty to a rosette, lanceolate, 2½–3 feet long, 3½–4 inches broad at the middle, narrowed to 1½–2 inches above the base, rigid in texture, bright green, very glossy on the face, smooth on the convex back, the point scarcely at all pungent, the edge entire or furnished only with a few small prickles near the base. Scape, including the panicle, 20–25 feet long. Panicle as long as the barren part of the scape and as broad as long. Segments of the perianth about 1 inch long.

Tropical America. This is common at the present time in the English collections, but there is no figure, except the old one of Commelynus.

6. *F. flavo-viridis*, Hook., in Bot. Mag., t. 5163; Jacobi, Monogr., p. 280.—Acaulescent. Leaves about 30 in a rosette, lanceolate, 1½–2 feet, 2½–3 inches broad at the middle, narrowed to 1½ inch above the base, rigid in texture, bright green, smooth down the concave face, scabrous on the back, the end a small brown not pungent point, the edge furnished with regular ascending, middle-sized (central ones $\frac{1}{2}$ inch long) prickles with a brown horny tip. Scape, including the panicle, 12–15 feet long, the latter shorter than the flowerless

portion. Pedicels $\frac{1}{2}$ inch long, articulated at the tip, the lower ones 2–3-nate. Ovary glabrous, 1 inch long; expanded limb 3 inches in diameter, the oblong-lanceolate segments white with a greenish tinge, about $\frac{1}{2}$ inch broad. Stamens half as long as the perianth-segments.

A native of Mexico, sent from Real del Monte by Mr. Repper to the Kew collection, where it flowered in 1859, when it was figured and described in the *Botanical Magazine*. It has the largest flower of all the known kinds, and in leaf comes nearest *tuberosa*.

7. *F. cubensis*, Haworth, Synops., p. 73; Kunth, Enum., vol. v., p. 842; Jacobi, Monogr., p. 283; Griseb. Flor. Brit. West Ind., p. 582; *Agave cubensis*, Jacq. Amer., p. 100, t. 175, fig. 28; edit. pict., t. 260, fig. 25; A. hexapetala, Jacq.; A. odorata, Pers. Syn., vol. i., p. 380.—Trunk none, or very short below the rosette of leaves. Leaves 25–30 in a rosette, lanceolate, 1½–2 feet long, 2–3 inches broad at the middle, narrowed to 1½ inch above the base, bright green, rigid in texture, channelled and smooth down the face, generally scabrous on the back, the end a minute brown scarcely pungent point, the edge armed with regular hooked brown prickles $\frac{1}{2}$ – $\frac{1}{4}$ inch long. Scape, including the panicle, reaching a height of 15–20 feet. Panicle —6 feet long, the central erecto-patent branches 1½–2 feet long, the upper and lower ones shorter; lower branches slightly compound, upper ones simple; lower flowers 2–3-nate; pedicels cernuous, $\frac{1}{4}$ inch long, articulated at the tip; bracts minute, deltoid. Ovary green, cylindrical, $\frac{3}{4}$ inch long; expanded limb 2 inches in diameter; segments oblong, obtuse, about $\frac{1}{2}$ inch broad, milk-white, tinged on the back with green. Stamens half as long as the segments.

A native of Tropical America, and often cultivated in the Old World. Next to *F. gigantea* this is the commonest and best known of all the species. There is no good recent figure, but it flowered at Kew as lately as last autumn, and was drawn for the *Botanical Magazine*. *F. Aitoni*, Jacobi, Nachtrage, p. 59, a plant received by the General from the Kew collection under the name of *cubensis*, is probably a broad-leaved variety with smaller teeth than usual. *F. valliculata*, Jacobi, Nachtrage, p. 60, a form with the upper part of the leaf channelled with undulations; and *F. Lindeni*, Jacobi, Nachtrage, ii., p. 79; Ill. Hort. 1874, tab. 186, so far as I can judge without seeing specimens, a handsome form with variegated leaves, bearing the same relation to the type which *Agave ornata* bears to *americana* or *Ananassa Porteana* to *saliva*. I cannot by the description separate *F. stricta*, Jacobi, Nachtrage, p. 56, from ordinary *cubensis*.

8. *F. elegans*, Todaro, Hort. Panorm., p. 13, tab. 4; F. Gheisbreghtii, and pugioniformis, Hort. Verschaffelt.—Acaulescent. Leaves 40–50 in a rosette, lanceolate, 5–6 feet long, 4–5 inches broad at the middle, narrowed to about 3 inches above the base, bright green, rigid in texture, smooth on the face, scabrous on the back, furnished with a short brown end-spine, and regular large (central $\frac{1}{2}$ inch long) hooked prickles, brown and horny nearly down to the base. Scape 24–25 feet long, panicle down to the base, the lower branches as long as the central ones, the inflorescence about 9 feet broad. Ovary 1 inch long; expanded limb of the perianth 3 inches across; segments greenish-white, the outer ones $\frac{1}{2}$ inch, the inner ones $\frac{3}{4}$ inch broad.

A native presumably of Mexico. A very fine plant, lately characterised and beautifully figured by Professor Todaro, from a specimen that flowered in the Botanic Garden at Palermo, in 1875. J. G. Baker.

(To be continued.)

GARDEN PLANS.

HAVING seen the plans for kitchen gardens published in the *Gardeners' Chronicle* of April 26, in which the hothouses and fruit walls are arranged in accordance with the old-established custom which prevailed before the repeal of the glass duty, I am induced to send you the accompanying plan (fig. 90) as illustrating the opinions I have long held as a practical horticulturist, and carried out, as far as circumstances permitted, in my capacity of horticultural builder and landscape gardener.

In comparatively few places up and down the country are the Peach and Nectarine cultivated with perfect success unless protected by glass: the uncertainty of other fruit crops when exposed on open walls is proverbial. How seldom we see a full crop of Coc's Golden Drop, Imperatrice, and other choice Plums, the best varieties of Cherries, and the choicer

Pears. If by chance a fair crop is set, there are many chances in our climate against their attaining the maximum degree of size and flavour they are capable of. But granting that in some favoured localities a crop more or less plentiful is generally attainable by the old system of culture on open walls, we lose then the great advantage of prolonged system. I am advocating, which is adopted, i.e., the cultivation of all the main crops of tender fruits in properly arranged houses, so that by forwarding a house at discretion we may obtain Peaches, for example, over a long period, and in such quantities as may be required, instead of having too many or too few at any time.

The system I advocate is to surround a portion of the space allotted to the kitchen garden with properly constructed steep span-houses on arched walls; having properly constructed borders, the houses to be wired for training, and fitted with more or less of hot-water piping; tanks for the rain-water, and a service laid on from the ordinary source of supply, to replenish the tanks in case of need. The vineries and Peach-houses for very early forcing are best to be lean-tos, therefore to be placed against a good wall on the north side; and the usual facility for erecting sheds and other offices remains. If any portion of the houses on the south side are devoted to fruit culture they may be arranged for pyramidal and bush-shaped trees, or they may form the principal range of plant-houses and conservatory; and where it is possible to connect such a plan with the mansion, by a corridor or other covered way, the advantages are manifold, not the least being the extensive promenade afforded during inclement weather, when otherwise the family might be compelled to allow many of the beauties of their hothouses to be lost to their enjoyment.

With regard to comparative cost. The first outlay in surrounding 2 or 3 acres of garden with a substantial brick or stone wall is considerable; suppose half the extent to be surrounded with fruit-houses, and the remaining half with any inexpensive game-proof fence, or low wall, the cost probably would not be much greater.

If under this system the gardener loses some of the sheltered borders for early vegetables, he gains the space (much better protected) within the houses, whilst a few ranges of span pits (shown as running on each side of the centre path) over the hot-water mains, will enable him to produce many things with greater certainty than he can do upon the most sheltered borders. The Cucumber, Melon, and other general forcing houses and pits, form two ranges in front of the lean-to range of vineries.

The usual offices, sheds, &c., are placed at the back. The heating apparatus is placed near the north entrance, and the latter is made sufficiently large to admit carts, &c. The south entrance is through the conservatory.

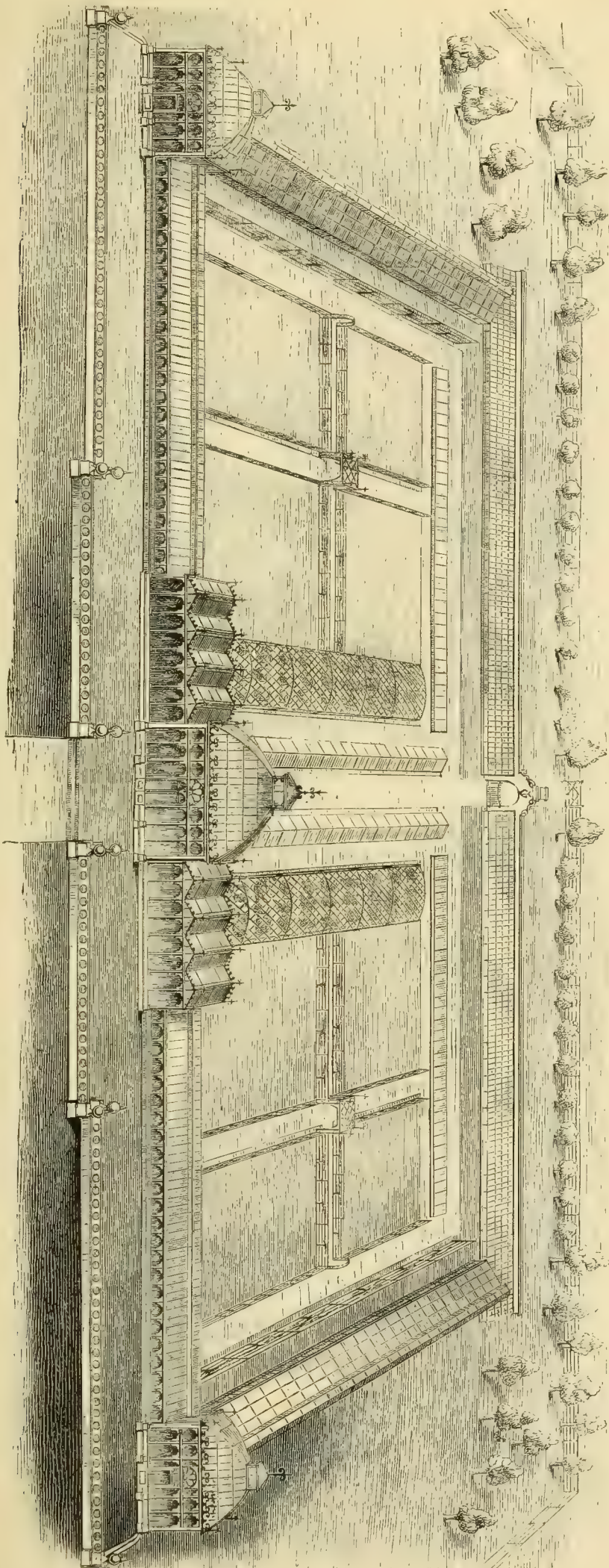
Hot and cold-water tanks, hydrants, and all other necessary details should be fitted as required.

In the accompanying engraving no attempt is made to show the gardener's house and other details, its purpose being merely to illustrate what I conceive to be a preferable manner of dealing with kitchen gardens. H. Hoolett, Messrs. Johnson Brothers & Co., 6, Waterloo Place.

LORD PETRE'S HOTHOUSES.

IN the correspondence of Linnæus, chiefly in the letters of Peter Collinson to the former, there is much of interest concerning horticulture in England at a period when the introduction of exotic plants was first being prosecuted with some vigour. The rich variety of hardy trees, shrubs, and herbaceous plants found in the Atlantic States of North America filled many with enthusiasm. Hardly a ship arrived without bringing something new in plants or seeds, and these were divided amongst the principal lovers and patrons of horticulture. Lord Petre, of Witle, in Essex, had a magnificent collection of living plants, probably the most extensive in existence at that date. Unfortunately he died of the small-pox when quite young. The now familiar *Petræa volubilis* was named after him by Houston, who introduced so many plants from Mexico and the West Indies. It may be mentioned in passing that a certain rule adopted by present botanists deprives Houston of the advantage of having his name associated with the genera of plants proposed by him. Thus the genera *Justicia*, *Kempferia*, *Buddleia*,

FIG. 99.—PLAN FOR ENCLOSING A KITCHEN GARDEN BY GLASS-HOUSES. (SEE P. 624.)



Randia, Ammannia, Gronovia, Michelia, Richardia, Martynia, Petrea, Lippia, Douglasia and Jussiaea, were first described and figured by Houston, but he gave no specific names to them. Linnæus adopted these genera, most of which include more than one species, and cites Houston as their author; but Linnæus adds specific names, and he therefore is the author of the binomial appellations. It seems scarcely fair, however, that Houston should lose all title to the genera, which he founded or proposed founding in memory of various botanists and horticulturists. It is true that Linnæus published these names (as Houston's, be it understood) before Sir Joseph Banks published the *Reliquiæ Houstonianæ* (1781), containing Houston's figures and descriptions. But to return to Lord Petre's hothouses. Collinson, writing to Linnæus under date January, 1743, gives some particulars of them and the collections they sheltered. He says:—

"The death of the worthiest of men, the Right Hon. Lord Petre, has been the greatest loss that botany or gardening ever felt in this island. He spared no pains nor expense to procure seeds and plants from all parts of the world, and then was as ambitious to preserve them. Such stoves the world never saw, nor may ever again [mark this assumption]. His greatest stove was 30 feet high, and in proportion long and broad. In it were beds of earth, in which these plants as under were planted, and flourished wonderfully. The *Hernandia* was 10 feet high, and 5 inches round the stem; *Guava*, 13 feet high, 7 inches round, spreading 9 feet. A female *Papaw*, 17 feet high, 2 feet 3 inches round the stem, and bears plenty of fruit every year; *Bixa Orellana*, 14 feet high, 11 inches round; *Plantain*, or *Musa*, 24 feet high, the leaves 12 feet long and 3½ feet broad, 3 feet 3 inches round the stem, and has abundance of fruit. A large *Palm*, 14 feet high, 4 feet round; a *Cereus*, 24 feet high, 1 foot 4 inches round; *Hibiscus rosa sinensis*, 25 feet high; a large *Sago Palm*, &c. The back of these stoves had trellises, against which were placed, in beds of earth, all the sorts of *Passion-flowers*, *Clematis* of all the kinds that could be procured, and creeping *Cereus*. All these mixed together, and running up to the top covered the whole back and sides of the house, and produced a multitude of flowers, which had an effect beyond imagination; nothing could be more beautiful or more surprising. There was also a *Bamboo cane* 25 feet high."

Collinson also states that there were two other stoves, higher and longer than most that are to be seen, kept at a lower temperature, and there was a *Pine-stove*, 60 feet long by 20 feet wide. At Lord Petre's death Collinson had the collection of trees and shrubs in his nurseries counted, and they numbered 219,925, mostly exotic.

GRAPE CULTURE AT HEN-BURY HILL.

AMONGST the many notable examples of finely-grown fruit now produced in the West of England, and exhibited at the important shows which have sprung up in that part of the country during the past few years, there are none more worthy of note than the Grapes, and especially the Black Hamburgs, grown by Mr. Shore, gr. to the Rev. J. Heyworth, Henbury Hill, near Bristol. To growers there is more than usual interest attached to these Grapes, as they are principally the produce of a single Vine, one of twenty planted out some thirteen or fourteen years ago in a large house. The Vine in question was planted in one of the front corners of the house, and like the others inside the front wall, but it quickly got its roots outside, and these, so situated, were little affected by the *Phylloxera* which stopped the growths of the others, whose roots we understand were wholly inside, and which were cut out and the whole space devoted to the present single Vine. This has now become wonderfully vigorous, and for the last six years has been allowed to carry each season about 200 bunches of Grapes ranging from 1 lb. to 5 lb., but mostly about 3 lb. each, and possessing perfect evenness of finish, such as is not often seen with fruit on so large a Vine. It is an instructive Vine in several ways, illustrating the soundness of the principle of unstinted head-room or extension, where the natural soil is such as to suit the requirements of the Vine. It also shows that the much dreaded *Phylloxera* has little power for mischief in this country on outside roots that have genial soil and unrestricted space to ramble in, for the insect is unmistakably present still

on the few roots of this Vine which are inside the house, as we can testify from examples of them which we saw. *T. Barnes.*

Natural History.

OUR COMMON SPARROW (*PASSER DOMESTICUS*).—None of our English birds are so well known as the sparrow, in city or country alike he is recognised by the youngest urchin. Our object just now is to throw a little interest around this bold if not impudent little fellow, and probably, if we must judge by his conduct opposite our window during the last severe winter, the most quarrelsome bird we are acquainted with. But is it not also affectionate? Yea, certainly. There are many well authenticated instances, where it has been seen feeding the young of other birds when in a state of captivity, and we think it is Jesse who states that a sparrow was accidentally fastened by a piece of worsted to the spouting of a house, and there it remained during the whole winter, unable to extricate itself; but it was regularly fed by a whole host of its own species, and when it was at length liberated it was greeted with evident marks of joy by all its former companions. A farmer's boy confined a nest of young unfledged sparrows in a trap cage, fastened in a tree: by this means he caught forty old birds in a few days, who from their affectionate disposition came with food for the helpless fledglings. It is also recorded that a lady, living in the suburbs of London, hung from her room window daily a cage containing a young chaffinch which was regularly fed by sparrows for many weeks.

Unlike many others among our common birds, the sparrow is a very social bird: it is not content for many hours if in a solitary condition. Thus a pair of these active birds built a nest in a large hollowed Pear tree in our garden; the hole selected was formerly tenanted by starlings. All went merry as a marriage bell, until early one spring morning the cat killed the male bird; at this time the hen was preparing to sit, having laid five eggs. For two days she appeared disconsolate, a constant mournful "chirp" was heard early and late, then to our surprise she suddenly disappeared, and was absent from her home probably a day or so: when she returned she brought with her another husband, and as if nothing had occurred went on as usual with her maternal duties. Unfortunately, after rearing her brood her second mate lost his life, but, nothing discouraged, she secured another, and brought off a second nest of fledglings in safety.

It is also socially disposed towards its greatest enemy, man. An amusing instance is recorded in the *Zoologist* of a London sparrow keeping up a cordial friendship with the keeper of an "early breakfast shop," composed of a long flat wheelbarrow, with a movable awning, which was opened daily at the corner of Tavistock Square. "Every morning came the wheelbarrow, and every morning the sparrow fed herself and brood, and if the old man in the dark wintry mornings was a few minutes behind time, she would go some way to meet him, and with a chirp at meeting settle either on or beneath the awning, and so ride home. And this was done, not once only, but regularly and as often as he was too late. Once only there was a season of estrangement between the two friends. The bird brought down from the tree three of her young, one of which was too weak to get up again, and the old man, out of compassion, took the poor little fledgling home with him. Unfortunately it died in the course of the day. A complete change now took place in the conduct of the sparrow—she refused to approach her friend's shop; in vain he coaxed and called her, tempting her with tit-bits, and trying all his arts to be reconciled. Her former chirp of confidence was changed into a harsh note of reproach and remonstrance, and so long did her displeasure last that the offender began to despair of ever regaining the affection of his pet. But in due time another brood was hatched, and the mother forgot old griefs in her new joys; the friends were reconciled, and they lived together on the old footing of familiar confidence and goodwill."

All kinds of nesting sites are selected by the sparrow: only during the last season a pair made their home in the vane at the top of a high spire on one of our village churches; a large gilded cock ornamented the vane, by some means an opening was formed in its breast, through this the birds entered, and built their nest in its hollow body, and although it veered about with the wind the sparrows seemed

very comfortable. However, he is wise enough to prefer a roof over his head, although it may perchance be a poor one. Under the slates or tiles of a house is a favourite spot; if this is not available he does not despise the waterspout, if it is covered with slates. The nest is a slovenly affair—anything will do if soft and pliable. Montague mentions that a pair of sparrows in his garden carried away a large piece of matting, used to cover his Lettuce-bed, to their nest; both birds became entangled before securing their prize. Their pitiable cries in this condition, for they were both close prisoners, attracted a large crowd of their species to witness their sufferings, though they rendered no aid, probably from terror of also becoming entangled; they were afterwards liberated, though both died from exhaustion. Jesse thinks the reason why so many feathers are employed in the nest is the fact that they are compelled to leave their young for considerable periods searching for food.

We are sorry that sparrows are still regarded as enemies by many of our village husbandmen; thus the overseers are yet empowered by the vestry meetings to pay one halfpenny per head for all destroyed. It is a pity we have not yet learned more humanity, for without doubt this persecuted bird is one of the best friends both to the gardener and farmer. A calculation has been made that a pair of sparrows destroy nearly 4000 caterpillars per week, besides other insects, when rearing their young. When cock-chafers abound, which happens periodically, they would speedily become a perfect pest but for the sparrow; it is true the rook destroys an immense quantity, yet it should be remembered the despised sparrow has access to gardens and other small enclosures where the rook is denied access.

The sparrow, fortunately, does more for our house comforts, for he destroys one of our greatest pests, the common house-fly, which, were it not for his persistent efforts, would multiply to an alarming extent. Scarcely anything in the shape of insect food comes amiss, for he is a voracious feeder, therefore he should be regarded more as a friend than a foe. *R.*

Foreign Correspondence.

STANLEY, FALKLAND ISLANDS: Jan. 1.—[We are enabled to give a copy of a letter addressed to Governor Callaghan, and relating to the peat-flood already mentioned in our columns, p. 469:—]

"I regret to have to report to you the circumstances attending an accident which happened early on the morning of November 30 last.

"Just after midnight on Friday, November 29, one of the inhabitants was awakened by the continued barking of his dog, and thinking that a cow had strayed into his garden he went outside, when to his alarm he found that his house was surrounded by a black moving mass of peat several feet in height, and travelling down the hill at about 4 to 5 miles an hour. It was not until daylight that the extent of the disaster was manifested.

"The sufferers by the calamity were quite shut off from communication with the rest of the settlement, until they had cut a way for themselves through the heap of liquid peat, which everywhere surrounded their dwellings. Fortunately no lives were lost.

"Immediately when the report reached me I proceeded to the scene of the disaster, and found the town in a worse state than it had been represented, all communication between the east and west end of Stanley being entirely cut off, except by boats. At this time there was no perceptible movement in the mass of peat which covered the ground in confused heaps, except in Philomel Street and the drain on the east side, where I perceived the liquid peat moving down at a very slow rate. To get rid of this as quickly as possible I found it advisable to turn all the water that could be dammed up, and sluice the peat whilst in a liquid state, and by this means I eventually cleared Philomel Street.

"On following up the course which the slip had taken the hill presented a curious appearance. From the peat bank down to the brow of the hill, a distance of about 250 yards, the surface peat lay in confused heaps direct from the opening of the bog. The moving power (whether water or liquid peat it is impossible to say) travelled over the ground faster than the heavier bodies, which were left standing 3 to 4 feet above the level of the ground.

"Proceeding to the top of the bog I found a depression extending over 9 to 10 acres of ground, the edges cracking and filling up with water and threatening another accident. I at once saw the necessity of calling upon the inhabitants to assist me in cutting a trench at the back of the hill, so as to drain off this accumulation

of water, which seemed likely to float the loose peat left in the depression down in the settlement. I am glad to say that this call was heartily responded to by every man in the settlement, the gentlemen finding substitutes to take their places.

"All worked for eight days in the cold and rain, but nevertheless they were unsuccessful in carrying the trench through the bank into the bottom of the slip, owing to the soft peat welling up from the bottom and filling the trench again. Seeing that the exertions were of little avail, and in the present state of the bog, I did not press the settlers to continue the work that was so disheartening in its results; and as I now feel satisfied, from the great quantity of water that has been drained off, and the cuttings being at a level, that this would prevent any further accumulation of water taking place in the slip, and as there was no immediate danger of another accident taking place, the work was stopped. *Arthur Bailey.*"

Florists' Flowers.

EFFECTS OF THE WINTER ON CARNATIONS AND PICOTEEES.—Never in my experience have we had a winter so destructive to Carnations and Picotees in suburban gardens. Not one plant which had failed to get well upon its legs, and fully prepared for its winter's sleep before the last week of October, survives. Caught by the great depression of temperature in early autumn, the sap never appears to have become set (or inspissated); and though throughout the winter months the plants retained their verdure, and gave promise of vigorous life with the returning spring, yet lacking the warmth of spring, gradually rot set in at the heel, and one after another each plant so circumstanced succumbed. Usually I have few plants with which I trouble to "coddle" during late autumn, but last year I was fortunate enough to bloom a number of promising seedlings, and to the produce of these I naturally gave special attention. In an ordinary season, or in an open situation such as I had at Derby, I should have saved every plant; but long-continued cold, combined with drip and damp, deplete and destroy in a degree pitiable to witness. Prior to my experience here I never knew seedling Carnations and Picotees succumb to cold; indeed, I do not as yet know that cold alone can kill them; but though naturally they are as hardy as couch-grass, cold and damp combined are so insidious, and so destructive, that upwards of 700 plants died under their influence.

Fifty-two weeks this day I cut my first bloom from the seedling beds. Such is the difference in the character of the seasons that, judging from present appearances, we shall not this year see a flower earlier than July. *E. S. Dootwell, 11, Chatham Terrace, Larkhall Rise, Clapham, S.W., May 12.*

Garden Operations.

FLOWER GARDEN, ETC.

When spring flowering plants do not interfere with those beds which are intended for carpet-bedding, all hardy and most half-hardy plants which are used in combination with the more tender plants for summer decoration, and which form the principal groundwork of all such beds, such as Sedum, Saxifrage, Mentha Pulegium gibraltarium, together with Semperivivum and Echeveria secunda and secunda glauca for marking out the divisions and furnishing edgings, may be planted at once, so as to save time when the general planting-out presses. To facilitate this operation a review of the available stock should be taken, and the plans to be adopted regulated thereby at once. Careful attention to the hardening off of bedding-plants of all sorts will still be necessary; this has been a matter of more than usual difficulty this season, the piercingly bitter cold nights and morning frosts having rendered necessary an extra amount of protection. This work coming as it does at that season when it becomes imperative that established plants should be shifted out of the pits and propagating departments in order to make room for the advancing stock, becomes more difficult. Very serviceable temporary shelters may be quickly put up with wide deal boards set up on edge, of a convenient breadth so as to be readily covered with mats at night; in these most of the stock for bedding-out may be safely hardened, except perhaps Coleus, Alternanthera, and such-like, which should be kept under glass for another week or so. If pit room is available the Coleus may be turned out of the pots and planted out in light sandy soil, keeping the lights on at night, but giving them free exposure in all but cutting easterly winds. By this treatment nearly a month is gained in appearance when they are bedded out; and if time and convenience served many other kinds of

bedding-plants might be subjected to the system of planting out in pits a month before the bedding-out time with very great advantage, as such plants root more freely and start into growth considerably in advance of pot-bound plants. Alternantheras may be made very manageable by planting them out in boxes 2 feet square and 4 inches deep, and gradually inuring them to the open air by placing them in sheltered corners where they can be securely covered with mats at night. Tender annuals, such as Marigold, Zinnia, Phlox, Aster, and Pelunia, must be looked to at once; if sown thinly on the gentle heat of a hotbed, as formerly recommended, they will probably only need a little thinning out, and the spare plants may be pricked out or not, according to the numbers required; but if sown in seed pans they should be pricked out at once on a gentle heat under glass, and hardened off when rooted, so as to be ready for planting out by the time the general bedding stock is got in. These form so important a feature in the autumn display, that extra attention should now be bestowed upon them ere it is too late; especially should a good stock of *Helichrysum* in varieties be at once pricked out to get strong for transplanting: the earlier these are got to work the better, as they are highly ornamental in the borders when loaded with flowers, and so useful and durable as cut flowers, and it is only by starting them as early as the weather will allow that good results can be attained. What a difference in seasons! Last year at this time the grass grew so fast that it was kept down only with much extra labour, this season it has been well kept under with less than half the usual trouble up to this time. The progress of vegetation generally has been commensurate with this; our early *Rhododendrons*, which on an average of seasons are in great beauty by the middle of April, have only just arrived at the same result in the middle of May; hardy annuals sown at the usual time are only just pushing through—last year many of them were thinned out to flowering distances. But after all the season has been a very favourable one for bringing up all arrears of groundwork in the digging up of borders, edging gravel walks, and re-surfacing with fresh gravel where necessary. Advantage must be taken of dry weather to run the hoe carefully through all beds and borders of mixed herbaceous and bulbous plants, both for the disturbance of vermin and keeping down the seeds of weeds. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

The nights being still cold, and the days as a rule not over-warm, it will not be safe at present to entirely remove the wall tree coverings. They should, however, be used less and less, in proportion as the necessity for them diminishes, which will be according as we are favoured with genial weather for the development of the foliage. So far fruit trees have had but a treacherous time of it this spring, and the young leaves of Peaches and Nectarines already show signs of blister and curl—the result, no doubt, of the check, amounting almost to stagnation, produced by the chilling blasts that have blown over them week after week since the trees began to grow. It has before been advised that disbudding should be carried on slowly and gradually by going over the trees at frequent intervals, in preference to doing too much at once, and the present condition of the young growth makes it essential that extra patience and care should be used in disbudding, and that increased vigilance should be brought to bear in searching out and destroying insects which will be sure to attack any trees that have received a severe check. In this, and in every other way, we must endeavour to remove all the obstacles within our power to the progress and well-being of both trees and crops. Proceed with the thinning and regulating of Apricots where the “set” is thick, removing the badly-placed and small fruits first, and cut out any branch that shows evident signs of “going off,” as these never recover when once they are attacked with the fatal gumming. They may make and maintain a few leaves for a time, but are both useless and unsightly. Pears, Cherries, and Plums are just struggling into blossom (May 13), and are a sight worth seeing, and quite capable of inflicting serious disappointment should they fail to pass successfully through the severe ordeal to which they have been and are still exposed. If mere lateness of blooming were any guarantee of the security of a crop, we might rest comfortably, but as long as we have wintry weather the trees will require to be protected. Apples are showing bloom-buds in vast abundance, and the bullfinches are working sixteen hours a-day at knocking them out. Where these handsome little pests cannot be shot, they should be entrapped with a call-bird and some birdlime smeared on thin sticks, until their numbers are sufficiently reduced. It is useless to try to frighten them by stringing thread on the trees, as some recommend, as the bullfinches will be about as much alarmed at it as is the person who has wasted his time in putting it on the trees. Raspberries that are throwing up too many suckers should have them thinned out early, and Gooseberry and Currant trees will require to be

dressed with Hellebore powder while the dew is on them wherever caterpillars are formed. *F. Harrison, Knowsley Gardens.*

FRUIT HOUSES.

MELONS.—As the pits and frames in which Potatoes, &c., are growing become vacant they should be got ready for Melons (the plants being prepared beforehand for the same), the quantity being determined on by the demand during the previous season. The soil in which the Potatoes have been grown being removed, the leaves should be turned over, and, if necessary, some fresh ones added thereto to raise the bed to within the required distance of the glass, allowing a few inches for the shrinking of the leaves, which should be firmly trodden together at the time of putting them in the pit. This done, a couple of inches of rotten dung should be spread over the leaves, after which a couple of barrow-loads of soil (of the description recommended in a former Calendar) can be put in the centre of each light to form the hillocks. When this has been in the frame a couple of days it will be in a fit state to receive the plants. In planting, the plants, having been previously well watered, should have the soil pressed firmly around each of them; and should the sun be bright and powerful at the time, they should be shaded for a few hours daily for a few days until they have re-established themselves, after which it should be discontinued altogether, for the Melon, as is well known to all practical gardeners, is a sun-loving plant. Syringe the plants—where hot water is at command—twice a day during bright and warm weather (I suppose we shall have some soon), but once a day—in the afternoon—will be sufficiently often for plants growing in structures not so heated. Put air on early in the morning—say 7.30 or 8 o'clock—to prevent the foliage being scorched by the sun shining on them whilst their leaves are covered by and full of moisture without an opening through which to breathe. Half-past three on bright days will now be soon enough to shut up, varying a little according to the aspect of the houses and other causes. Another batch of plants should now be raised to plant in frames which will be shortly vacated by bedding and other plants. Plants must now be specially treated consistently with the various changes of growth at which they have arrived, *i.e.*, those [in flower will require a somewhat dry and airy atmosphere—the blossoms being fertilised at mid-day—until they have set their fruit, after which they should be subject to a moist and growing atmosphere, with a minimum temperature of 70°, and a maximum of 90° to 95° with sun. Three or four fruits—according to the strength of the plants—will be sufficient on each plant, all others being removed forthwith as soon as they appear. The same atmosphere as recommended for plants in flower will suit those maturing their fruit. *H. W. Ward, Longford Castle.*

FIGS.—Take advantage of mild days for giving increased ventilation to the Figs now ripening, and expose the fruit as much as possible to the full influence of the sun. When the first crop is gathered, as will soon be the case with pot trees started in November, return to the treatment applicable to trees swelling off crops. If, as is more than probable, red-spider has gained a footing, determined measures must be taken for getting rid of it by thorough syringing twice a day, or washing the leaves with a weak solution of soft-soap and sulphur, on fine evenings twice a week until new growth sets in. Where the second crop has set thickly on free bearing kinds like Brown Turkey that always force well, thinning may be carried on with a liberal hand, as there is little danger of the trees casting their fruit after this period providing the treatment they receive is generous. If trees of this useful fruit are not plentiful for giving a succession the season may be prolonged by leaving fruit of different sizes on the same branch, but it is useless trying to take more than two crops in a season as the trees must have rest through September and October. Growth after this period will necessitate frequent attention to stopping and training, as the best coloured Figs are always produced on vigorous young shoots fully exposed to sun and light. Let succession houses have abundance of water, and keep the roots of the trees heavily mulched with rich manure, into which the surface roots will find their way and do good service at a time when the energies of the trees are most heavily taxed. Syringe copiously twice a day, and bear in mind that high cultivation will always produce conditions the reverse of favourable to the spread of spider or scale. *W. Coleman, Eastnor Castle.*

CUCUMBERS.—Reiterating my oft-repeated advice, give copious applications of tepid liquid manure in a weak state to plants in full bearing, and avoid over-cropping and overcrowding of the shoots. Syringe the plants both ways twice a day, which will be the means, with proper ventilation, of keeping them free of red-spider and fly, which are sometimes very troublesome, and, if not speedily dealt with, very

destructive to the plants. If necessary make another planting, so that the supply of fruit may exceed rather than prove unequal to the demand for the same. Ventilate as recommended in the Melon Calendar. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

CONSERVATORIES.—Owing to the close proximity of these structures to dwellings and their immediate connection with the principal rooms belonging thereto, it often becomes a difficult matter at this season to keep the plants free from insects without the smoke used in fumigating getting into the house, and impregnating the furniture with its offensive odour to such a degree as to cause great annoyance. To prevent this, it will be found a good plan before commencing operations to fasten over the doors or openings leading into the building, a piece of druggut, *Frigo Domo*, an old blanket, or any non-conducting material of that kind, which, dipped in water and wrung out, is impervious to smoke and may be made to confine it where wanted. In cases, however, where there are only a few plants infested with aphids it is better to use tobacco-water, which syringed on clear and washed off a few hours after will not injure or discolour the most delicate paint, but the same cannot be said of Gishurst and other insecticides, although these are all good in their way. The young growth of roof-climbers having now made considerable progress all superfluous shoots should be cut away, and what is left regulated, but in doing this the habit of the different species and their mode of flowering must be taken into consideration. With *Passifloras* and *Tacsonias* the knife may be used freely, as these bloom on the long pendulous wood as it forms; but *Bignonias*, *Tecomas*, and others that flower on the growth made the preceding year, the thinning ought to be done immediately their blooming is over, when every encouragement should be given them to make fresh shoots, and by full exposure to ripen the same. Of all conservatory climbers that which deserves the greatest amount of attention is the *Lapageria*, as for usefulness and general effect when planted in suitable positions it is quite unrivalled. Just now and for some time on it is almost impossible to give established plants of it too much water, provided the drainage is efficient. Not only do the *Lapagerias* require plenty of moisture at the root, but they are greatly benefited by a syringing overhead at least once a day. In cases where any are in an unsatisfactory condition, and require overhauling, or it is desired to plant any fresh ones out, the present is a good time to carry out the work, as they always bear any disturbance best just when they are on the move. Rough fibry peat with plenty of sand is the most suitable soil, as in that their large fleshy roots can ramify freely.

FERNERY.—The rate of growth of the young fronds of Ferns will now be rapid, and in order to prevent injury to the same in their soft, succulent condition, and afford light and room for their full and free development, the old ones should be at once removed, where at all shabby, they being after this of little or no further use to the plants. Although Ferns require a certain amount of shade, as a rule they get too much, and are thereby rendered weakly, and made to send forth thin attenuated fronds, which if used for cutting to dress with flowers are of little value for lasting. A suitable moist atmosphere, with plenty of light and air, produces growth the reverse of this, but the fierce rays of the sun must be kept from the delicate kinds all through the day, or they soon suffer. The great thing in the successful cultivation of Ferns is to see that they never want for water, and especially those having tree-like stems, which, if they become dry, are sure to be ruined for the season, and are placed in considerable danger of being lost altogether. It is not the lower roots that require the moisture so much as the trunks, down which water should be poured at least once daily, that the spongioles they emit around them may have a full and constant supply.

GREENHOUSES.—The beauty of *Epacris* is now over, and no time should be lost in cutting away all the old flowering wood, except an inch or so at the base, unless it is desired to get the plants to a larger size, in which case more may be left to form a frame, as it were, to refurnish fresh shoots. To assist them in breaking properly it is necessary to afford them a closer and moister atmosphere than an ordinary greenhouse supplies, which may be done by standing the plants in a brick pit, where they can be kept syringed and shaded for a few weeks till they will again bear more exposure. To have the above-named structures gay during the winter it is requisite to look ahead, and make due provision by propagating and growing on a sufficient stock of stuff suitable for their embellishment. Among the most useful plants for the purpose are *Salvias*, *Chrysanthemums*, *Eupatoriums*, *Schizostylis*, *Libonias*, *Cinerarias*, *Primulas*, and such-like, all of which should now have every encouragement and attention. *J. Sheppard, Woolverstone.*

THE

Gardeners' Chronicle.

SATURDAY, MAY 17, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, May 21 — Royal Botanic Society's Summer Show.
 Reading Horticultural Society's Spring Show.
 THURSDAY, May 22 — Sale of Plants at the Victoria Nurseries, Beckenham, by Protheroe & Morris.
 Crystal Palace Flower Show.
 SATURDAY, May 24 — Linnean Society's Anniversary Meeting, at 3 P.M.

THE reports lately published on the culture of the OPIUM POPPY by Mr. JOHN SCOTT, the Curator of the Royal Botanic Garden, Calcutta, present so many points of general importance to the cultivator that it may be of interest to allude to them here, even though, so far as this country is concerned, we are not specially interested in Poppy culture. The season 1877-8, it appears, was one of the worst of any on record for the opium grower. Grubs and caterpillars ate off many plants, while those that did arrive at full development yielded little or no opium, though to all appearance healthy. The deficient secretion is attributed by Mr. SCOTT to the extreme differences of weather, so far as regards the opposite extremes of dryness and humidity prevailing in the last two seasons.

From a consideration of the great degree of moisture in the atmosphere under which the seed for the late season's crop was grown and matured, Mr. SCOTT arrives at the conclusion that there was a want of correspondence between the constitution of the plant and the climatal characteristics of the season. The secretion of opium is connected with the vegetative system, and is not dependent on fertilisation or reproduction, inasmuch as unfertilised capsules produce as much opium as those which have been fertilised. "Keeping this in view," says Mr. SCOTT, "and remembering that the opium juices are not assimilated by, and do not, in any direct way, contribute to the growth of the plant, it is easy to see that they are much more likely to be affected by seasonal variations than the parts in which their peculiar system is incorporated." Acting on this view Mr. SCOTT suggests the transfer of seed from drier to more humid districts and from light dry soil to wet or heavy soil, always avoiding the converse transfer of seeds from wet and heavy clay soils to light dry sandy soil and drier climates.

In a second report Mr. SCOTT alludes to the great increase of insects destructive to cultivated crops, and he attributes this unusual increase to the light monsoon rains preceding the cold weather which was a period of drought and maximum temperature (for the season) and which presented a continuation of conditions most favourable to the preservation of the eggs and larvae of insects. The insects may be roughly divided into two groups, the vernal and the autumnal: the former of which attack the Poppy in its earlier stages while the juices are bland and agreeable, the latter class affect the Poppy in its matured stages but only when the opium juices have been more or less completely exhausted or their secretion arrested. In no cases did the insects affect the yield of opium, for where the mature plants had secreted the opium juices they were not attacked, the juice being a very efficient protection. The preventive measures suggested are early sowings, so as to get the crop so far advanced and the opium juices so perfected that the insects will not touch them. Mr. SCOTT's reports, though rather too much of the Blue Book order of diffuseness, are replete with valuable information and interesting speculation. Thus in allusion to the appearance of insect pests, after noting the effects of climate, he alludes to the destruction

of forests, which have not only removed the shelter and cover of the insectivorous birds, but also influenced the climate of continental India and the central parts of the Deccan. Again, no regular rotation of crops is followed, the same crop being grown, year after year, on the same land, and hence the increase of the insects which affect that crop.

As already mentioned, Mr. SCOTT has attributed the greater abundance of insect foes to a paucity of milk sap, and its premature exhaustion by the ordinary processes of artificial extraction, the deficiency in the sap being, in its turn, due to season. Mr. SCOTT, acting on a suggestion made to him by Mr. DARWIN, considers that the secretion of opium has no especial importance as regards either the vegetative or the reproductive systems of the plant, but that it is specially important as a protector of the plant against insects. To ascertain the correctness of this view Mr. SCOTT devoted, for five years, one plot of land in the gardens under his charge to the cultivation of Poppy plants from which he extracted no opium, while others side by side were tapped as usual. This was done partly with the view of ascertaining whether the seed produce of such plants did or did not give rise to a superior opium-producing progeny.

The general results showed a falling off in the opium produce of the plant, and afforded excellent illustrations of the protective nature of the opium juices. Thus "on a small plot of land we have a crop of Poppy, one portion of which has the milk sap or opium juices extracted as usual, while in the case of the other these juices are naturally fixed in the plant. While that portion of the plant maturing with its natural secretions of milk sap had an immunity from insects, the other portion (a continuous plot) was much injured, producing about half less in seed."

This is a very interesting and conclusive statement. The milk sap once formed, acts as a protection against insects; prior to its formation the plants are subject to injury, after its exhaustion they are also liable to be preyed on. The seed and the seedling plants do not contain milk sap, and they are liable to insect injury, so that no defence, as also pointed out by Mr. DARWIN, is really perfect.

The mention of this subject leads Mr. SCOTT to make further remarks on the protection against insects afforded by narcotic secretions, as in Tobacco and Henbane; volatile oils, as in the case of various umbellifers, which are completely exempt from the attacks of insects. On this point it is interesting to remark that the blanched portions of Celery are far more subject to insect attacks than the green portions in which the strong-smelling poisonous matters are developed.

In the case of the *Sesamum indicum*, largely cultivated in India for the sake of its oil, protection against injurious insects is afforded by the presence of a glandular secretion which attracts the ants which protect the plant from the invasion of caterpillars. Mr. SCOTT put this to a practical test, by placing some caterpillars on the growing plant, when they were immediately attacked by the ants and destroyed.

The milk sap is, however, not always a preservative, for it is noted by Mr. SCOTT that the Mudar, *Calotropis gigantea*, is much affected at all stages of its growth, despite the acrid milk sap, by the caterpillar of *Thyca eucharis*.

We cannot pursue the matter further, interesting as it is; we have said enough to show that Mr. SCOTT's earlier researches have borne fruit in a new field; we have shown how, acting on the suggestions of our most eminent naturalist, he has opened up new ground—new, at any rate, so far as practical application goes, and so has added another illustration of the fact, that many things looked on as merely botanical

curiosities, or as fanciful speculations, or it may be by some as "solemn trifles," are nevertheless capable of being turned to excellent practical account.

— MACKAYA BELLA.—At the meeting of the Floral Committee, held on April 9, some cut flowers of this charming plant were shown by Mr. GREEN, gr. to Sir GEORGE MACLEAY, Pendell Court, Bletchingley, who kindly furnished us with materials for the subjoined illustration (fig. 91). It is an upright-growing, soft-wooded, bushy plant, the specimen at Pendell Court being over 6 feet high and 4 feet through. It is a native of South Africa, and is planted out in a warm greenhouse in Sir GEORGE MACLEAY's garden in a border of rich turfy loam and leaf-soil, with good drainage, and being kept well supplied with moisture during the summer months it grows freely, but to get it to flower freely Mr. GREEN finds that during the autumn and winter but little water must be given, so that the summer growth may get well hardened off, and the plant as regards growth be kept almost at a standstill for a time. In this condition it will stand a somewhat low temperature, but it is necessary to state that sufficient water must be given to prevent the leaves falling off, or the plant will be disfigured. It requires plenty of sun and light to harden the growths, and a thorough watering should be given just as the flower-buds appear. When in flower the temperature of the house should be kept between 55° and 60°. The plant from which our specimen was cut bore over 400 terminal racemes of its delicate pale lilac flowers, which continued in perfection for a considerable time. When planted out in this way it is certainly a magnificent plant, and Mr. GREEN is to be congratulated upon his discovery of a method of treatment by which it is induced to flower so freely, the plant having previously been regarded as "a shy bloomer."

— RETIREMENT OF MR. MARNOCK.—We learn that after a period of over forty years' active occupation as a landscape gardener, Mr. MARNOCK now purposes retiring from the profession, of which he has been one of the leading ornaments and a most successful and tasteful exponent. The genius of which the early promise was shown in laying out the Botanic Gardens of Sheffield and the Regent's Park has never failed, and we may confidently assert that no works in the landscape art have been subjected to fewer adverse criticisms than those which have been executed under Mr. MARNOCK's direction. This has no doubt arisen from the happy combination in the same person of a large measure of correct artistic taste with the technical knowledge of a practical gardener. Mr. MARNOCK's style was essentially an ornate one, yet marked by breadth and variety. We trust he may long enjoy his well-merited repose, for sure we are that no one could take with him on retiring from active life a larger measure of the respect and good wishes of all those who knew him. Mr. J. F. MESTON, who has been often associated with Mr. MARNOCK in carrying out his plans, will succeed to his practice, and his acknowledged taste and lengthened experience give him also the promise of a successful career, which we trust he may realise.

— THE BAGSHOT RHODODENDRONS.—We understand arrangements have been made that Messrs. JOHN WATERER & SONS, of Bagshot, are to have the use of the gardens, Cadogan Place, Sloane Street, for a display of their Rhododendrons, which will take place throughout the month of June next.

— A PLAGUE OF WEEVILS IN CORNWALL.—We learn from the *Cornish Telegraph* of May 6, that last year some of the Raspberry plots in the spacious fruit grounds in Gulval and part of Madron were almost totally destroyed: the blossom shoots were bitten off, and little but bare canes were left. The loss in the yield of fruit was of the value of many hundred pounds. What caused the mischief none could tell; caterpillars were suggested, but no caterpillars could be seen. This year Mr. W. THOMAS, of Ridgevean, who had quite an acre of fruit affected, narrowly watched the plot, and about the end of April he saw that the unknown destructive was at its work again. Watching by day revealed nothing, but a search by night resulted in the discovery that the bushes were infested with brown weevils, varying in size, the largest being about half an inch long. These



weevils [*Otiorhynchus sulcatus*] were seen to be industriously boring through the succulent stem of the blossom-buds, some being cut right off, others withering on the cane. At the approach of daylight they descended to the soil, and hid just beneath the surface or underneath stones. Great difficulty was experienced in getting rid of these pests, which by the way were never seen in the district before this year. At first Mr. THOMAS attempted to rid himself of them by setting hands to pick them out of the soil by day and off the bushes by night, but this proved to be an interminable work. Lime was strewn over the ground in vain, and the foot of the canes were daubed with coal-tar, but this did not prevent the weevils from ascending to the dainty blossom-buds. Ill smelling stuff was obtained from chemists, but it had no more effect on them than fire on a salamander. At length Mr. THOMAS hit upon what seemed to be a successful plan: he got some rough wooden trays made, the inside of which were besmeared with tar. Then one man held a tray underneath the branch, another, carrying a lantern, gave the bush a smart tap, and the weevils fell into the tray. The tar held them captive for a while, and after the tray had been placed under a bush or two boiling hot water was thrown upon the lot. This killed them—the only thing apparently that would, but it was found necessary to have the water quite boiling. Mr. THOMAS has had upwards of forty persons at this work in his grounds, and each bush having been treated three times in this way, he felt some hopes of being clear of the pest. The Raspberry grounds of Mr. R. THOMAS, Fleming; Mr. JOSEPH THOMAS, Polgoon; Mr. RICHARD THOMAS, Punjou; and Mr. OLIVER, have been similarly affected. Although Currants and Gooseberries and Apples are close by the infested bushes, the weevils were not found on anything but Raspberries. The same paper for May 13, however, states that the ravages of the weevil on the Raspberry bushes continue, and that the shaking of the canes over the tarred trays every night seems to have had little effect. A local correspondent makes the most sensible of any of the suggestions that have been proffered, and that is an experiment of applying a weak solution of carbolic acid to the soil about the roots where the weevil hides in the daytime.

— *SONCHUS PLATYLEPIS*.—A very handsome Sow-Thistle, 2–3 feet high, with hoary lanceolate pinnately lobed leaves, and panicles of yellow flower-heads, each about 3 inches across. It may be seen in the Heath-house at Kew.

— *THE LINNEAN SOCIETY*.—The annual meeting of the Society takes place on the 24th inst., at 3 P.M., when a Council and officers for the ensuing year will be elected. There is a growing feeling among the Fellows of the Society that when a change occurs in the Presidency the term of office should be limited to a short period, in order to admit of the larger infusion of new blood, and to secure an enhanced amount of vitality in the Society.

— *LIBERIAN COFFEE*.—At one of the recent meetings of the Linnean Society the Fellows were regaled with coffee made from the Liberian variety, presented by Mr. MORRIS, a gentleman who has taken much interest in the introduction of this coffee into the American market, where it fetches a high price. Mr. MORRIS has also established plantations of this variety in Liberia itself, and trusts by its means to promote not only the commercial welfare of the country, but also the civilisation of the native races. Mr. MORRIS has received the official thanks of the President of the Liberian Republic for his services.

— *ANTHURIUM SCHERZERIANUM*.—There is a wonderful stage full of these glowing spathed plants at Messrs. VEITCH'S just now, including the fine variety grown by Mr. WARD. It is curious to observe how very variable the spathes are in size, form, and even in attachment. In one variety the spathe is so placed as to have its edges directed upwards and downwards instead of its surfaces.

— *FRENCH SALADS*.—The denizens of Leicester Square *locale* and the frequenters of its numerous cafés and restaurants, probably little imagine that the defiant emblem of the roaring Briton lies lurking in their salads. It is not the British lion in the flesh, but its vegetable synonym, the Dande-lion, that enters so largely into the composition of those mysterious mixtures that adorn the salad-bowl. Dandelion plants

actually form an article of commerce, not for medical purposes, as in days past, when the long milky roots were utilised for the pharmacopœia, but rather for its large spreading heads of green astringent leafage. The gardener has now and then utilised the Dandelion in a blanched state; but Madame VILMORIN'S improved French variety is in fact a very excellent and agreeable salad plant when properly cultivated and blanched.

— *PYRUS MAULEI*.—Whether the fruit of this new Japanese *Pyrus* be cared for or not, it is well worth planting against a wall for the sake of the profusion of scarlet blossoms which it puts forth every season. The plant is perfectly hardy, and a small example, on one of the walls at Chiswick, was a few days ago a perfect picture of flowers.

— *EXPLODED NOTIONS*.—During the intensity of the recent winter it was a widely held comforting notion that as the severity of the winter would tend to exhaust the colder forces of Nature, the spring succeeding would be both warmer and more seasonable. As a result, we have had one of the coldest and most backward springs on record, and one that promises to leave behind severe mementos of its low temperature. Another general notion was that severe winters would destroy snails, slugs, and other garden pests. So far from that being the case slugs are as pestilential and abundant as ever where the ground is moist. Snails are fewer, thanks to the labours of blackbirds and thrushes; but the weather seems to have killed nothing except our garden plants. Future generations will doubtless hear of these notions and believe them until, like us, experience rudely shatters their beliefs.

— *CYPRIPEDIUM CALCEOLUS*.—It is a genuine pleasure to meet with this nearly extinct Orchid in the hands of a good cultivator, like Mr. JAMES DOUGLAS, who lately flowered it well in a cool greenhouse at Loxford Hall. It is not a decorative plant in the sense that a *Pelargonium* or a *Calceolaria* is decorative, but it is both effective and attractive in its way, its flowers composed of spreading red-brown sepals and petals, and clear yellow lip, forming an effective contrast with its grass-green foliage. *C. pubescens*, and the pretty stemless, yellow flowered *C. acaule* are also well grown in the same house, in a compost of turfy loam and peat. They are all hardy plants, but do so much better in the shelter which a cool greenhouse affords, that it would seem a pity to plant them outside.

— *A HYBRID PELARGONIUM FOR CONSERVATORY WALLS*.—We made a note at Chiswick lately of a *Pelargonium* which can be recommended for planting against a screen or the back wall of a conservatory or greenhouse, and which would furnish an agreeable change from the old scarlet and rampant growing Emperor, or Giant, which years ago did duty in such positions, and which may even now be found in old-fashioned gardens. The newcomer is *La France*, a hybrid between the Ivy-leaved and Zonal *Pelargoniums*, with large flowers of a rich flesh-pink colour. It has fine bold foliage, and appears to be a free grower.

— *HARD AND SOFT WATER*.—Mr. WILLIAM COLE, of the Grove Vineyard, Feltham, who is growing several thousands of Strawberry plants in pots, states that he finds the hard, or well water, to produce a very decided effect upon plants watered solely with it as compared with the effects seen on plants that are exclusively watered with soft, or rain water. The former are more robust, and the foliage and flowers larger. What difference may be found in the fruit crop remains to be seen. Mr. COLE grows only President and Sir Charles Napier in the proportion of one of the former to two of the latter. He does not force in the ordinary acceptation, but by a gentle stimulus of warmth secures his crop of fruit for market from the middle of May to the middle of June.

— *ANDAMAN MARBLE-WOOD*.—Some five years ago the museum at Kew was presented with specimens of a handsome black and grey striped wood, which was said to be produced by a tree peculiar to the Andamans, and was known as "Andaman marble-wood." It was clear that this was the produce of a species of *Diospyros*, but what particular species it was to be referred to was not so clear, as there

was no material but the wood to work upon. From Mr. KURZ'S *Forest Flora of British Burma*, however, it seems that the wood is the produce of *Diospyros Kurzii*, HIERN. This species was first described by Mr. HIERN in his well-known *Monograph of the Ebenaceæ*, but no reference is there made to the wood; but in KURZ'S *Forest Flora* we are told that the tree is an evergreen, 50 to 60 feet high, with a very thin, smooth, greyish bark; that it is "frequent in the tropical and moister upper mixed forests of the Andamans," and that it produces a greyish wood with a small ebony-like heartwood, close grained and heavy, "black, or the grey wood interlaid with black wood layers, and then called marble-wood." The identity of the specimens in the Kew Museum with the wood of *Diospyros Kurzii* is further proved by a comparison with a sample received at Kew amongst the large collection of Indian forest produce towards the close of last year.

— *DISCOVERY OF A PERFECT PLANT IN SEMINE*.—A little more than a hundred years ago an article on this subject, by a Mr. HENRY BAKER, was admitted in the *Philosophical Transactions of the Royal Society*. We extract one or two passages, to give an idea of some of the "philosophy" of that period. The author held the opinion that "the growth of animals and vegetables seems to be nothing else but a gradual unfolding and expansion of their vessels, by a slow and progressive insinuation of fluids adapted to their diameters, until, being stretched to the utmost bounds allotted them by Providence at their formation, they reach their state of perfection, or, in other words, arrive at their full growth." Holding this view the writer expected to find a perfect plant in miniature, but with all the parts, in the seed, and, like many other persons, he thought he saw what he expected to see; and this is how it happened:—

"Endeavouring with a fine lancet to dissect a seed of *he gramin tremulum* (Briza, no doubt), with intention to examine the several parts of it with a microscope, imagining he might find somewhat curious in the contexture of its husk, the edges of which were transparent, he opened it the long way, exactly in the middle, and took notice of something exceedingly small between the two sides which he had separated. He stuck the point of the lancet into it with no other design than to take it up and place it in the microscope to see what it might be, which he had no sooner done than he found the lancet had fortunately opened a membranous case that included a perfect plant, arising from a double root in the base of its case with two stems of an equal height, each having many leaves on it like the grass from whence it was produced. He afterwards cut open a great many seeds of the same kind, in hope to be able to separate one of these minute plants entirely from its theca, which at last he successfully effected."

— *SENECIO CONCOLOR*.—This is a handsome *Senecio*, in the style of *S. pulcher* but with downy leaves. The flowers are of a lilac-purple, not so large as those of the species just named, but very showy. The plant is a native of Natal, whence it was introduced to Mr. BULL'S nurseries.

— *A POPPY THE MOST NORTHERN FLOWERING PLANT HITHERTO COLLECTED*.—*Papaver nudicaule*, the beautiful perennial Poppy so widely dispersed in the higher mountain ranges of Europe and Asia, was the most northern flowering plant collected by the last Arctic expedition, having been found beyond the eighty-third parallel of latitude. The same plant ascends to between 17,000 and 18,000 feet in the mountains of northern India. It may be added that flowering plants ascend to a greater elevation in the mountains of northern India than in any other mountain chain hitherto explored. Thus many *Cruciferae*, *Caryophyllaceæ*, some *Ranunculaceæ*, and members of various other families occur up to 18,000 feet, and a species of *Draba* has been found, according to Dr. GOEPPERT, as high as 19,810 feet. *Rhododendron niveum* is the last woody plant met with, occurring up to 18,000 feet.

— *EVAPORATION OF WATER FROM VARIOUS CROPS AND FROM FALLOW GROUND*.—The *Litzungsbericht*, of the Munich Academy of Sciences, for November last, contains an account of some experiments by a Mr. VOGEL on evaporation. He employed KLINKER'S patent hygrometer, which he found, under proper management, to be a most excel-

lent and sensitive instrument. It not only shows the relative humidity of the atmosphere, but also the dew-point, without calculation or tables. To illustrate its sensitiveness the following observations are selected from a large number. It is not stated whether the temperatures are given in degrees of CELSIUS or of REAUMUR, but that does not affect the contrasts.

| Date of Observation. | Hours of Observation. | Degree of Humidity. | Temperature. | Dew Point. |
|----------------------|-----------------------|---------------------|--------------|------------|
| Feb. 25 | (At open window). | | | |
| | 7.30 A.M. | 65 | + 5 | 0 |
| | 9 | 72 | + 3 | -0.5 |
| | 12 noon | 55 | +10 | +2.5 |
| | 2 P.M. | 60 | +10 | +3.3 |
| Feb. 28 | (In unwarmed room). | | | |
| | 7 A.M. | 65 | +12 | +5.5 |
| | (At open window). | | | |
| | 7.30 A.M. | 75 | + 7 | +3.5 |
| | 8.30 P.M. | 65 | + 8 | +2.8 |
| Feb. 29 | (In unwarmed room). | | | |
| | 7.30 A.M. | 60 | +12 | +5.5 |
| | (At open window). | | | |
| | 8 A.M. | 85 | + 6 | +4 |

It is unnecessary to point out the great and rapid changes the instrument recorded, or of its suitability for the purpose in question. We will not enter into details of the mode of conducting the experiments, but simply give the results. Firstly, the evaporation of water from cultivated ground is considerably larger than from fallow ground; secondly, the nature of the species of plant essentially influences the quantity of water evaporated. This is merely a corroboration of previous results by a more delicate instrument.

— **MASDEVALLIA SHUTTLEWORTHII.**—This is now flowering in Mr. BULL'S nursery. It is one of the smaller flowered race, with deep cup-shaped flowers spotted with fine lilac spots, and with three long tails.

— **BIRMINGHAM ROSE SHOW.**—It has been decided to resume the Annual Rose Show at Birmingham. The fixture for the present year will be about the middle of July. The schedule of prizes is in the hands of the printer, and will be issued without delay. Mr. W. T. SMEDLEY, Colmore Row, Birmingham, is the secretary.

— **OXALIS ENNEAPHYLLA.**—A lovely little Oxalis with orbicular or deeply palmately divided glaucous leaves, with large clear white flowers. It is a little gem, but has not yet found its way into garden catalogues. It may be seen in the Heath-house at Kew.

— **ANÆTOCHILI AT HOME.**—Mr. W. B. FREEMAN, well known as a plant collector in India, is at present in London, and some of his introductions, including the highly-coloured *Dendrobium lituiflorum* Freemani, discovered by him in Assam, and described by Prof. REICHENBACH in vol. viii., are to be sold shortly by Mr. STEVENS. Mr. FREEMAN writes regarding the natural habitats of the *Anætochili*, that he has found them at an elevation of from 3000—4000 feet above the sea level, and most frequently in ravines near mountain streams. Though the temperature must fall much below freezing in winter, the plants are never exposed to the direct influence of frost, being sheltered by trees. The maximum temperature probably never exceeds 70° Fahr., and this can only be for an hour or so in the day. Mr. FREEMAN has found them growing freely in a temperature of 65°, and states that they rot off very quickly if any decayed vegetable matter or mildew is allowed to accumulate about the stem; that they should never be allowed to dry up, though free drainage is undoubtedly essential, and that the soil they are found growing in is a combination of peat and vegetable mould.

— **CAMELIAS AT KEW.**—The Camellias in the open air at Kew have suffered comparatively little this winter; but the flowers, of which there are a profusion, have been much damaged by frost and wind.

— **CAMPOTOPUS MANNII.**—This remarkable Rubiaceous shrub (figured in the *Botanical Magazine*, 5755) is now in bloom in the stove at Kew. Its bold foliage is noteworthy, but more singular are

the dense heads of white flowers, borne on stout scarlet pendulous stalks 8—12 inches long, and so recurved or hooked at the apex as to bring the flowers into an erect position.

— **ENCEPHALARTOS FRIDERICI GULIELMI.**—Mr. BULL has lately imported a large number of stems of this remarkable Cycad. The weight of their trunks and the tension exerted during growth are sufficient to break the largest pots in which they are placed.

— **DEATH OF PROFESSOR GRISEBACH.**—A *Times* telegram from Paris, dated May 13, announces the death of Dr. A. GRISEBACH, the eminent botanist and geographer of Göttingen. He was born in 1814, at Hanover, and in 1841 was called to Göttingen as Professor of Botany and Director of the Botanic Garden. He contracted his illness while on a visit with his family to Italy.

— **THIBAUDIA PULCHERRIMA.**—This is now flowering in No. 4 house at Kew. It is a shrub with leaves like those of an Oleander, and with tufts of crimson spindle-shaped flowers transversely barred, emerging from the old wood.

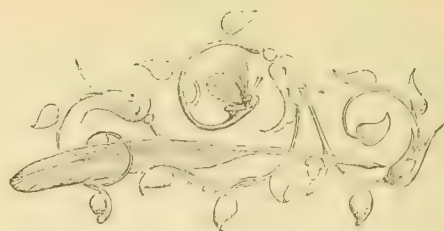
— **POSTPONEMENT OF THE PELARGONIUM SOCIETY'S SHOW.**—We are requested to state that, in consequence of the backwardness of the plants, the show originally fixed to take place on June 24 will be deferred till July 8, it being understood that the same course will, for a similar reason, be resorted to in the case of the Rose Show, which was also intended to have been held on June 24. Exhibitors will please make a note of this. The postponement was agreed upon in consequence of strong representations, that the subjects could not possibly be had in even a fairly developed condition at the original date.

— **TYDEA MADAME HEINE.**—Among the numerous Gesnerads, few are more handsome than this. The dark crimson-spotted flowers are particularly attractive in the Begonia-house at Kew just now.

— **THE WEATHER.**—From the report for the week ending May 12, issued by the Meteorological Office, we learn that the weather was cloudy, showery, and unsettled generally, but rather finer during the latter half of the week than at first. Snow and hail showers fell in many places on the 6th, 7th, and 8th. The temperature was again very much below the mean, the deficit ranging from 6° over Scotland and Ireland to 10° over "England, E." The highest shade readings occurred generally on the 12th, when 62° was reached in "Ireland, S.," 63° in "Scotland, E.," and 64° at many of the English stations. Night frosts were not very general, but a rather severe one was experienced over England on the 10th, when the sheltered thermometer fell to 27° in the north-eastern, 26° in the southern, and 25° in the midland and eastern districts. The rainfall was a little less than the mean in all districts, the deficit being greatest in "Ireland, S." A considerable fall occurred at Laudale (Scotland, W.) on the 10th, and snow on the hill tops. The wind was northerly during the early part of the week, but shifted to westward and south-west on the 11th. Northerly gale on our north and east coasts on the 6th, and winds fresh in force during two following days; afterwards falling moderate. A sharp hailstorm, with heavy rain, broke over the metropolis about two o'clock on Wednesday afternoon. The weather afterwards brightened, but soon after three it suddenly became dark, with a renewal of hail and rain, which, however, did not last long. A thunderstorm passed over Birmingham and Leicester the same morning. The rain fell in torrents.

— **FLOWER SHOWS.**—On Wednesday next the Royal Botanic Society will hold its first summer show at Regent's Park, and on the following Saturday the annual May show will be held at the Crystal Palace.

— **GARDENING APPOINTMENTS.**—Mr. W. BISHOP, for several years gardener to the late H. LOMBE, Esq., Bylaugh Park, Norfolk, has been appointed gardener to F. N. MICKELTHWAITE, Esq., Taverham Hall, Norwich.—Mr. SEPTIMUS LYON, late gardener to the Marchioness of LOTHIAN, has been appointed gardener to E. H. SCOTT, Esq., at Sundridge Park, Bromley, Kent.



Home Correspondence.

Nutrition and Cross Fertilisation as Affecting Fertility.—In a paper which the Linnean Society did me the honour to publish in its *Journal* (vol. xvii.) I stated that the *Wistaria* as "usually seen" rarely seeds, while plants made to be wholly self-sustaining "produced seeds abundantly." I showed how nutrition was affected by these different modes of growth, and that fertility followed in the wake of impaired vegetative exuberance. Similar experiences are so common with horticulturists that I suspect my observations would not have been questioned had I not happened to say further that the failure to seed was a matter of nutrition, and "had no connection with the visits of insects." In brief abstracts of a recent note of Mr. Thiselton Dyer to the Linnean Society he is represented as saying that the fruiting of *Wistaria* may be a question of temperature and not of nutrition. In our climate temperature enters largely into questions of nutrition—at any rate Mr. Dyer's observation rather confirms than antagonises my point, that the fertility has no connection with the visits of insects. *Thomas Meehan, Germantown, Pennsylvania, U.S.*

Nutrition and Fertility.—Mr. Fish in a note on the effect of age on fertility (*Gardeners' Chronicle*, vol. xi., p. 569) opens up an interesting question which is deserving of considerable attention, and I would invite your readers to contribute such information on the subject as their experience may afford. A discussion was maintained at the last meeting of the Linnean Society upon this very subject, *apropos* of two papers by Mr. T. Meehan, of Germantown, Philadelphia, who noticed that the climbing Chinese *Wistaria* (*W. sinensis*) very rarely sets any pods in Europe or America, and then only at the very extremity of the racemes. He noticed further that its American ally, *W. frutescens*, though fruiting more readily, as well as *Catalpa syriacaefolia*, also a native of North America, likewise fruited chiefly at the ends of the racemes only. On the other hand, *Glycines* trained as standards bear fruit abundantly. Now these latter never produce annual shoots beyond a foot or two in length, whereas those of the usual climbing form of *W. sinensis* not unfrequently attain to a length of 30 feet in a single year. Mr. Meehan tells me of a case of a trained plant which never fruited for many years, till it reached the top of the trellis, when the vine, being then tied to a vertical rod (as is done in making standards), fruited freely. He infers that the nonfruiting in full in the above cases is due to the vegetative system being in a too active state of growth, whereby proper nourishment is withheld from the reproductive system, which thus fails in consequence; but that in the case of the standard *Glycine* the vegetative force is not expended in developing long shoots, so that the flowers can thus produce fruits. This implies that the power of setting seed in the *Wistaria* is more a question of vegetative nutrition than of the visits of insects to secure pollination. I followed up Mr. Meehan's paper by a note, in which I mentioned several instances which seemed to corroborate Mr. Meehan's view, e.g., the barren *branches gourmandes* (to which Mr. Fish alludes) as compared with the flowering *branches boursoes* of the French. The barren state of *Ranunculus Ficaria* and of certain bulbous plants is a condition correlated with their frequent propagation by bulbs, &c. Again, the Ivy fruits when growing freely above its support, but does not flower as long as it climbs; while the profusion of flowers which occurs in leafless parasites, as *Cuscuta*, *Orobanche*, and *Lathraea*, &c., is also a significant fact. Mr. Dyer regarded the power of fruiting merely as a sign of adult age, and compared trees to animals in this respect, and thought that it had nothing to do with any difference between the so-called "vegetative and reproductive forces" respectively. Does not, however, his comparison rest on a somewhat false analogy? An animal has from its birth all its organs present, though they be not fully matured till a certain period. A tree has no flowers at all for some years. An animal is continually changing the character of its structure as it develops; thus, in man, the change of voice, the presence of the beard, the form of the muscles, &c., all take place as manhood approaches. A plant exhibits no analogous phases at all. It has only a yearly layer of wood to mark its growth. If there be any signs of adult age it is rather of the nature of a degradation; for the annual rings of

growth seen in a cross section diminish in breadth, while the foliage is much finer on a young tree than an old one. Hence I think Mr. Dyer's suggestion is not borne out by facts. The terms vegetative and reproductive force are confessedly used merely to indicate the unknown vital actions of plant-growth on the one hand, and the production of flower and fruit on the other. We certainly do see abundance of evidence that as long as the former is in too great activity the latter is more or less in abeyance. The significance, however, in the distinction does not so much concern the production of flowers only or not, though floriculturists would be so far interested in the matter; but that having produced flowers, that they should fruit as well. It is here that Mr. Fish's remarks are quite apposite to the question raised at the Linnean meeting. Since so much attention has of late years been drawn to the importance, if not the necessity of insect fertilisation in the securing of fruit and seed, botanists, at least, have, perhaps, been a little too prone to imagine it to be more necessary than it really is; and Mr. Meehan's observations seem to be very pertinent on this account, since they raise the question as to how far vegetable nutrition, *per se*, is an element of importance in the fruiting of plants independently of insect aid. What, therefore, we really want is, abundant observations as to the vegetative conditions of all trees which are usually shy bearers, average bearers, and abundant bearers, respectively. If horticulturists would take every opportunity of observing them, with reference to this point, it would aid physiological botanists, on the one hand, in discovering the laws which govern the vegetative and reproductive organs of plants; and on the other, will furnish data for practical men to go upon, in pruning and nourishing their fruit trees judiciously. *George Henslow*.

Auriculas.—I am glad to see these charming plants at last receiving the notice their merits deserve, for they are not only interesting and beautiful but of great value for decorative purposes in cool shady greenhouses after Primulas are over. Somehow or other gardeners have never taken to them, but why I am at a loss to imagine, unless it is that they have come to be regarded as florists' flowers, and therefore more suited to enthusiastic amateurs and others who have plenty of time to look after them, and who do not cultivate them so much for any particular display they make when in bloom, as for the satisfaction of having flowers of a particular class that come up to a certain standard of perfection. What gardeners have to consider more is how to keep houses gay at all seasons, and to grow the class of plants most suited to that purpose, but as variety adds much to the enjoyment the more we have the better. The distinctness of character of the Auricula, and the many shades of colour a batch of seedlings give, affords this in a very marked degree, and I always notice that they are the first things that attract the attention of visitors, which shows that were they more grown they would have many admirers. As yet I have not had the good fortune to see a first-class collection, but a gentleman who attended the last exhibition of them held at South Kensington, told me he had never seen an Auricula before, as although he had many he had raised from seed they were mere weeds by comparison. This was being carried away a bit in admiration, and although, no doubt, there were many beautiful kinds there, most perfect in markings, form, and substance, what most of us want is good, showy, free-growing sorts, that will bear fine heads of flower. I notice that the writer of the article in the *Gardeners' Chronicle* of May 3 speaks of the slowness with which new varieties are raised that show any improvement on those brought out many years ago, and he goes on to remark that it would appear that the climax of perfection has been reached. But is not this slow rate of progress owing to the somewhat arbitrary rules of judging laid down?—for to the eye of the uninitiated in such matters many of the best flowers fail in getting certificates or in having any notice taken of them. For my own part I must confess my ignorance in not knowing what constitutes a perfect Auricula according to the florist's standard, neither do I know the distinguishing marks between the so-called alpine and show class, and I have no doubt that many others lack this knowledge. If, therefore, some of your correspondents will enlighten us, I at least shall be thankful for the information. *J. S.*

Vegetation Immediately North of London.—"I never recollect such weather," is an expression we often hear even from those engaged in the pursuits connected with country life, and whose occupations naturally lead them to watch and mark the weather we in this fitful climate are subject to. The words are frequently uttered without thought, and often not intended to be taken in their literal sense. But I very much doubt if there are many, even of the closest of weather-watchers, who remember such an extreme extension of the winter cold as we have passed through since the beginning of November up to this, the 5th of May. The wind, be it remarked, has for the

whole of this time been almost incessantly in the east, north, or north-east; for the last eight days it has been bitterly keen, the beginning of the week now past was bleak and black, scarcely a glimpse of sunshine, with slight hail showers and a little frost almost every night, $7\frac{1}{2}^{\circ}$ registered on the morning of the 4th. Hardy fruits collectively exhibit an even fullness of bloom seldom seen, and are later than ever I recollect. The atmosphere is so dry that no harm appears to have been done, and despite the cold the trees are fast bursting into leaf. A few of the earliest Oaks have leaves an inch long, everything in the shape of deciduous trees and shrubs are literally smothered with bloom; the dry cold wind has given an unusual brilliancy of colour to the flowering Currant (*Ribes sanguineum*). The cutting eastern blast during the time the leaden atmosphere prevailed last week drove the song birds to silence—the irrepressible thrush amongst them—almost as complete as one notices under the scorching rays of the mid-day summer sun; the nightingales have been here about ten days, but the want of genial weather has made their throats so husky that their notes have been hardly recognisable. The later blooming varieties of Apple, without the sudden burst of genial warm weather which we shall most likely get, would scarcely be out in bloom before June. *T. Baines*.

Double Cuckoo Pint, *Cardamine pratensis*.—This grows in large quantities in a meadow at Mundham, near Chichester, in the possession of F. Hillier, Esq. The single form is in large quantities also, but the double predominates. Is it worth preserving some roots? *Saml. D. Dickson, Chichester*. [It is a very neat border flower in cool situations. *Eds.*]

The Royal Horticultural Society's Forthcoming Exhibition.—I live in the country, and, therefore, am perhaps a little benighted; but from my point of view there does seem a marked absence of tact in the management of the above Society's affairs. I observe that the most important show for the present season takes place in Epsom race-week. It seems almost incredible that any Council should select the Derby and Oaks days upon which to hold a flower show in London. Then, again, the Manchester exhibition opens on the day the Kensington show closes, thus preventing exhibitors appearing at both places, and of course injuring both meetings; and this clashing is entirely owing to the arrangements made by the Royal Horticultural Society, inasmuch as the authorities knew or ought to have known the week in which Epsom races would be held, and when of course all London is out of town; and they also knew the date upon which the Manchester show would open. Proceedings of this kind seems to me a kind of courting defeat. At any rate the arrangement is not a judicious one. *B. A.*

Chamærops Fortunei.—This highly ornamental Palm has this season proved how exceedingly hardy and enduring it is, for while common Laurel and shrubs of nearly all kinds show unmistakable signs of distress from the effect the past winter has had on them, *Chamærops Fortunei* is looking as fresh and green as ever. To test its powers of withstanding frost I purposely had a plant that is standing in a fully exposed position left entirely unprotected, and I am glad to be able to report that although this had a young leaf making its appearance in the autumn, and which leaf is only now about half unfolded, the plant is just as free from injury as any of those we have under glass. This, I think, shows conclusively that it may, after this, be made extensive use of, and left to take care of itself, for if it will stand the trying weather we have had while in a growing condition, there can be no doubt as to its ability to meet even worse when the foliage is well ripened and fully mature. There is not a lawn or forecourt garden which one or more plants of this Palm, judiciously placed, would not improve; and now that it turns out that it may be trusted anywhere in the open, I would strongly advise its being made extensive use of in lieu of the many worthless or unsuitable things one often sees about villa residences, or in positions where they are totally unsuitable. For the centre of a circle, on a plot of grass, to have other plants grouped around, nothing looks better than one of these *Chamærops*, their fine spreading, fan-shaped leaves making them objects of interest and beauty at all seasons. In order to give them a chance to become established they should be hardened off and turned out early that they may make their summer's growth, and get well hold of the ground before winter sets in. Although they will grow in any soil, they do best in that which is light and loose, as then their large fleshy roots can ramify freely, and get down deep in search of moisture. To aid them in doing this it is always advisable to trench or dig out a large hole, and break the bottom up with a fork, working in some thoroughly decomposed manure at the same time, and if treated in this way at starting they are not long in making fine specimens, especially if assisted with sewage or a

soaking or two of clear water during hot weather, at which time a mulching around the collar is a great help, as it intercepts evaporation, and keeps the ground in a moist, uniform state. This is just the condition Palms like, and when so favoured they will bear and enjoy any amount of sun, the texture of their leaves being of that character which enables them to withstand its fiercest rays without injury. *J. S.*

Grafting Experiments at Chiswick.—I am glad to see that the grafting experiments at the Chiswick garden are attracting notice. The subject was taken up by the Council some years ago, when a variety of stocks of the Pomaceæ was got together from all available sources, both English and Continental; the plants were grafted, and the earlier results were given, both in the *Society's Journal* and the *Gardeners' Chronicle*. They have been excellently well managed by Mr. Barron, who I believe is preparing a further notice of them. I trust the Society will, ere long, be able to go further into this most interesting and important subject. *C.*

The Pedigree Roses in the Wiley Valley.—Great was the delight of rosarians when, about thirty years ago, the celebrated *Géant des Batailles* first made his appearance in public. Well do I recollect being introduced to him in the small, yet beautiful roseroy of that enthusiastic rosarian, Mr. Clare of Knipton, near Belvoir, and never shall I forget the pleasure I then felt on first seeing the *Géant* in his rich velvety dress, surrounded by other noted potentates on that occasion. Not less was the gratification I experienced when, a few days ago, I paid a hasty visit to the celebrated roseroy in the Wiley Valley. On this occasion, however, I was not so much charmed with *Géants* and Generals in brilliant and gaudy uniform, as with Dukes, Duchesses, and Princesses—gorgeously, yet suitably, attired in the most exquisite satins, and other equally bewitching, yet becoming courtly costumes, each displaying a special grace and beauty perfectly unique, and shedding around a charm and fragrance quite peculiar to such exalted personages. How I longed for the expressive and fluent pen of a Fish, or the vivid and truly graphic and refined eloquence of a Hole, to enable me adequately to portray the consummate charms of these regal beauties in such a manner as to convey to your readers a faint idea of their superlative merit. Not possessing these rare abilities, I can only wish that these distinguished persons may soon make their appearance in public, so that every one may have an opportunity of seeing their matchless beauty. In addition to those already named, there are in this establishment numerous unmentioned Belles and minors who have not yet quite completed their education; they cannot yet quite dispense with the kind and attentive services of their chaperon or guardian. They have not yet attained their majority, nor have they yet been presented, consequently it is almost sacrilege to even mention their existence; but this I will venture to intimate, that these regal and noble scions are most assuredly destined, eventually, to eclipse their Continental rivals. Bennett is a name that has for years held a prominent position in everything that pertains to agriculture, and more especially in the art of breeding and improvement of stock, and that name will from this year also occupy even a more prominent position than it has hitherto done amongst rosarians. Mr. H. Bennett will be henceforward considered the pioneer of a system or principle in Rose culture which has hitherto been thought to belong almost exclusively to our Continental neighbours, who, living in a more favourable clime, and under sunnier skies, can accomplish under natural conditions that which we can only hope to do by purely artificial methods. And although our Continental neighbours appear to have taken immense pleasure in occasionally presenting us with a true descendant of royal blood, yet it must be admitted that they have also ventured, at the same time, to palm upon us numerous worthless *garçons* of the very lowest type. In this establishment it is to be seen, in every stage of infancy and youth, the progeny of noble and distinguished parents—progeny, each of which exhibits one or more peculiar features, showing most unmistakably that it has descended from the particular royal line indicated by its careful guardian. It is intensely interesting and amusing to hear and learn the antecedents of each respective little family, and the ready assurance with which their foster-parent relates their origin and history. Not a doubt exists in his mind as to the legitimate parentage of this or that royal group. Every delicate detail has been duly and properly performed, and every precaution taken, so as to ensure a true, legitimate, and happy result; and it is perfectly impossible, after carefully scanning their respective features, not to be instructed, impressed, and convinced that his theory is quite consistent and correct, and abundantly substantiated by results. It is not my *forte* to describe new Roses, this I must leave to abler hands; I cannot, however, omit stating that Beauty of Stapleford and Duchess of

Connaught are simply splendid; the daisies are colouring and exquisite fragrance, and the most careless sufficient to entrance and seduce. Gardeners would and indifference near Mr. Bennett speak with confidence of future dark crimson Teas, and dwarf yellow hybrid perpetuals, with every conceivable change in habit, colour, and combination of scent to suit their respective tastes and purposes; in short Mr. Bennett appears to have studied so closely the whims and caprices of the goddess Rosa-Flora as to be able to induce her to conform to his tender yet masterly will. T. C.

Daisies.—Since the days of Burns, when he wrote verses on the "wee modest crimson-tipped flowers" these flowers have been much improved, at least so far as size is concerned, for instead of being of tiny dimensions some of the newer kinds are almost as large and full as a Ranunculus. Among the best of these are White Globe, Rosy Gem, Albert Edward, Masterpiece, and Albert Victor, which have stout long stalks and send their blooms well up out of reach of splashes from heavy rains. These, however, are not so serviceable for spring gardening as many of the older types, but are better adapted for clumps in borders, where if planted in rich soil in a partially shaded situation they have a capital effect and are very useful for cutting. The best for bedding-out are the Giant White, Early Gem, Pink Beauty, London Market, and Blood Red, which, arranged in circular bands or groups according to colour, make a very pleasing display at a time when there is little else to enliven the beds. There is also a very interesting section of these popular plants having variegated leaves that early in the season, soon after the young growth commences, are beautifully marked, the most striking among which is one named *aucubæfolia*, owing to the markings resembling those of that shrub, and as the flowers are red they show up in fine contrast. This variety is one of the most telling for forming an edging to raised beds on grass, the deep green of the one heightening the effect of the other. Another fine thing is *Flower of Spring*, a strong-growing kind, having handsomely-veined foliage and white flowers, as has also *B. globosa variegata*—these being the only good ones with which I am acquainted. To have fine plants by the autumn no time should be lost after they have done blooming in separating the crowns and planting the offsets in a well-prepared border facing north, where they can be attended to occasionally during the summer with liquid-manure and water, the stimulating effect of which will enable them to form fine crowns that will be capable of producing a great number of flowers. What injures Daisies so much in hot weather is red-spider, which, if they are not growing in damp soil, infests the foliage to such an extent as to cause it to shrivel and dry up, and this loss of leaf tells seriously on the health and vigour of the plant. A little soot scattered on early in the morning is a great check to this pest, but being of a hot nature it must be used sparingly. J. S.

Popular Errors in Economic Botany.—As illustrations of how errors in botanical nomenclature are perpetuated, and how difficult it often is to clear up the proper sources of many economic products, I may perhaps draw attention first to an error of almost universal circulation, namely, the statement that the seeds of *Desmanthus virgatus* are used in the West Indies for making ornamental articles. In the *Treasury of Botany*, 2d edition, 1874, p. 394, under the article *Desmanthus*, occurs the following: "The pods are flat, smooth, membranaceous, several-seeded, and about an inch in length; when ripe they split into two portions. . . . The little brown polished seeds are in Jamaica strung like beads, and used for making bracelets, work-bags, &c." In most of the International Exhibitions where these ornamental articles have been exhibited they have also been described as being made of the seeds of the plant referred to above; but in reality the seeds of *Desmanthus virgatus* are extremely small, not larger than a good-sized pin's head, and more or less round, while those used in the manufacture of the West Indian ornaments are oval in shape, somewhat pointed at one end, flattened on each side, and of a deep brown colour, shining as if polished. The pods of the true *Desmanthus virgatus* are from 1 to 2 inches long, rather more than an eighth of an inch wide, membranaceous, and containing from twenty to twenty-four seeds; while those containing the seeds always used for bracelets, &c., are from 5 to 6 inches long, from a half to three-quarters of an inch wide, light brown in colour and papery, or membranaceous, containing from fifteen to twenty seeds. These pods are clearly those of *Leucaena glauca*, a plant widely distributed and cultivated as an ornamental tree in many warm climates. The seeds taken from these pods agree entirely with those of which the ornamental articles are made, several examples of bracelets, bags, &c., being contained in the Kew Museum; and after comparison of these with the seeds of *Desmanthus*

virgatus and *Leucaena glauca*, no further doubt exists that it is from the last-named plant, and not from the first, that the seeds so largely used are obtained. Another plant about which much misunderstanding has been rife is that known as the Ground Rattan. In the same edition of the *Treasury of Botany* before referred to, at p. 970, under the genus *Rhapis*, is figured a slender Palm agreeing with the description given, which is undoubtedly that of the true *Rhapis flabelliformis*, but the fruit there figured appears to be that of a species of *Calamus*, the fruit of *R. flabelliformis* being really not much larger than a Pea, somewhat oval in shape, of a light brown colour, and smooth on the outer surface, containing a single hard, bony, or horny seed. It is thus apparent that the fruits of *Rhapis flabelliformis* have hitherto been popularly considered to be covered with imbricated scales, as in *Calamus*, *Raphia*, and *Sagus*, while the truth is that they have no resemblance whatever to these genera, as will be understood from the above description. Popularly also the Ground Rattans of the stick-makers are supposed to be the produce of *Rhapis flabelliformis*, but this is extremely doubtful. They are much more likely to be the climbing stems of some slender species of *Calamus*. John R. Jackson.

A Cheap Charcoal Stove (fig. 92).—I saw the other day, at a friend's house, one of the simplest and most effective stoves for a small conservatory it is possible to imagine. It was composed of three 12-inch ordinary flower-pots—the hole at the bottom of the lowest was covered with a small pot, into the sides of which had been bored a number of holes. The pot was then



FIG. 92.—CHARCOAL STOVE.

three-parts filled with charcoal, and lighted from the top. This is the furnace; it is covered by pots Nos. 2 and 3, and a light tin funnel and chimney carry off the vapour. The draught is maintained by placing the apparatus upon a couple of bricks, and regulated by closing the intervening space with mud, leaving only a sufficient aperture to keep the fire burning. This improvised stove will burn without attention for twenty-four hours, and it is amazing what a great amount of heat is given off from so large a surface. S. J.

Solomon's Seal.—Those who have only seen this in shrubby borders struggling for existence among the roots of trees robbed of moisture and support can have no idea what a beautiful ornament it makes if well grown and taken up and forced in pots—a purpose for which it is specially adapted, it being very amenable to that kind of treatment, and one of the most effective and useful things it is possible to have. Excepting the foliage of *Lily of the Valley* I know of no plant that affords such a delicately tinted bit of greenery for cutting or that forms such a finish to a vase of flowers, the gracefully arching sprays making a rich setting, to which the pendulous silver bells they bear are an additional source of attraction. These are only seen to advantage when in an elevated position, as on a table or stand, or with plants in windows or placed on brackets, as there they are more on a level with the eye, but if near the ground in a bed or border they are nearly hidden by the leafage above them. To have fine crowns fit for lifting in the autumn or any time during the winter the best way is to plant-out in rows in well prepared ground, as nothing pays better for good cultivation or increases more rapidly under liberal treatment

than this well-known *Convallaria*. Like its near relation, the *Lily of the Valley* and others of that class, it is particularly fond of soil containing plenty of humus, which being the case it is advisable when digging out the trenches in preparing situations for it, to partly fill them up with refuse peat, leaf-mould, or decomposed manure, such as that from an old hotbed that contains a good proportion of vegetable matter. This with a good sprinkling of sand or road scrapings will grow roots with fine fat crowns, that will produce such stems and flowers as to be a real ornament in any house in which they may be placed. *Solomon's Seal* is a plant that will bear cutting up and dividing to almost any extent, as it is very tenacious of life, and almost every bit, however short and apparently bare of eyes, will break and grow. Roots that have not undergone forcing are of course the most valuable for propagating from, as they have not lost any of their vitality, and start stronger, but if such as these cannot be had the pot plants answer very well, and in turning these out every care should be taken to preserve the foliage and stems in as healthy a condition as possible. A little mulching and a soaking or two of water during the growing season is a great help, as the object should be to get as much growth then as possible. In taking up for forcing, we only make use of the finest crowns, and these we pot chiefly in 6-inch pots, a size that is more suitable for rooms and vases than larger, and in which the plants look better and are more elegant than in a mass. One great advantage in forcing the *Convallaria Polygonatum* is that it responds readily to heat and will stand hard pushing if required, but being so easily excited there is no difficulty whatever in having plenty of it at any season desired. There are several varieties of *Solomon's Seal*, including a double flowered kind, but the doubleness spoils the beauty of the charming little bells, the form and outline of which as well as their silvery hue renders them such objects of attraction. J. S.

Failures with Melons.—Mr. Reid's foreman (see p. 602) was certainly wrong in using "a hard bristle brush" for transferring the pollen of the male to the female flowers for the purpose of insuring a crop of fruit. A camel-hair pencil would no doubt have been the better implement if either were necessary, but perhaps Mr. Reid omitted to supply the pencil, and to give instructions regarding the use to which it was to be put. If this was the case his foreman was not so much to blame after all. He may of two evils have chosen the least, and seeing the hair was wanting, employed the bristles rather than leave the operation of impregnation unperformed. It is true what is worth doing is worth doing well, but it does not follow that what head gardeners "want doing well they should do themselves." If head gardeners must themselves do everything that requires to be done well they will have little time for taking "a survey" now and again. Indeed they would not require to do so, as all the work on the place would have to be done by themselves. With head gardeners it ought to be an infallible rule to give in a lucid and kindly way instructions to those placed below them for the performance of all details that are essential to success in the culture of any particular crop, whether it be fruit, flowers, or vegetables. If told in a right spirit to do a thing in a particular way and at a particular time, the most self-considered omniscient foreman will think twice before he disobeys the orders of his superior. Amongst gardeners, as amongst other men, there are to be found some who are ready to blame subordinates for non-success that properly speaking lies at their own door. It is not to be wondered at that some employers look in a certain way upon head gardeners, seeing that the latter are so ready to chronicle the mistakes of their subordinates. Supposing the self-complacent young man did use bristles instead of hair for the purpose referred to, it surely was not worth while sending an account of his doings to the *Gardeners' Chronicle*. A little kindly explanation on the part of Mr. Reid would have convinced the young man of the tenderness of the organs with which he was dealing, and that hard bristles were not the proper material to use for the purpose referred to: this, in my humble opinion, would have been the proper way of dealing with the matter, and not by holding up the young man to the taunts of his comrades through the exposure of his ridiculous mistake. A Cumbrian Head Gardener.

—May I be allowed to ask Mr. Reid if he was ever a foreman himself, and, if so, whether he never committed an error while in that capacity? He says that he had repeated failures with his Melons. Would it not have been more consistent with his duty to have inquired into these failures at first, instead of only discovering the cause by a purely accidental circumstance? If all young gardeners are to be considered in the same state of ignorance as Mr. Reid's, will he be kind enough to explain how the work of trust, which in so many places is left mainly in their hands, is carried out in the satisfactory manner that it generally is? I hope I shall be pardoned for presuming to express an opinion on the subject of impregnating

Melons; but I think that neither a camel-hair nor a "bristle-brush" are required, providing the plants are in good health. I have had the privilege of growing the Melons in my present situation for two seasons, and have now entered upon the third, but though they are grown here extensively I have never had occasion to fly to the aid of the camel-hair brush, having always secured plenty of good male blooms, the stamens of which performed the work more surely than either of the mediums above named. I may add also that a failure in setting a crop has never occurred, on the contrary we have always had to thin the fruit, and Mr. Miller has many times complimented me upon my success. I think Mr. Reid's action in writing such a letter was quite as glaring a departure from common sense as his foreman's, and at least he might have refrained casting the stigma of untrustworthiness on young gardeners who have not their master's eye continually upon them. I trust that some of us, at least, are able to break his infallible rule, and do a few things well. *Frederick Prince, Foreman, Combe Abbey Gardens.* [We have received several other communications on this subject, but as they are for the most part abusive rather than argumentative, we can take no further notice of them. EDS.]

Pelargoniums for Forcing.—I am glad to see attention called to the old neglected Pelargonium album multiflorum, for without doubt it is one of the very best of its class for forcing purposes, and should be in every garden where a display of early flowers is looked for. As its specific name implies, it is exceedingly floriferous, and is a fine free-growing dense habited variety with ample foliage of a light pleasing green shade of colour, that contrasts well with its large elegantly pencilled blooms. When well grown, it is one of the first in and the last out, as it will bear heat better than any other kind with which I am acquainted, and is almost perpetual, for no sooner is the first flush of beauty over than it breaks afresh, and with the help of a little manure-water becomes as gay again as ever. Two good companion plants for it are P. Alma and P. Mrs. Johnson, the former a robust-growing sort, having immense heads of crimson flowers that form a most attractive feature in any house in which they may be placed. The habit of Mrs. Johnson is much like that of album multiflorum, and it is one that bears hard forcing well. Crimson King, too, is a sterling variety, and a most persistent bloomer, that beats Gauntlet altogether. To do these Pelargoniums well they should be cut back early, that they may have time to get to an advanced stage before winter sets in, when by placing them on shelves or inverted pots up near the glass in a warm dry house, where they can have a fair amount of air, they are not long before they begin to show flower. The market growers round London manage these plants much better than they are generally seen in private establishments, and I have often wondered when seeing them in Covent Garden Market how such perfect little specimens in such small pots could be produced. There is one thing very much in their favour: as compared with most gardeners they have houses specially adapted for the purpose of growing them, and besides this, men who are continually engaged in that particular branch, and who can give their whole time and attention to working up a stock year after year. It is worth any one's while when in the great metropolis to pay some of these establishments a visit, as there is much to be gained by a quiet look through to see how thoroughly well everything is done. J. S.

Phosphatic Nodules.—In a short note on "Manuring Land with Fossil Shells" (*Gardeners' Chronicle*, May 10), an allusion is made to the use of "coprolites, or fossil dung of animals as manure. These coprolites are especially abundant in Suffolk." This is a very common mistake perpetuated by the use of the term "coprolite." The commercial article known by that name consists of water-worn pebbles or phosphatic nodules, which form a layer at the bottom of the so-called red-crag deposit of Suffolk (which supplied the fossil shells alluded to above), and are not coprolites at all. An account of their discovery by the late Professor Henslow, and of their introduction into the agricultural market at his suggestion, will be found in the *Leisure Hour*, No. 602, and which was reprinted in the *Technologist*, vol. iv., p. 111. The shells specially alluded to are not the common whelk (*Buccinum undatum*), but the left-handed variety of the almond whelk (*Fusus antiquus*, var. *castrarius*). This variety is extremely abundant in the red-crag, but very rare at the present day. Both kinds of whelk are to be seen on the shell-fish stalls in the streets of London. *George Henslow.*

Hardening-off Bedding Plants.—I feel sure that Mr. Fish will forgive me for reminding him that the *Gardeners' Chronicle* is read by practical men who know perfectly well what would be the result of taking Pelargoniums from hot vineries and planting them outside. I cannot think that Mr. Fish was in

earnest when he penned the letter in the last week's *Chronicle*, because he surely does not class gardeners with simpletons. *R. Gilbert.*

Schomburgkia tibicinis.—I notice at p. 592 that among the Orchids in flower at Kew is a plant of the above. Being a shy-blooming species, I might add that a plant is also in flower here, with a spike bearing ten blooms; each as they hang naturally measure 3 inches across. It is a plant that requires growing strongly and well ripening to get it to flower. The plant referred to was, when it had finished its growth in 1877, placed in a light airy position in a cool house and kept dry until the next spring, when it was again taken into the warm house, the result being a much stronger growth and the flower-spike mentioned above. When in flower it is a very interesting and conspicuous object among others of its class, and well worth any care or trouble that can be taken to induce it to bloom. *C. F. White, The Knoll Gardens, Baildon, Leeds.*

Fruit Prospects.—The spring of 1879 will long be remembered as the most trying in the memory of many of us, and yet notwithstanding this, I believe we shall have a good fruit year. Apricots are fairly set, the Plums and Pears on the walls are in full blossom, and promise well, and Peaches are set under protection. The Apples and standard Pears are still undeveloped, so that they are safe.

"If Apples bloom in March, for Apples you may search

If Apples bloom in April, Apples will be plentiful;
But if Apples bloom in May, you may eat Apples
night and day."

So saith the old adage, and it is not far wrong. Gooseberries and Currants are safe so far, the Raspberry and Strawberry are still in the bud, and surely we may safely calculate on them now it is the middle of May. I root-prune my Fig trees, so that they do not grow too gross; the consequence is that they have come through the winter unscathed, and are showing fruit beautifully, although they have had no covering. The Mulberry is still closely sealed up in the bud. When the Mulberry leaf is as large as a shilling we generally consider it safe to do the bedding-out; this year we shall not wait for it, but begin the hardest things at once, and so follow up with things less hardy as the days advance. The Larch, Sycamore, and Thorn are in full leaf, while the Oak and Beech are still in bud; all vegetation is at last on the move after its long dormant state, and the nightingale is making the woods ring with its sweet melody. This season of the year always brings to my mind the lines I learned when a child:—

"The woods shall hear the voice of spring,
And flourish green again."

J. Rust, *Eridge Castle, Tunbridge Wells, May 14.*

—I quite agree with "J. S." (p. 601), that we must soon have a change of weather—warm nights and genial days, or our fruits will suffer much. The nights here have been Siberian, followed occasionally by a burning sun, which, succeeding a frosty night, does great mischief to the Peaches and Nectarines, which have set wonderfully well, and at present stand the weather bravely. If we can soon get genial weather, I shall have the best Peach and Nectarine crop since 1866. The foliage is very clean and free from blister. I put on the coping sheets (royal sail) the day before Good Friday, and have not once undrawn the curtains. I find they set their fruit well under the dark part of the coping, and the blooms keep fresher than those exposed below the coping. It is surprising, if blossoms are kept dry, what an amount of frost they will bear without injury. Rabbit nets and tiffany are no protection against rain. I have had my royal sail copings for some years, and they are as good as ever. Some run on rings, and some have brass eyelets let into the sheets. Mr. Browne of Tolpuddle, Dorset, made them for me with rings and eyelets complete. I strongly advise either Parham's glass copings or royal sail copings. With Parham's glass copings last year, my friend, Mr. Connop of Fifehead, Neville, grew a magnificent and abundant crop of the above fruits. His specimens of the Princess of Wales, 12 inches in circumference, were quite wonderful. As regards other fruits, Currants of all kinds, Raspberries, Gooseberries, Strawberries, will be good crops; also Cherries promise well. The Pear trees and Plum trees are not abundantly blossomed. Apple trees are not forward enough to judge of them; but as they will blossom after frosts are over, I think we shall have a good crop. As regards other commodities, Peas are splendid—Ringleader, Princess of Prussia, British Queen—the only ones I keep; Onions and Parsnips have been re-sown; Carrots pretty good; Asparagus weak and late; Seakale very fair. Roses very good and no deaths. Things are a fortnight late here. *W. F. Raddyffe, Okeford-Fitz-paine, P.S. May 14.* I am happy to say that I consider the Peaches and Nectarines quite safe. The crop is splendid. *W. F. R.*

By far the best Stoves and Orchid-houses. — saw in use for flooring to enduring material I ever fruit-houses is a hard, black, or rather to plant and Staffordshire brick made with an impressed diamond pattern on the top, which, when laid, not only adds greatly to its appearance but renders the floor more agreeable to walk on, the indentations draining and carrying off the water used in damping down, and which is generally such a nuisance and source of discomfort to visitors. These bricks are about 6 inches wide and a foot long, and may be quickly laid by any handy man after having formed a solid level bottom to place them on, when they should be bedded in mortar so as to keep them immovable. The clay used in their manufacture appears to contain a good deal of iron, as they are nearly as hard as that metal, and being glazed there is no difficulty whatever in keeping them clean, as they never get green or discoloured, and a few pots of water sluiced over them makes them look bright and equal to new. As to wear, they are practically indestructible, for although we have had them something like twenty years, they are to all appearance just the same as they were the day they were first laid down. I do not know the name of the ware, or the maker's, but I see the same kind is now in extensive use on some of the station platforms near London, where they not only look well, but afford a good hold for the foot. Tiles, flagstones, and other porous articles of that kind are a nuisance when used as floors to hothouses, as they entail no end of labour in scrubbing to keep them clean, for unless one is constantly at it they absorb so much water that the pathway soon becomes green and foul-looking, and is anything but conducive to the health of the plants. Rather than use such, I should prefer shingle or spar, which raked over and watered through a rosed pot looks clean, and always holds a lot of moisture among it, which is drawn out and absorbed in the atmosphere. In Orchid-houses and stoves where an unusual degree of humidity has to be kept up, these Staffordshire bricks may be laid in cement and have neat edgings, by which the floor may be made to hold enough water to fill the indented part, and as the diamonds are raised slightly in the centre, they would still be dry and comfortable to walk on. So good and serviceable are they that I can strongly recommend them to any one just building or who may be desirous to renew the pathways they have, as from my long experience of them I am convinced there is nothing better for the purpose. J. S.

The Orchids at Henbury Hill.—There is a comparatively small collection of Orchids grown at Henbury Hill, near Bristol. From the method of treatment under which they have long been grown, and the condition they are in at the present time, they go far to prove that which I have often urged in favour of a more rational system of cultivation than is too often thought necessary. A close, air-excluded, moisture-saturated atmosphere is often supposed to be necessary for these plants, and this is further intensified for mischief by the over-shaded, light-deprived existence to which the plants are subjected. Under such conditions Orchids for a time frequently appear to make exuberant growth, but it generally proves to be of a too soft and watery character to last, or keep up a healthy existence. Plants grown under this treatment are also remarkable for the short endurance of their flowers as compared with those produced by the same species when grown under conditions more compatible with continued vigour. Phalenopsis, as here grown, particularly bore evidence of this. An entry is made of the date on which the principal plants open their first flowers, as also when they go out of bloom, and about the middle of March I had an opportunity of copying a few instances so remarkable as to be worth noting. One plant of *P. grandiflora* bearing two spikes 30 inches long opened the first flowers on August 8, and had at the time I saw them twelve flowers each still in a beautiful fresh state. Another example of *P. grandiflora*, the Bornean variety, with one immense spike, had its first blooms expanded on August 10, and still bore sixteen perfect flowers. This was cut on April 16, and used to form a wreath with twelve flowers still fresh. A third plant of *P. grandiflora* with a couple of spikes opened October 16, and, like the others, is likely to remain fresh for a considerable time longer. *P. Schilleriana* was in equally good condition. The flowers of all were of unusual size and substance, the leaves thick and leathery. Be it understood these are not flowers that have resulted from the spikes breaking out and blooming a second time, but the first formed. The spikes are yearly cut away when the first lot of flowers are approaching completion, to give time for the plants to make growth. *Angracum sesquipedale* had eight large blooms; *Vandas*, *Dendrobiums*, and similar species were equally strong. The old *Dendrobium pulchellum* was thickly studded with its pretty flowers produced from last summer's growth, bearing the leaves fresh and green. In this state this is a test plant, and gave the key by which experienced Orchid growers will be able to hit correctly upon the condi-

tions under which the plants are grown—light span-roofed houses, plants well up to the glass, thinly shaded, and the shading not put on before the latter part of April and removed altogether towards the end of August; and air more or less always on except during severe weather. In an adjoining house devoted to cooler kinds was a plant of *Odontoglossum Bluntii* that bore a spike 5 feet 2 inches long, and produced another from the apex of the bulb. *Cattleyas*, *Lælias*, and like species have stout short growth, and, as may be supposed, most of the plants have more of the bronzy paler green tint than the deep green frequently held in estimation, but which is often the result of treatment to which the plants ultimately succumb. *T. Baines*.

The Whit-Monday "Pop" at South Kensington.—It is a pity, I think, that the announcement of the Royal Horticultural Society's intention to repeat the experiment so successful on Whit-Monday last year was not issued months since, and published in every daily and weekly metropolitan journal. The editors of London newspapers are surely ever on the outlook for what will beneficially interest their readers, and an occasional "progress-marking" paragraph forwarded to them would very soon be read all round by the many thousands interested in gardening within the 8-mile radius. Much as I hope I may be mistaken, still the belief obtrudes itself, that Chiswick will have again to be drawn upon for a large amount of "padding;" and beautiful and healthy-looking as that material always is, still it cannot stand in the place of what, I suppose, it is desired to fill the great tent with—plants for competition. There are many "speciality" societies in the metropolis, and I feel certain their officials would feel only pleasure in co-operating with those at South Kensington in pushing on the good work and spreading information. The other day, in the little greenhouse of a friend who for long officiated as secretary to a suburban society, I learnt from him that he knew nothing of the intended "Monday Pop," and "wished he had known of it some time ago," as certain preparations could have been made; "now," said he, "I don't think I can come to the scratch." Probably many others having but little gardening accommodation will now fear to compete with those just within the larger radius, with purer air and more room for shifting about. However, let us hope all fears are groundless, and that more space will have to be taken in somewhere to accommodate the display. One or two other matters, that to some may appear of small moment, claim attention. On last Whit-Monday hundreds of visitors were wandering, busy-bee-like, from flower to flower, wondering and inquiring about plant names. If I remember rightly, Mr. B. S. Williams labelled all, or nearly all, the plants in his excellent display, and it was really pleasant to listen to the appreciative remarks of the sight-seers, on whose memory, by that kindly act, the name of one exhibitor was indelibly impressed, to be repeated whenever the show is "trotted out" in conversation. *Verb. sap.* Once more: an enormous number of small householders in the suburbs would be thankful for good and cheap, if small greenhouses—either with or without stage and shelving. True, we are told, "any handy man can knock up a decent house," but then this so-called "handy man" too often turns out to be a fraud—a destroyer (not even hewer) of wood, and a drawer (not drainer) of water. Could not a few builders be invited to exhibit rough-and-ready lean-to's, with an ice-safe-like "stove" at the end, pierced for flow and return pipes, to bring on a few "fancy" things in? Doubtless the suggestion comes too late for 1879—perhaps it will not be lost sight of in 1880. To conclude: some attention ought to be given to the matter of dispensing refreshments in the grounds. What I saw in a tent last year was a delusion and a snare. After walking up and down and round a great tent and garden for an hour or two, children and parents—who probably have come miles to the show—require a little rest and milk, and tea or coffee, with the inevitable bread-and-butter: the *pater* might like a glass of the "real genuine stunning" as provided for the youthful Copperfield. They could get neither in the tent through which I strolled. It would much please me and thousands of others to see South Kensington competing with every place of amusement or instruction on every holiday—what the "amusement or instruction" too often turns out to be in some places they best know who travel the giddy round. That the competition would "pay" is surely readily capable of demonstration—that it would insensibly instruct and elevate goes without saying. *Edina*.

Hedge Planting.—I quite agree with your correspondent, Mr. Michie, that the subject of hedge planting is of great importance, but I cannot quite agree with him in all he says. There is no doubt that many plants may be used for forming an ornamental hedge in gardens in particular situations not open to cattle, but the only subject that can be considered "so vast and important," as Mr. Michie

terms it, is that of forming hedges for enclosing and defining certain portions of land with a view to privacy or convenience, or to prevent trespassing by men or cattle, for which purpose the common Quickset is pre-eminently useful, and will probably never be superseded, as it thrives in almost every soil and situation, and if planted with care and properly attended to afterwards will exist for a lengthened period. A double row, where possible, is much to be preferred to a single row, for if one plant misses in a single row a gap is occasioned which is often very difficult to remedy. The best hedges are formed by planting moderate-sized Quicksets 3 inches apart in the rows and 6 inches from row to row. But the principal reason for my writing is to advocate the planting of a small common Holly 2 feet apart in each row of Quicksets quincunx, so that, in fact, there is a Holly to nearly every foot. The Hollies, without at all interfering with the growth of the Quicksets, permeate up amongst them and produce in a few years an evergreen fence of great strength and beauty. If Mr. Michie could only see some hedges planted thus in this neighbourhood I am sure he would highly approve of them. Hollies planted small and alone in well-manured ground make an excellent fence. Beech, Hornbeam, Furze, Willows, Sea Buckthorn, Thuja Lobbi and occidentalis, Ligustrum, Sweet Briers, Yews, &c., are all useful in some situations to a very limited extent, but for national purposes and hedges in general throughout the United Kingdom there is nothing equal to Quicksets, or Quicksets combined with Hollies. *W. H. Rogers, Southampton.*

Monstera deliciosa.—This highly ornamental and interesting Arad is generally regarded as a stove plant, but with us it is looking perfectly healthy and comfortable planted out in a fernery where the temperature during the past frosty weather has rarely exceeded 34°. Should it turn out hardy enough to endure such a low degree of heat, it will be of great value for assisting in embellishing such structures, for which purpose its singularly quaint form and habit render it particularly suitable. Excepting Palms, there is no plant with which I am acquainted that associates better with Ferns, or that looks more natural climbing up or depending from projecting cliffs of rock, to which its large fleshy roots fasten themselves and add to its grotesque appearance. I remember some two or three years back being much struck with a group of this *Monstera* in a recess under the shade of trees in Battersea Park, and it occurred to me then what a fine thing it would be for standing near miniature waterfalls, or to use for clothing the sides of ornamental basins or small ponds, where, with Callas and suchlike, it would be just at home in the summer and autumn, as then it would find abundance of moisture and an atmosphere to suit its requirements. Many plants of this kind, that would, if planted at the right time, bear a much lower temperature than is generally supposed, are lost through subjecting them to different treatment too late in the season, instead of allowing them the summer months to become established and acclimatised as it were, when, the change coming slowly upon them, they are in a better condition to meet it. The one referred to was placed in its present position in May last, and as at that season, and for some time after, the fernery where it is kept somewhat close and moist to aid the young fronds, the *Monstera* started away with them and made a good early growth. *Strelitzia regina*, too, does remarkably well in the same house, as does also all kinds of Begonias of the Rex type, some of these having formed masses over 5 feet through, which at the present time are furnished with magnificent leaves without spot or blemish. *J. S.*

Reports of Societies.

Royal Horticultural: May 13.—By the aid of miscellaneous groups of plants contributed by the leading nurserymen the large conservatory was again rendered extremely gay, and to these were added an attraction of no mean order in the form of an immense bush of the old single white *Azalea indica*, sent up from the Society's garden at Chiswick, and which was literally covered with blossoms. Messrs. James Veitch & Sons were awarded a Silver-gilt Flora Medal for a remarkable group of *Azalea mollis*, the soft rich colours of which were rendered all the more striking by contrast with the more decided colours of some of the newer Clematises, the whole being well toned down with the elegant foliage of the more handsome of the Japanese Acers. The varieties of *Azalea mollis* exhibited all the recent improvements which have been wrought in this flower, and which include novelty in colour, increase of size, and greater perfection in form. The colours range from pale straw through all the shades of yellow and orange, several shades of rose and rosy-crimson, good dark colours being still a desideratum. In addition to the above the Messrs. Veitch also contributed a small group of new and rare plants, which

included the deliciously scented *Dioscorea retusa*; the rosy peach-flowered hybrid *Rhododendron*, Duke of Edinburgh; a new hybrid variety belonging to the same group, named Maiden's Blush, and which has larger and more finely formed blooms than any of this race: its colour is a delicate blush white; *Cattleya Mendelii*, with four well-coloured blooms; the scarce *Epidendrum Wallisii*, with a terminal corymb of seven flowers; *Oncidium concolor*, *Odontoglossum Alexandræ*, *cirrhosum*, and *sceptrum*; *Dendrobium thrysiflorum*, &c. To Mr. B. S. Williams a Silver Flora Medal was awarded for a showy group of new *Dracenas* and *Crotons*, which had for its central object a splendidly flowered specimen of *Psychotria jasminæflora*, a stove plant that every gardener should grow who has to provide flowers for bouquets. The most noteworthy of the *Dracenas* were the somewhat new varieties named *Willisii*, *Bausei*, *Berkeleyi*, *Goldiana*, *Mrs. Wills*, *Voluta* and *Mrs. Bause*; while Crown Prince, Prince of Wales, Burtoni, and Disraeli were the leading *Crotons*. To Mr. R. Dean, Ealing, a Silver Banksian Medal was awarded for a large and most complete group of new forms of the Japan Primrose, *Primula cortusoides amœna* [Sieboldii] and which are more fully alluded to in another column (p. 620). Silver Banksian Medals were voted to Mr. J. Wills, for a tastefully arranged group of decorative plants; to Messrs. Charles Lee & Son, for a group of stove and greenhouse flowering and fine-foliaged plants; to Messrs. Hayes, of Edmonton, for a small group of well-flowered market Pelargoniums, and a large collection of market Cinerarias, and dwarf well-flowered specimens of *Erica ventricosa*; to Messrs. Hawkins & Bennett, Lily Nursery, Twickenham, for a fine group of Lily of the Valley, scarlet and pink Zonal Pelargoniums, and Maidenhair Ferns; to Messrs. Paul & Son, Cheshunt, for half-a-dozen boxes of cut blooms of Roses, including numbers of splendid blooms of Céline Forestier, remarkably fine; Belle Lyonnaise, and Gloire de Dijon; and grand single specimens of Ed. Morren, Paul Neron, Maréchal Niel, and Cheshunt Hybrid; and to Messrs. William Paul & Son, Waltham Cross, for a similar quantity of cut Roses, the finest examples amongst which were the blooms of Alfred Colomb, Star of Waltham, François Michelin, Lælia, Madame Margottin, Countess of Oxford, &c. From Messrs. H. Lane & Son, Berkhamstead, came a large and well-bloomed group of *Rhododendrons*, in which such fine sorts as Michael Waterer, Mrs. John Clutton, the Queen, Auguste Van Geert, &c., were well represented. A Silver Flora Medal was awarded. Other noteworthy contributions consisted of a very conspicuous array of cut blooms of *Narcissus*, apparently in endless variety, shown by Messrs. Barr & Sugden, and groups of decorative plants from Messrs. Osborn & Sons, and Mr. Aldous.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker, C.B., President, in the chair.

Fungus Spores.—Dr. Cooke reported that the specimens referred to him at the last meeting, and which were deposited as dust over household utensils, were not the spores of the dry rot, but of some other fungus unknown.

Salep.—Dr. Cooke exhibited a series of specimens of tubers of various species of Orchid used as salep in India and Turkey, and imported without any further information by which the identity of the species could be determined.

Eurotium on Cocoa Husk.—Mr. Schofield showed Cocoa husk with a species of *Eurotium* growing thereon.

Plants Exhibited.—By Sir Geo. Macleay (gr. Mr. Green): A plant of *Bowiea volubilis*, an Asparagus-like plant, with a bulb from which only one or two true leaves are formed; the rare purple-spotted Australian Orchis, *Dipodium punctatum*. By Mr. Elwes: The yellow *Viola biflora*; the Portuguese *Iris subbiflora*, concerning which it was noted that, while in its native country the plant flowers in autumn, and it did so here also the first year, yet the plant exhibited, which was a seedling grown in this country, was flowering in spring; *Tulipa saxatilis*, a lovely Cretan species, with flowers of a pale lilac colour with a rich yellow centre; *Arnebia echinoides*, a showy herbaceous boragineous plant, with pale primrose-yellow flowers, marked in the sinuses between the petals with purple spots, which are very conspicuous when the flowers first open, but which disappear subsequently; *Fritillaria olympica*, *F. Ehrhartii*, or *F. macrandia*, from Syria; *Streptopus roseus*, from North America; *Muscari conicum*, the most free-flowering of the species; *Corydalis bracteata*, a fine species, with leafy bracts, and large pale yellow flowers, in aspect like those of a *Linaria*; and, lastly, three species of *Arisæma* from Sikkim, singular Aroids, one of which had a solitary, long-stalked, ternately divided leaf, a purple-striped spathe, and a spadix prolonged at the tip into a very long, terminal, thread-like process. This thread-like process is, in the young state, according to Mr. Elwes, enclosed within the central segment of the leaf which is rolled round it, hence, if any injury befall the leaf-segment before it is expanded, this thread-like process is liable to be injured also.

Monstrous Primroses.—Dr. Masters showed various specimens, upon which he proposed to report more fully at the following meeting; the most remarkable was a hose-in-hose form, fasciated, from Mr. Cannell.

Fruit Blossoms Injured by Frost.—Dr. Masters showed from Mr. Earley specimens of fruit blossoms, including Apple injured by frost, on which a further report was promised.

Vegetable Ivory.—Mr. MacLachlan showed fruits of a Palm from the Friendly Isles, *Sagrus amicarum*, the nuts of which are used as vegetable ivory, but are not so highly valued as those of the *Phytelephas*.

Insects Injurious to Pears.—Dr. Denny showed specimens of a small dipterous insect supposed to be injurious to Pear blossom, and which were referred to Mr. MacLachlan for identification.

Fungus on Flower Bed.—Arthur Grote, Esq., exhibited a specimen of a fungus from a flower-bed. Mr. Worthington Smith pronounced this to be the *Nylaria vaporaria* of Berkeley, which he had illustrated in the *Gardeners' Chronicle*, 1871, p. 482, under the name of *X. pedunculata*, Fr.

Cucumber Disease.—Specimens of this well known but little understood pest were exhibited.

Awards to Plants of Botanical Interest.—A communication was read from Mr. Wilson Saunders in reference to plants worthy of recognition by the Society, but which, as not being in commerce, or likely to become commercially important, were apt to be overlooked. Mr. Saunders' suggestion was to the effect that a small sub-committee, selected from the members of the Floral and Scientific Committees, might be appointed to deal with this subject. Dr. Denny remarked that substantially this course was already followed.

Meal on Auricle Leaves.—Some conversation arose on this subject, and as to the nature and purport of this exudation. It was suggested among other things that it might serve to protect the plant from excessive radiation.

FLORAL COMMITTEE.—Dr. Denny in the chair. At this meeting First-class Certificates were awarded to Messrs. James Veitch & Sons for *Ranunculus Lyalli*, the magnificent Rockwood Lily of New Zealand, described in another column, p. 620; for *Azalea mollis* Comte de Gomer, a splendid new variety, which, if we remember rightly, formed one of that grand collection shown at Ghent a year ago by M. Ambroise Verschaffelt, and the flowers of which are of a soft rosy-salmon tint, faintly shaded with orange; for *Azalea pontica*, var. *narcissiflora*, a distinct variety, with clear yellow hose-in-hose flowers with sharply pointed segments; and for *Croton Princess of Wales*, stated to have come from the South Sea Islands, which is a singular circumstance, inasmuch as it is identical with the sport obtained from C. majesticus, and shown under the same name by Mr. Kann, a few weeks previously, when the committee passed it over. It has long, somewhat twisted or undulated leaves of a pale creamy white colour, margined with dark green. The same firm also exhibited, under the name of *Crinum Mackoyanum*, a very stately plant with large delicate pink-tinted flowers, which Mr. Baker identified with the *Crinum Macowani* described in our number for March 9, last year; and a hybrid *Dendrobium* named *rhodastoma*, the result of a cross between D. Huttoni and D. sanguinolentum, but no great beauty from a decorative point of view. To Mr. B. S. Williams First-class Certificates were awarded for *Amaryllis* Mrs. Morgan, dark crimson, bordered with white, a large and showy flower; for *Dracaena superba*, a fine table plant with narrow arching leaves of a rosy crimson colour, with the older leaves of dark bronze; and for *Cupania elegantissima*, a handsome pinnate leaved plant, which must also prove useful in a small state for decorative purposes. Messrs. Osborn & Sons, Fulham, received a similar award for *Primula Golden Gem*, a fine orange-yellow coloured bedding *Polyanthus* raised at Belvoir Castle; and to Messrs. John Laing & Co., Forest Hill, a certificate of the same class was voted for *Begonia Comtesse H. de Choiseul*, a new tuberous rooted variety with full double male flowers, of a delicate flesh-pink colour. The plant is a decided novelty amongst *Begonias*, inasmuch that it is perfectly distinct in colour from any of the double forms yet seen, and novel from the fact that the flowers are white when they first open, then assume a tint of flesh-pink, and finally (according to reports received from the raiser) a shade of orange before going off. From H. J. Elwes, Esq., Preston House, Cirencester, came specimens of *Arnebia echioides*, a beautiful hardy rock plant, from Asia Minor, with orange-coloured primrose-like flowers distinctly marked with a dark spot at each of the five divisions of the segments, but which have the singular property of dying out on exposure. A First-class Certificate was awarded to it. Mr. Elwes also showed cut flowers of *Tulipa saxatilis*, a most distinct and interesting plant with pink flowers having the base of the petals orange-yellow; a Certificate of Merit was voted to it. From the Chiswick Garden Mr. Barron exhibited the new golden form of *Selaginella Kraus-*

siana, to which a First-class Certificate was voted; and a similar award was accorded to Mr. R. Dean, Ealing, for a pretty orange-coloured hose-in-hose *Polyanthus* named Prince of Orange. From Mr. Ed. Pynaert, of Ghent, came a semi-double white *Azalea* (indica), named Louise Pynaert; and Mr. Heims, gr. to F. A. Philbrick, Esq., Q.C., showed the pretty little *Vanda cœrulescens* Lowiana. Mr. Green, gr. to Sir George Macleay, brought up some cut flowers of several terrestrial Orchids, of *Alpinia nutans*, *Crinum nutans*, and *Gongora portentosa*; also specimens of *Dipodium punctatum*, and *Bowiea volubilis*. Mr. W. Reeves, gr. to C. Hart, Esq., Lee, received a Cultural Commendation for a specimen of *Odontoglossum vexillarium*, with seven good spikes of pale-coloured flowers; also a vote of thanks for *Masdevallia Veitchiana*, with two very fine flowers. Messrs. R. Smith & Co. again sent specimens of the Stag's-horn variety of *Adiantum farleyense*; and from Messrs. William Paul & Son came several new Roses. Mr. Boller showed several Cactaceous plants, two of which, *Maxillaria filifera* and *M. formosa*, were Highly Commended. Messrs. W. & J. Brown, of Stamford, contributed specimens of a good majenta-coloured double *Cineraria*; Mr. Harrison Weir and Mr. G. Smith contributed some gold-laced *Polyanthuses*; and Messrs. Barr & Sugden several forms of *Narcissus*.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. The most important of the trio of subjects placed before the committee was a new, medium-sized, ribbed and netted green-fleshed Melon, named Davenham Early, which proved to be of such excellent quality that a First-class Certificate was awarded to its exhibitor, Mr. Jaques, gr. to J. D. Perrin, Esq., Davenham Bank, Great Malvern. It was stated to be the result of a cross between Turner's Scarlet Gem and the Bromham Hall. Mr. Pratt, gr. to Viscount Hill, Hawkstone, sent examples of the Brown Turkey and Grosse Monstreuse de Lipari Figs; and Messrs. H. & C. Coleman, Brede, Sussex, sent specimens of an Apple called (we presume locally) the Duck's Bill, but which bore a remarkable resemblance to the old Winter Pearmain.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held at 5, St. Andrew Square, Edinburgh, on Tuesday, the 6th inst. There was a large attendance of members, and the President occupied the chair. The names of eight persons were proposed and seconded for admission as members. Mr. A. D. Mackenzie, horticultural builder, Edinburgh, read a paper entitled "Economy in Fuel." He spoke of the severity of the winter of 1878-79, in which many gardeners with their heating appliances were severely put to the test. The various hot-water boilers in use were named, and a detailed comparison of their strong points was given, the conclusion being that a form of the terminal saddle boiler was the one from which most heat could be expected. He stated that he had received reports from fourteen establishments throughout the country, giving the kind of boiler used, and the quantity of fuel consumed. In concluding his paper, he advised all those having to heat glasshouses to have large furnaces, plenty of piping, and proper firing.

A paper was next read from Mr. Archibald Fowler, Castle Kennedy Gardens, on the "Setting of Grapes." He said his experience forced him to believe that most fruits grown under glass—consequently under artificial conditions—require less or more aid in setting their fruit; much, however, depended upon the season of the year, the state of the atmosphere when in flower, and whether the weather is dark or bright. It was apparent to most gardeners the propriety of using artificial means in one way or another, to aid in setting the Vine, some varieties requiring more attention than others to secure a good set. He then gave his own experience in the setting of Grapes at Castle Kennedy, and said if more attention was paid to assist in setting Grapes in our cloudy climate, equal sized berries would be more frequently seen than they are at present. He also spoke of the necessity of having the wood of the Vine well ripened, which would induce a much better set.

Mr. Geo. McClure, Trinity Grove Gardens, read a paper on the "Cultivation of the Cyclamen." After giving the history of the various kinds, relating their introduction at various times into this country, he went minutely into his own practice in the cultivation of the *Cyclamen persicum*. He thought it better to sow the seed after it was gathered in the end of July or beginning of August, transplant in November, pot in 3-inch pots in March, and shift into flowering-pots in June.

Mr. Alexander McMillan, Broadmeadows, sent a paper on the "Zonal Pelargonium," which was read to the meeting. As a florist's flower he knew of none that could equal it, either as regards the length of flowering time, variety of colour, easy cultivation, and time of flowering, besides being free from insect pests of all kinds. He said that damp was its principal enemy. He had them growing planted out in a

span-roofed house, requiring very little water or attention of any kind, while the amount of fine large bloom that could be cut from them was truly marvellous. The principal kinds he cultivated were those which had been sent out for the last seven or eight years.

Mr. George McClure, Trinity Grove Gardens, received a Certificate for an alpine *Auricula* named Colonel Wood, colour maroon, laced with lilac, and lemon centre; he also exhibited several other alpine *Auriculas*, one of which, named Sir Bartle Frere, was a good free flowerer. Mr. L. Dow, Saughton Hall Gardens, exhibited a *Cineraria* with a large-sized flower of a magenta colour; also a branch of an Apricot tree, with fruit in the stoning stage, growing out-of-doors. Mr. Jas. Spiers exhibited a new seedling green-edged *Auricula* of considerable merit. Mr. Jas. Hunter, Lambton Castle Gardens, exhibited a beautiful basket of the golden variety of *Valeriana Phu*, an excellent and effective plant for spring bedding. Mr. Jas. Hope, Avenal, exhibited a plant of the *Schinus Molle*, or Pepper tree of Italy, and a plant of *Nycteria selaginoides*. Mr. Frederick Gifford, Hale Farm Nursery, sent some beautiful cut blooms of the following early flowering Pinks:—La Belle, Ascot, Newmarket, Lord Lyon, Lady Blanche, and Annie Williams. Messrs. Dicksons & Co. exhibited a fine collection of spring-flowering plants, viz., *Narcissus Ajax* Horsfieldi, *Primula denticulata* superba, *Hutchinsia alpina*, *Saxifraga Wallacei*, &c.; also *Valeriana Phu*, *Pilea muscosa* nana, &c. Mr. Robertson Munro, Abercorn Nursery, exhibited a fine collection of spring-flowering plants, including *Primulas*, *Aubrietias*, *Polyanthus*, *Gentiana verna*, *Primroses*, &c. Messrs. Downie and Laird sent fine blooms of *Mimulus*, and Mr. A. McLeod, Powburn, seedling *Pelargonium* trusses.

The meeting agreed to offer to under gardeners, members of the Association, three prizes of £3, £2, and £1, for the best herbarium of British plants collected between May, 1879, and February, 1880, and arranged according to the natural system.

Mr. Hugh Fraser exhibited some flower-pots made in a new style, for potting bedding plants. *Alex. Milne, Secretary, May 14.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, MAY 14, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DEDUCTIONS FROM GLAISHER'S TABLES 6th Edition. | | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|------------|---------------------------------|--------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degree of Humidity. Sat. = 100. | Average Direction. |
| May 8 | 29.80 | +0.05 | 46.1 | 30.7 | 15.4 | 37.9 | -13.7 | 28.6 | 70 | N.N.E. 0.00 |
| 9 | 29.64 | -0.10 | 52.1 | 35.2 | 16.9 | 42.6 | -8.9 | 39.1 | 87 | N.W. 0.00 |
| 10 | 29.89 | +0.15 | 49.5 | 29.6 | 19.9 | 38.8 | -12.5 | 28.8 | 67 | N.N.E. 0.00 |
| 11 | 29.91 | +0.17 | 47.0 | 37.0 | 10.0 | 41.5 | -9.7 | 38.8 | 90 | W. 0.07 |
| 12 | 29.98 | +0.21 | 61.4 | 42.4 | 19.0 | 50.1 | -1.0 | 42.1 | 75 | W. 0.00 |
| 13 | 29.87 | +0.13 | 59.7 | 38.9 | 20.8 | 48.4 | -2.7 | 40.5 | 74 | SW 0.02 |
| 14 | 29.66 | -0.07 | 58.2 | 46.0 | 12.2 | 50.5 | - | 40.9 | 70 | SW 0.05 |
| Mean | 29.82 | +0.08 | 53.4 | 37.1 | 16.3 | 44.3 | -7.0 | 37.0 | 76 | variable sum 0.14 |

- May 8.—A dull day. Cloudy, sunshine at times. Bitterly cold. Overcast at night. Hoar-frost in morning.
9.—Dull and cloudy till evening, then cloudless. Very cold.
10.—Fine, but dull and cloudy. Raw cold day.
11.—A very dull cold day. Rain fell till 2 P.M. Overcast throughout.
12.—A fine day, very cloudy till evening; then cloudless.
13.—A fine day, but very cloudy. Overcast and a little rain at night.
14.—Generally dull and showery, but frequently fine and bright. Overcast at night.

Note.—The mean temperature of the air for the thirty-five days ending to-day, May 14, was 42°, being 6° below the average of sixty years.

LONDON: Barometer.—During the week ending Saturday, May 10, in the vicinity of London the readings of the barometer at the level of the sea increased from 30.49 inches at the beginning of the week to 30.53 inches by the morning of the 4th, decreased to 29.75 inches by noon on the 9th, and increased to 30.09 inches by the end of the week. The mean reading for the week at sea level was 30.14 inches, being 0.3 inch below that of the preceding week, and 0.19 inch above the average.

Temperature.—The highest temperatures of the air

observed by day varied from $67\frac{1}{2}^{\circ}$ on the 5th, and 57° on the 4th, to 46° on the 8th; the mean value for the week was 53° . The lowest temperatures of the air observed by night varied from $29\frac{1}{2}^{\circ}$ on the 10th, and $30\frac{1}{2}^{\circ}$ on the 8th, to 38° on the 6th; the mean value for the week was $33\frac{1}{2}^{\circ}$. The mean daily range of temperature in the week was $19\frac{1}{2}^{\circ}$; the greatest range in the day being $32\frac{1}{2}^{\circ}$, on the 5th, and the least, $12\frac{1}{2}^{\circ}$, on the 6th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—4th, 44.5 , — 6.3 ; 5th, 49.7 , — 1.5 ; 6th, 42 , — 9.6 ; 7th, 39.1 , — 12.6 ; 8th, 37.9 , — 13.7 ; 9th, 42.6 , — 8.9 ; 10th, 38.8 , — 12.5 . The mean temperature of the air for the week was 42.1 , being 9.3 below the average of sixty years, and 13.8 lower than the value for the corresponding week in 1878.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were $136\frac{1}{2}^{\circ}$ on the 5th, 133° on the 4th, and $120\frac{1}{2}^{\circ}$ on the 10th; on the 9th the reading did not rise above 82° . The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were $24\frac{1}{2}^{\circ}$ on the 10th, 25° on the 4th, and $29\frac{1}{2}^{\circ}$ on the 7th, 8th, and 9th; the mean of the seven lowest readings was $28\frac{1}{2}^{\circ}$.

Wind.—The direction of the wind was N.N.E. and N., and its strength moderately strong.

The weather during the week was (somewhat) fine and dry, but bitterly cold and very wintry.

Hoar frost on the 8th. Great gloom prevailed at 9 A.M. on the 6th.

Rain fell on two days during the week; the amount measured was 0.18 inch.

ENGLAND: Temperature.—During the week ending Saturday, May 10, the highest temperatures of the air observed by day were 71° at Sunderland, 68° at Bristol and Nottingham, $67\frac{1}{2}^{\circ}$ at Blackheath, and 66° at Cambridge and Hull; the highest temperature of the air at Liverpool was 56° , and at Wolverhampton was $60\frac{1}{2}^{\circ}$; the mean value from all places was $64\frac{1}{2}^{\circ}$. The lowest temperatures of the air observed by night were 25° at Nottingham, $25\frac{1}{2}^{\circ}$ at Cambridge, 26° at Hull, $26\frac{1}{2}^{\circ}$ at Leicester, $26\frac{1}{2}^{\circ}$ at Wolverhampton, 27° at Sheffield, and $27\frac{1}{2}^{\circ}$ at Bristol; the lowest temperature of the air at Liverpool was $35\frac{1}{2}^{\circ}$, and at Plymouth, $34\frac{1}{2}^{\circ}$; the mean from all stations was $29\frac{1}{2}^{\circ}$. The extreme range of temperature in the week was the greatest at Nottingham, 43° , and the least at Liverpool, $20\frac{1}{2}^{\circ}$; the mean range from all places was 35° .

The mean of the seven high day temperatures was the highest at Bristol, $57\frac{1}{2}^{\circ}$, Plymouth $56\frac{1}{2}^{\circ}$, and Truro $55\frac{1}{2}^{\circ}$; and the lowest at Liverpool, 50° , and Norwich and Hull, both $51\frac{1}{2}^{\circ}$; the mean from all places was $53\frac{1}{2}^{\circ}$. The mean of the seven low night temperatures was the lowest at Hull, $32\frac{1}{2}^{\circ}$, Nottingham $33\frac{1}{2}^{\circ}$, Blackheath, Leicester, Cambridge, and Sheffield, all $33\frac{1}{2}^{\circ}$, Wolverhampton 34° , and Bristol $34\frac{1}{2}^{\circ}$; and the highest at Liverpool, 40° , and Plymouth $39\frac{1}{2}^{\circ}$; the general mean from all stations was $35\frac{1}{2}^{\circ}$. The mean daily range of temperature in the week was the least at Liverpool, $10\frac{1}{2}^{\circ}$, and the greatest at Bristol, 23° ; the mean daily range of temperature from all places was $18\frac{1}{2}^{\circ}$.

The mean temperature of the air for the week from all stations was $42\frac{1}{2}^{\circ}$, being $9\frac{3}{4}^{\circ}$ lower than the value for the corresponding week in 1878. The mean temperature was the highest at Plymouth, 46° , and Truro, $45\frac{1}{2}^{\circ}$; and the lowest at Hull, $40\frac{1}{2}^{\circ}$, and Nottingham, 41° .

Rain.—The heaviest falls of rain were 0.37 inch at Hull, 0.28 inch at Liverpool, 0.25 inch at Cambridge, and 0.24 inch at Sunderland, and the least falls were 0.07 inch at Leeds, and 0.09 at Bradford; the average fall over the country was 0.17 inch.

The weather during the week was fine, but dull, very cold, and unseasonable; frequent snow and hail fell at various places.

SCOTLAND: Temperature.—During the week ending Saturday, May 10, the highest temperatures of the air observed by day varied from 64° at both Dundee and Perth, to 59° at Greenock; the mean value from all places was $61\frac{1}{2}^{\circ}$. The lowest temperatures of the air observed by night varied from 31° at Paisley, and $31\frac{1}{2}^{\circ}$ at Edinburgh, to $34\frac{1}{2}^{\circ}$ at Leith; the mean value from all stations was $32\frac{1}{2}^{\circ}$. The mean range of temperature in the week from all places was $29\frac{1}{2}^{\circ}$.

The mean temperature of the air for the week from all stations was $44\frac{1}{2}^{\circ}$, being $5\frac{1}{2}^{\circ}$ lower than the value for the corresponding week in 1878. The highest was 45° at Dundee, Paisley, Leith, and Perth, and the lowest $42\frac{1}{2}^{\circ}$ at Aberdeen.

Rain.—The falls of rain varied from 0.46 inch at Aberdeen, to 0.02 inch at Perth; the average fall over the country was 0.15 inch.

DUBLIN: The highest temperature of the air was 63° , the lowest $26\frac{1}{2}^{\circ}$, the extreme range $36\frac{1}{2}^{\circ}$, the mean $45\frac{1}{2}^{\circ}$; and the fall of rain 0.17 inch.

JAMES GLAISHER, F.R.S.



Law Notes.

WIGTON COUNTY COURT: May 9.—*A Cattle Poisoning Case.*—*Oldcorn v. Salkeld.*—The plaintiff in this case was Mr. Thomas Oldcorn, farmer, Lonning Foot, Sebergham, and the defendant Mr. Samuel Salkeld, also of Sebergham. The action was brought to recover the value of a bullock and a heifer belonging to the plaintiff, which were poisoned recently by eating Yew off the defendant's hedge situated on the highway. The plaintiff valued the bullock at £8 and the heifer at £10. The cattle at the time they were on the highway in question were on the road to be watered.—Mr. Lazonby, for the plaintiff, contended that the defendant was liable.—Mr. Johnson, for the defendant, maintained on the other hand, that the plaintiff's cattle were straying on the highway, and as they were trespassers the defendant was debarred from getting a remedy. He also put in a plea to the effect that the plaintiff was guilty of contributory negligence.—The plaintiff said the road was a common highway, and he had used the watering-place for twenty-six years.—His Honour pointed out that supposing the plaintiff's cattle were trespassing the defendant had no right to put poisonous things in the hedge. There was a remedy for trespass.—Mr. Johnson held that the plaintiff had no right of pasture on the defendant's hedge, and according to his view of the law cattle grazing or otherwise being on a highway except for the purpose of passing and re-passing were trespassers.—His Honour: No doubt; but you cannot put poisonous material there.—After some discussion, his Honour said he would look into the cases bearing on the points raised by the parties, and give his decision at another court.

Variorum.

THE SHOLA (ÆSCHYNOMENE ASPERA).—The *Journal of Applied Science* draws attention to a new use for the stems of the Shola (*Æschynomene aspera*). It is, we are told, now used in this country for packing around shafts in delicate machinery, to close joints, and to prevent friction. On the authority of the Ceylon paper upon which the article referred to is founded the Shola-wood is preferable to all other substances for the purpose above described, being softer and less gritty than cork, and consequently not wearing the machinery so fast. The plant is described as a perennial, growing in swampy places by the sides of pools and Paddy-fields, and is distributed through Coromandel, Silhet, Assam, Bengal, and in most other parts of India, as well as in Ceylon. The plants flower during the rainy season, and the stems are gathered during the dry months of March and April. They are brought into Calcutta and other towns from marshy places near, and sold in the bazaars for various purposes where elasticity and lightness are required. Besides the well-known uses to which this wood is put, for floats, for fishing-nets, models of temples, toys, artificial flowers, &c., the wood is largely used for bottle-cases, swimming jackets, and fireworks. But the principal use to which the wood has hitherto been put is in the manufacture of the so-called pith hats, used as a protection against the sun. For this manufacture the wood is cut into thin slices and pasted one over another. It is proposed, with a view of extending the applications of Shola-wood, to extend its growth in Ceylon by planting it by the sides of Paddy-fields, as well as in the marshy districts of the low country, where the plant might with little care afford a large return to native cultivators. Instead of the rank, noisome weeds which now infest and almost choke up the shallow tanks of the low country, such plants as the *Æschynomene*, if encouraged and kept free from aquatic grasses and sedges, would not only add greatly to their appearance but contribute not inconsiderably to their maintenance and support. It may be as well to note that another soft wood very similar in general appearance to that of the Shola has recently been introduced for the packing of delicate machinery; this wood is the produce of a tropical African leguminous tree (*Hermiera Elaphroxylon*). It is, however, found upon trial to wear away machinery bearings like cork and to blunt tools quickly in cutting it. White ants also readily attack it.

Obituary.

THE death is recorded of Mr. ARCHIBALD HENDERSON, nurseryman, of Thorton Heath, near Croydon. Mr. Henderson, who died in the fifty-third year of his age, was a native of the south of Scotland, and commenced his gardening career in Yester Gardens, in the East Lothians, under Mr. Shearer. Subsequently we find him at Trentham, under the tutelage of the late Mr. Fleming, from whence he obtained the appointment of gardener to the Earl of Zetland, at Aske Park, where he remained a short time. In 1857 he was appointed general foreman and assistant to the late Mr. McEwen, in the Horticultural Society's Garden, Chiswick. Mr. McEwen's death occurring shortly after this Mr. Henderson succeeded to the post of superintendent, which he resigned the same year, on being appointed to succeed Mr. Wren in the important charge of Trentham Gardens. Here Mr. Henderson remained a few years, being succeeded by Mr. Stevens. From Trentham Mr. Henderson removed to Thorton Heath, Croydon, where for several years he carried on a successful trade as a nurseryman and florist.

Enquiries.

He that questioneth much shall learn much.—BACON.

ANTS IN ORCHID-HOUSES.—What is the best means of getting rid of these? Saucers of oil, pieces of meat, and other devices, have been tried with only partial success. X.

Answers to Correspondents.

AERIDES: H. E. C. The whole of the species of this genus require a stove temperature, so far as we know, and we should doubt if any of them would grow and flower freely in a cool Odontoglossum-house.

APPLE-TREES IN POOR CONDITION: C. L. The site of your plantation of young Apple trees is no doubt a suitable one, but we should judge from your statement of their condition that the soil is either too poor and wants enriching, or too wet and requires draining. If it is a heavy undrained soil it is possible that the holes dug for the trees are acting as reservoirs for the water, and this would account for the growth of the lichen. No application of any kind to the branches will cure the evil. Remedial measures must be applied to the soil or the roots.

BOOKS: W. Lamb. There is no such book as you enquire about, and if there were it would necessarily be very expensive.

FUNGUS ON JUNIPER: J. L. The parasite is *Podisoma juniperi*, Fr., considered by some botanists to be a form of *Roestelia lacerata*, Tul., one of the parasites of the Hawthorn. W. G. S.

HARDY PRIMULAS: E. J. L. Very pretty and interesting seedling sports; the darker ones have no doubt been affected by the crimson one found in Scotland. The larger variety, sent later, is a very handsome one, but pin-eyed.

HOP PLANT: B. Hale. Plant in rich soil and water freely—occasionally with liquid-manure in dry weather, and the plant will speedily cover the wire frame.

HORSE CHESTNUTS: H. M. H. The injury is probably caused by squirrels, as you suggest. Keep a watch on their actions.

INSECTS: T. M. We have no doubt that your larvae in the Wheat plants sent us are those of the *Musca lineata*, Fabr. (*Chlorops glabra*, Westw., in *Gard. Mag.* xiii., p. 289). They agree with Curtis, figure No. 34, t. 4, *Farm Insects*, p. 234. From having been sent unpacked in damp moss, they have all dried up. I. O. W.

MANURING SHRUBS: F. S. Your inquiry was accidentally overlooked last week. The best way of dealing with the Box edgings would be to thoroughly saturate the gravel paths three or four times a year with clear liquid manure, made with cow, horse, or sheep dung, in preference to a chemical manure of any kind; and the soil about the roots of the shrubs should be treated in the same way. Regarding the "unintentional digression," may we ask if the volumes are bound, and what amount you require for them?

NAMES OF PLANTS: W. H. Maxwell. *Acer rubrum.*—*J. Reeves.* *Narcissus odorus flore-pleno.*—*J. Douglas.* *Dendrobium crepidatum*, Lindl., an uncommonly nice variety.—*R. D.* Your *Maxillariodes* are both *Bifenaria Harrisoniae* (*Maxillaria* or *Lycaste Harrisoniae* of gardens). Having been absent I find them dried. If both were wax-yellow it is all right, but if the greater one was purple-violet, then it was the *M. Harrisoniae* var. *Buchaniana* (see *Gardeners' Chronicle*, p. 430). *H. G. R.*—*J. J.* *Odontoglossum Hallii.*—*E. Morse.* *Gongora portentosa.*—*W. J.* *Fritillaria meleagris.*—*J. S.* *Epidendrum ciliare* and *Dendrobium chrysotoxum.*—*T. P.* *Porthyridium.* *Euonymus pendulus.*—*T. B. W.* Some garden hybrid, which we cannot undertake to name. It is probably derived from a cross with *Rhododendron Edgeworthii.*—*H. M. E.* The Fern is *Onoclea sensibilis*, and the other plant possibly a form of *Saxifraga hederacea*, but the specimen is not good enough.—*E. Sang & Sons.* We cannot identify your plant without flowers.—*J. H., Bath.* *Epidendrum elonga-*

tum. — *Cannon*. 1, *Arum italicum*; 2, *Fritillaria pyrenaica*; 3 and 4, indeterminate; 5, *Forsythia viridissima*; 6, *Pulmonaria officinalis*; 7, indeterminate; 8, *Lamium maculatum*.

ORCHID: *G. B.* The *Cattleya* just showing its spathes will bloom later on in the season. *Odontoglossum Pescatorei* requires an intermediate-house; it must not be kept too cool; the temperature seems right, so that some other conditions are probably at fault.

POLYANTHUSES: *H. M.* Good showy border flowers—nothing more.

SALT FOR ASPARAGUS BEDS: *C. W. D.* It is not good practice to cover Asparagus beds with salt at this season whilst they are being cut. A good dressing should be applied in winter, or a slighter one after you have done cutting.

SLUGS: *Jane*. Dust quicklime over the surface very early in the morning, especially in moist weather. If you persevere in this you will find them less troublesome. Sharp ashes scattered on the surface are also annoying to them, and prevent them from travelling freely.

STRAWBERRIES: *B. J.* So much depends upon the varieties grown, and their treatment from the "runner" to the fruiting stage, that it is impossible to say what in your case is likely to be the weight of fruit obtained from 20,000 plants. Successful cultivation depends upon the issues of so many circumstances that the rule of three can never be safely applied to such matters; and unless you have practical experience—the most important circumstance of all—your venture is not likely to equal your anticipations. So far as we know, there is no "treatise on forced Strawberries" to be obtained.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

CATALOGUES RECEIVED:—William Bull (King's Road, Chelsea), Catalogue of New, Beautiful, and Rare Plants.—James Veitch & Sons (King's Road, Chelsea), Catalogue of Plants, including Novelties for 1879; and List of Select Soft-wooded and Bedding Plants, &c.—James Carter & Co. (High Holborn, and Crystal Palace Nursery, Forest Hill, S.E.), Catalogue of New and Choice Plants for 1879.—Adolphe D'Haene (Faubourg de Bruxelles, Ghent), General Catalogue of Plants.

COMMUNICATIONS RECEIVED:—W. E.—R. T. C.—E. M.—E. F. F. (many thanks).—J. Brown.—T. C.—J. W.—R. D.—C. Y. M.—W. P.—E. W. B. (thanks).—Foreman.—H. C. B.—J. J.—H. E.—F. W. B.—A. J.—Reader.—J. E. H.—W. H. F.—F. H.—R. P.—D. & Co.

Markets.

COVENT GARDEN, May 15.

The improvement in trade still continues, though with better supplies prices have not been maintained. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Pine-apples, per lb. | 2 0-4 0 |
| Grapes, per lb. | 4 0-10 0 | Strawberries, per lb. | 6 0-12 0 |
| Lemons, per 100 | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-------------------------|-------------|
| Artichokes, English | | Lettuces, Cabbage, | |
| Globe, doz. | 2 0-4 0 | per doz. | 1 6-.. |
| Jerusalem, bush. | 6 0-.. | Mint, green, bunch. | 0 4-.. |
| Asparagus, Fr. sprue, | | Onions, per bushel. | 6 0-7 0 |
| per bundle | 1 6-.. | — young, per bun. | 0 4-0 6 |
| — Eng., per bundle | 7 0-.. | Parsley, per lb. | 1 0-2 0 |
| — Fr. giant, p. bun. | 8 0-15 0 | Peas, per quart | 5 0-.. |
| — Toulouse, bun. | 2 6-3 0 | Potatoes, new, per lb. | 0 6-0 9 |
| Beans, French, p. 100 | 2 0-.. | Radishes, Fr., bunch | 0 6-.. |
| — broad, per lb. | 1 0-.. | — New Jersey, doz. | 2 0-.. |
| Beet, per doz. | 1 0-2 0 | — Engl., long, doz. | 1 0-.. |
| Cabbages, per doz. | 1 0-2 0 | — English, Turnips, | |
| Carrots, per bunch | 0 4-0 6 | per dozen | 1 6-.. |
| — New Fr., p. bun. | 2 0-.. | Rhubarb, doz. | 6 0-8 0 |
| Cauliflowers, per doz. | 2 0-5 0 | Shallots, per lb. | 0 6-.. |
| Celery, per bundle | 1 6-2 0 | Seakale, per punnet | 2 6-.. |
| Chilis, per 100 | 2 0-.. | Spinach, per bushel | 3 6-.. |
| Cucumbers, each | 0 9-1 6 | Sweet Potatoes, per lb. | 0 6-.. |
| Endive, Batav. dozen | 1 6-.. | Tomatoes, per dozen | 2 6-3 0 |
| Garlic, per lb. | 0 6-.. | Turnips, p. 12 bunch. | 0 6-0 6 |
| Herbs, per bunch | 0 2-0 4 | — New Fr., bunch | 1 0-1 6 |
| Horse Radish, p. bun. | 4 0-.. | | |

Potatoes:—Regents, 100s. to 130s.; Champions, 80s. to 90s.; Rocks, 70s. to 75s.; Flukes, 120s. to 140s. per ton. Large supplies, and trade heavy.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-----------------------|-------------|---------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Lily of Val., 12 sprays | 1 0-3 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Arum Lilies, 12 blms. | 3 0-9 0 | Narcissus, 12 bunch. | 6 0-12 0 |
| Azaleas, 12 sprays | 0 4-1 0 | Pansy, 12 bunches. | 2 0-6 0 |
| Bouvardias, per bun. | 1 0-4 0 | Pelargoniums, 12 spr. | 1 0-6 0 |
| Camellias, per dozen | 1 0-6 0 | — zonal, 12 sprays | 0 6-1 6 |
| Carnations, per dozen | 1 6-4 0 | Primroses, single yellow, | |
| Cineraria, 12 bunches | 6 0-12 0 | low, 12 bunches | 0 6-1 6 |
| Coswips, 12 bunch. | 1 0-3 0 | — double white, 12 | |
| Cyclamen, 12 blooms | 0 3-1 0 | bunches | 1 6-3 0 |
| Daffodil, 12 bunches | 2 0-6 0 | Primula, double, per | |
| Deutzia, 12 bunches | 4 0-12 0 | bunch | 0 9-1 6 |
| Eucharis, per doz. | 4 0-12 0 | Roses (indoor), doz. | 1 0-9 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Stephanotis, 12 spr. | 2 6-9 0 |
| Forget-me-not, 12 bs. | 3 0-9 0 | Tropeolum, 12 bunch. | 2 0-6 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Tuberose, per dozen | 3 0-6 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tulips, 12 blooms | 0 6-1 0 |
| Hyacinths, 12 bunch. | 4 0-12 0 | Wallflowers, 12 bun. | 4 0-6 0 |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|----------------------|-------------|-------------------------|-------------|
| Arum Lily, or Rich- | | Ferns, in var., p. doz. | 4 0-18 0 |
| ardia aethiop., doz. | 9 0-18 0 | Ficus elastica, each | 2 6-15 0 |
| Azaleas, per dozen. | 18 0-60 0 | Foliage Plants, vari- | |
| Begonias, per doz. | 6 0-18 0 | ous, each | 2 0-10 6 |
| Bouvardias, per doz. | 18 0-24 0 | Fuchsias, per dozen | 6 0-18 0 |
| Cinerarias, per doz. | 6 0-18 0 | Gemista, per dozen | 6 0-24 0 |
| Cyclamens, per doz. | 9 0-30 0 | Mignonette, per doz. | 6 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Dielytra, per dozen | 9 0-18 0 | Palms in variety, | |
| Dracena terminalis | 30 0-60 0 | each | 2 6-21 0 |
| — viridis, per doz. | 18 0-24 0 | Pelargoniums, per | |
| Erica hymalis, doz. | 9 0-30 0 | dozen | 12 0-24 0 |
| — ventricosa, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 6 0-12 0 |
| per dozen | 24 0-42 0 | Roses, per dozen | 12 0-42 0 |
| — Willmoreana, per | | Spiraea, per dozen | 6 0-24 0 |
| dozen | 9 0-24 0 | — palmata, per doz. | 18 0-45 0 |
| Euonymus, var., doz. | 6 0-18 0 | | |

SEEDS.

LONDON: May 14.—The attendance at Mark Lane to-day was most meagre, and very little business was transacted in consequence. The retail demand for sowing purposes still continues, and occasionally orders drop in which, for the time of year, are certainly large, but these altogether represent no quantity of seed. American and Canadian reds have been a good deal enquired for, and several sales have taken place, but though there is a decidedly firmer feeling on the part of some holders, offers still come from several quarters at very low prices. In Alsike and white Clover there is scarcely anything doing, though there has lately been some little enquiry. Trefoil is very firm at the late advance, several very heavy transactions having recently taken place; there is now very little fine seed offering, and this is shown from the fact that as much as 24s. has been made in London this week. There is still a good trade for Rye-grasses and Italian, and some speculative sales are being made; it certainly seems difficult to imagine that investments in either of these articles can be attended with loss at present prices, while on the other hand they may as likely as not pay a handsome interest. Rape seed now finds an improved sale, and fine seed must be noted dearer. Mustard is unchanged. There is still a brisk demand for spring Tares, but there are very few here. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Only a moderate supply of English Wheat was on sale at Mark Lane on Monday. Holders were firm, and former prices were supported. Foreign Wheat was in fair supply, and no change was quoted in prices. Very little English malting Barley was on sale, and foreign produce was in fair request at late rates. Grinding Barley sold slowly on former terms. Malt sold at previous quotations. Oats were inactive, on former terms; Indian Corn was dull, at drooping currencies; Beans and Peas sold slowly at previous rates; and there was only a moderate demand for flour at about last quotations.—On Wednesday trade was pretty firm. Fine dry English Wheat was in short supply, and prices were well supported. Foreign Wheat moved off slowly on former terms. Barley was quiet but steady. Oats were dull, and very little inquiry prevailed for Maize. Beans and Peas were unaltered. Flour was steady. Average prices of corn for the week ending May 10:—Wheat, 40s. 9d.; Barley, 30s. 9d.; Oats, 21s. 5d. For the corresponding period last year:—Wheat, 52s. 4d.; Barley, 40s. 2d.; Oats, 25s. 8d.

CATTLE.

At Copenhagen Fields on Monday trade in beasts was more cheerful than of late, and for some choicest qualities a little over our top quotation was obtained. Trade in sheep opened brisk, but slackened towards the close, and it was difficult to clear out at our quotations. Lambs were lower, and calves about the same as of late. Quotations:—Beasts, 4s. to 4s. 6d., and 4s. 8d. to 5s. 2d.; calves, 5s. 6d. to 6s. 6d.; sheep, 4s. 8d. to 5s., and 5s. 2d. to 5s. 10d.; lambs, 7s. 6d. to 8s. 6d.; pigs, 3s. 8d. to 5s.—On Thursday trade was without feature. Beasts were in short supply, and sold quietly at about Monday's rates. Sheep moderate, at previous currencies, Lambs were dull and weak. Calves and pigs sold at about previous prices.

POTATOS.

The Borough and Spitalfields markets reports state that with a moderate supply trade was quiet at the following rates:—German reds, 120s. to 130s.; flukes, 150s. to 180s.; rocks, 100s. to 120s.; Champions, 100s. to 120s.; and Victorias, 120s. to 150s. per ton.—During last week 35,311 bags 543 sacks were received from Hamburg, 4992 Bremen, 3634 Brussels, 2525 Antwerp, 1091 Dunkirk, 2115 Ghent, 120 Boulogne, 109 Rouen, 2226 packages Cadiz, 2365 Lisbon, 332 cases Malta, 155 barrels Gibraltar, and 88 bags from Harlingen.

COALS.

The prices current during the week were as follows:—West Hartley, 14s. 9d.; Walls End—Salvin's Hutton, 18s. 6d.; East Hartlepool, 19s. 6d.; Radford Navigation, 15s. 3d.

Government Stock.—Consols closed on Monday at 98½ to 98¾ for delivery, and at 98½ to 98¾ for the account. Tuesday's prices were, for delivery, 98½ to 98¾, and for the account 98½ to 99; and on Wednesday these were respectively 98½ to 98¾, and 98½ to 98¾. Thursday's closing prices were 98½ to 98¾, for both money and the account.

MANGEL and SWEDE, Choice Stocks.—

We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade. SANDER AND CO., Seed Growers, St. Albans.

GERANIUMS, New Double.—See price

list of best varieties. Choice collections, twelve for 6s., twenty-four for 10s.; White Vesuvius, 6s. and 8s. per dozen; twelve choicest Zonals, including the above, for 3s.; popular varieties, Silver-edged, C. P. Gem, and best Whites, 1s. 6d. per dozen, 10s. per 100; Vesuvius, 8s. per 100.

AGERATUM, Lady Jane and Countess of Stair, 6s. per 100.

LOBELIAS (from cuttings), Martin's Blue (bronze foliage), 5s. 6d.

— pumila magnifica and Brighton, 2s. 6d. per 100.

CINERARIA MARITIMA (silvery foliage), 5s. per 100.

PETUNIAS, Double, striped and white, 2s., crimson, 1s. 6d. per dozen.

CENTAUREA CANDIDISSIMA, 2s. per dozen, 12s. 6d. per 100.

ALTERNANTHERAS, 8s.; MENTHA, 5s.; STELLARIA, golden, 2s. 6d.; PYRETHRUM (strong), 2s. per 100.

Parcels free and safe by post above 5s. Cash with order to GEO. GUMMOW, 114, Loughborough Road, Brixton, S.W.

MESSRS. THOMAS CRIPPS AND SON,

the Tunbridge Wells Nurseries, Kent, have pleasure in announcing the following three beautiful varieties of their seedling CLEMATIS are now ready for distribution:—

GRAND DUCHESS.—This is the largest variety we have ever seen. The *Garden* describes it as "a strong growing, large flowered, and very effective eight-sepalled variety; the flowers of which, in some instances, were as much as 10 inches in diameter, but often only 8 inches. The colour is white, slightly flushed with rose."

GUIDING STAR.—A fine hybrid, between lanuginosa and Jackmanni, described in *Gardeners' Chronicle* as being a fine flower of purplish hue, shaded with crimson, and with a longitudinal band of maroon down the centre of each petal.

LOUIS VAN HOUTTE.—A very handsome variety, and perhaps the most abundant bloomer of the lanuginosa section. Described in the *Gardeners' Chronicle* as "a strikingly showy variety, with bluish-purple flowers, consisting of six broad sepals of good substance."

The above have each received First-class Certificates at the Royal Horticultural Society, South Kensington.

Price ros. 6s. each. Usual Trade discount for the set.

Coloured plates of either, 2s. 6d. each.

THOMAS METHVEN & SONS

Have the pleasure to announce that they have made arrangements to send out, early in May, the following very desirable Novelties, which were raised by Mr. Smith, Gardener at Bargany, in Ayrshire:—

GERANIUM, "COUNTESS OF STAIR."

Price 18s. per dozen.

VERBENA, "PERFUME."

Price 12s. per dozen.

For Testimonials see special Circular, which will be forwarded on application.

NEW REGAL PELARGONIUM, "COUNTESS OF ROSEBURY."

The flowers are of the purest white, with a feathered spot of delicate rose on the two upper petals, and beautifully fringed round the margin. The trusses are large and handsome, and produced in great profusion, while its robust and compact habit, along with its early flowering qualities, render it a most desirable acquisition to this useful class of plants.

It received a First-class Certificate from the Royal Caledonian Horticultural Society on April a last.

Price 10s. 6d. each.

New Apple, "Northern Dumpling."

Received a First-class Certificate, Royal Horticultural Society, London.

Raised by Mr. John Webber, The Gardens, Gordon Castle.

To be sent out in October.

Particulars in future advertisements.

Orders are now being booked, and will be executed in rotation as they are received. The usual allowance to the Trade.

LEITH WALK NURSERIES, EDINBURGH.

For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER.

Established 40 Years.

This Manure is unequalled in effect for speedy and certain action in producing desired results, the strength and quality being highly concentrated. (Should be used by every one.)

For the convenience of consumers our Manure is packed in bags containing:—

1 cwt., 16s.; ½ cwt., 9s. 6d.; ¼ cwt., 7s.; 14 lb., 5s. 7 lb., 3s. 6d.; 3½ lb., 2s. 4d.; Tin, 1s.;

And may be obtained at all principal Nurseriesmen, Florists, and Seedsmen; or direct from the Works, by application to W. TRINDER, Chemical Manure Works, Stroud, Gloucestershire; or, T. HARDY, 27, Crosby Hall Chambers, Bishopsgate, London, E.C. Agents wanted.

PEAT SOIL, PEAT SOIL.—

BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. BLACK, good quality for American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s. per ton, or 6-ton truck for £4 10s. Delivered on rail at Blackwater, S.E.R., or Camberley, S.W.R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER AND SON, Crown Nurseries, Reading.

Fibrous Peat for Orchids, &c.
BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.
BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.
 Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.
Fresh SPHAGNUM, 10s. 6d. per bag.
WALKER AND CO., Farnborough Station, Hants.

COCOA-NUT FIBRE REFUSE.—Reduced Price:—In 4 bushel bags, bags included, at 1s., 30 bags £1, or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—**J. STEVENS AND CO.**, Greyhound Yard, and 134, High Street, Battersea, S.W.

COCOA-NUT FIBRE REFUSE, as supplied to the Royal Horticultural Society.—Four-bushel bag (bags included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.
T. RICH (late Finlayson & Hector), Cocoa-Nut Fibre Works, 24 and 25, Redman's Row, Mile End Road, London, E.

GARDEN REQUISITES.—COCOA-NUT FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners.
 3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s. 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.
BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 22s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. half ton, 26s. per ton; in 1 cwt. bags, 4d. each.
YELLOW FIBROUS LOAM, PEAT MOULD, and **LEAF-MOULD**, 1s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.
 Manures, Garden Sticks, Virgin Cork, Tobacco Cloth and Paper, Russia Mats, &c.

Write for free **PRICE LIST**. Goods free to rail.

H. G. SMYTH, 10, Castle Street, Endell Street, Long Acre, W.C.

EWING'S MILDEW COMPOSITION, in bottles, 1s. 6d. and 3s. each; one-gallon cans (to make 104 gallons of mixture for syringing), 12s. each; two gallon cans, 20s. each. Mildew or Red Spider are also effectually prevented or destroyed by merely painting the hot pipes with the composition mixed with whitewash; no direct application to the foliage is then necessary.

EWING AND COMPANY, Royal Norfolk Nurseries, Eaton, Norwich.

FLORVITA.

THE LIFE OF FLOWERS.

For Stimulating and Quickening the Growth of Plants, and producing a Rapid and High Development of Blossom.

Extract from Dr. Voelcker's Analytical Report, of June 7, 1878.

"The preparation is readily soluble in water, and perfectly free from all disagreeable smell, and it may be regarded as the concentrated essence of the most valuable manures, deprived of all the disagreeable smelling and useless products of partial decomposition which generally accompany ordinary manures."

Directions for Use.

One teaspoonful of the Florvita to be added to each gallon of water used.

The Plants should be watered with it three times a week or more.

PREPARED ONLY BY

PRENTICE BROS.,

CHEMICAL LABORATORY, STOWMARKET.

Sold by all Florists and Seedsmen in the United Kingdom, in 1s. and 2s. 6d. Bottles, and in 18s. and 36s. Jars.

GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d. Wholesale by **PRICE'S PATENT CANDLE COMPANY** (Limited).

MILLER AND JOHNSON

(ESTABLISHED 1855)

Manufacture the highest quality of
ARTIFICIAL MANURES
 For Root, Corn, and Grass Crops.

36, Mark Lane, London.

By Permission of the Hon. Board of Customs,
 Free of Duty.

NICOTINE SOAP.

A NEW AND UNRIVALLED INSECTICIDE
 FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing properties, with perfect safety to foliage. No known blight can resist it, and it is the cheapest in the market.

Price, in jars, containing 8 oz., 1s. 6d., and 20 oz., 3s.; drums, 28 lb., 25s.; and 2 oz. samples jars, 6d. each. Two ounces sufficient for one gallon of water for ordinary use.

THE LONDON GROUND TOBACCO.

THE LONDON TOBACCO JUICE.

TOBACCO PAPER, CLOTH, and CORD.

Wholesale from the Manufacturers,

CORRY & SOPER,
 SHAD THAMES, LONDON, S.E.;

And Retail from all Seedsmen and Florists.

BOOTE AND MILLSON, LEAD AND GLASS

MERCHANTS, 64, City Road, E.C., have always on the premises a large Stock of all kinds of Horticultural Glass, at lowest market rates.

Rosher's Garden Edging Tiles.



THE ABOVE and many other PATTERNS are made in materials of great durability. The

plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense.

as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO, Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS, and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by Post. The Trade supplied.

ORNAMENTAL PAVING TILES,

for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety, Slates, Cement, &c.

T. ROSHER AND CO., Brick and Tile Merchants.

See Addresses above.

SILVER SAND,

fine or coarse grain as desired. Price by Post per Ton or Truckload, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.

A liberal Discount to the Trade.

J. B. WOODS, 21, High Street,

Wandsworth, S.W. (Established 1779).

HORTICULTURAL BUILDER; GAS, STEAM, HOT-

WATER and SANITARY ENGINEER.

Every description of Hot-water Apparatus on New and Improved Principles either for Horticultural or Mansion Purposes.

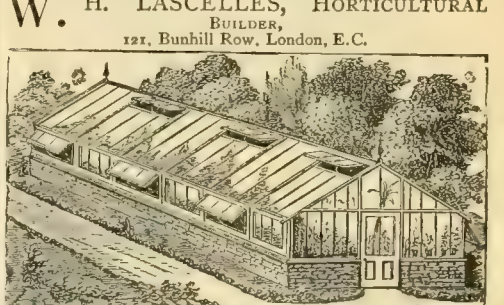
Deep-Well Pumps, Baths. Estimates given and experienced Workmen sent to any distance on the most moderate terms.

Legion of Honour (Paris Exhibition): Gold Medal.

W. H. LASCELLES, HORTICULTURAL

BUILDER,

121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

GARDEN BOXES and LIGHTS. Each.

Portable Box with One Light, 6 feet by 4 feet, glazed 5 d.

good 15-oz. sheet glass, painted four coats, and

packed ready for use 35 0

Portable Box with Two Lights, as above, each light

6 feet by 4 feet 65 0

LIGHTS ONLY.

3 feet by 4 feet light, not painted nor glazed 3 6

Doitto glazed, good 15-oz. sheet glass, and painted 4 coats 10 0

6 feet by 4 feet, not painted nor glazed 6 0

Doitto glazed and painted 4 coats 16 6

IMPORTANT TO ALL ADMIRERS OF CLEAN HEALTHY FOLIAGE

FOR PLANTS SPEED'S FLOWERS & C

PARASITE ANNIHILATOR

An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites festing Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—*From Mr. D. THOMSON, gardener to His Grace the Duke of Buccleuch, Drumlanrig Castle.*—"I duly received the jar of your Insect 'Annihilator' and rayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into a ddissh-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems 'done for' in about ten minutes, ter which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis, racenas, Marantas, and Crotons, and not one of these are in the least injured." Sold in Bottles, containing one pint at 1s. 6d., quart at 2s. 6d., and 2 quarts at 4s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each.

SPEED'S VINE and ROSE MILDEW ANNIHILATOR.—An effectual and instantaneous destroyer of Mildew. It is perfectly harmless to the Grape Vine, the Rose, and the Peach, and may be applied to the most tender foliage. The fruit may be dressed it in any state with perfect safety, even before the thinning period. It is non-poisonous to animals, although it is instantly destructive to all Fungi. It is simple and easy to apply, and may be rinsed off in ten minutes after its application, leaving no sediment, taste, or smell. It will be found of inestimable service in checking all disease caused by Fungi in the Rose, Grape, Peach, ollyhock, Potato, &c. Testimonial from ROBERT HOGG, Esq., LL.D., F.L.S., &c., Pomological Director of the Royal Horticultural Society.—"I have great pleasure in bearing my testimony to the magical effect which your mixture has upon the Mildew the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the liage of the Vine, was so destructive and so instantaneous, as to leave no doubt on my mind as to its perfect efficacy in destroy- g the Mildew. On examining the foliage with a magnifying glass after the application, I could find no trace of the disease." id in Bottles at 2s., 3s. 6d., 6s., and 10s. each; to make 1 quart, 1/2 gallon, 1 gallon, or 2 gallons, ready for use. Full directions use enclosed with each bottle. Vaporisers for applying the Annihilators, 2s. each.

N.B.—The "Parasite Annihilator" and the "Mildew Annihilator" are quite distinct preparations, and are prepared only by LFRED LOWE, Chemist, Chesterfield. May be obtained through any Chemist or Seedsmen. London Agents:—F. Newbery & ns, W. Edwards & Son, J. Sanger & Sons, W. Sutton & Co., J. Veitch & Sons, Hurst & Son, Corry & Soper, Dick Radclyffe & Co.

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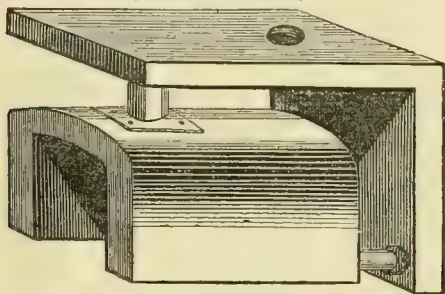
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| High. | Wide. | Long. | Feet. | £ s. d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 0 0 |
| 20 " | 18 " | 24 " | 400 | 8 0 0 |
| 20 " | 18 " | 30 " | 500 | 9 0 0 |
| 24 " | 24 " | 24 " | 700 | 12 0 0 |
| 24 " | 24 " | 30 " | 850 | 14 0 0 |
| 24 " | 24 " | 36 " | 1000 | 16 0 0 |
| 24 " | 24 " | 48 " | 1400 | 20 0 0 |
| 28 " | 28 " | 60 " | 1800 | 25 0 0 |

Larger sizes if required.

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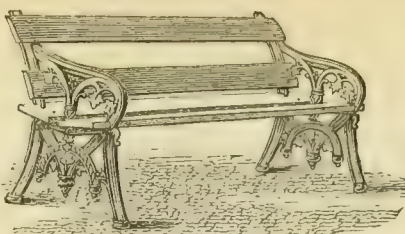
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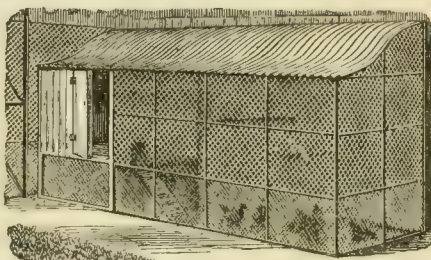
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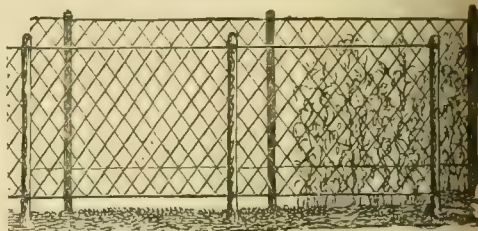
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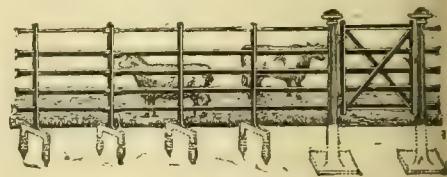
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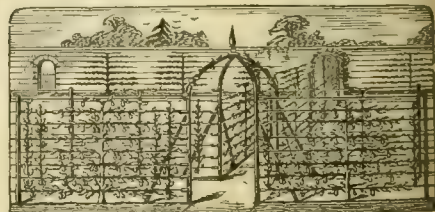
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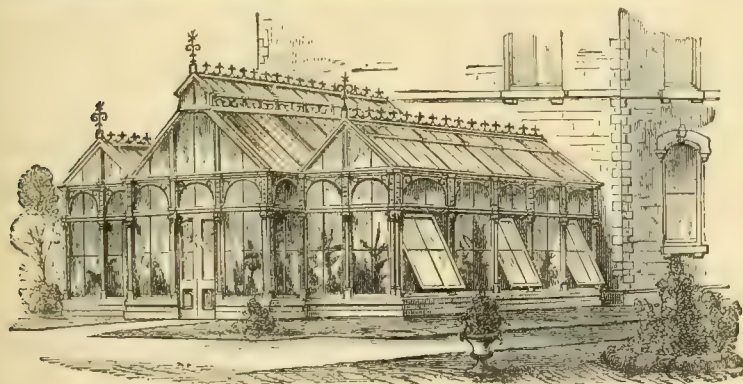
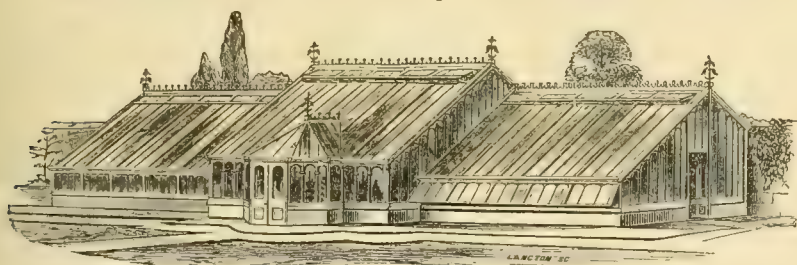
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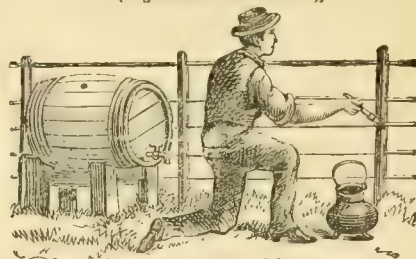
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CAUTION.—It having lately come to the knowledge of
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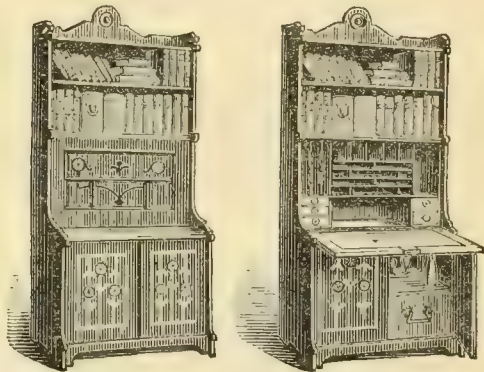
"It seems to meet the end in view more nearly than any-
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Any one seeing the two systems would say that yours is far the
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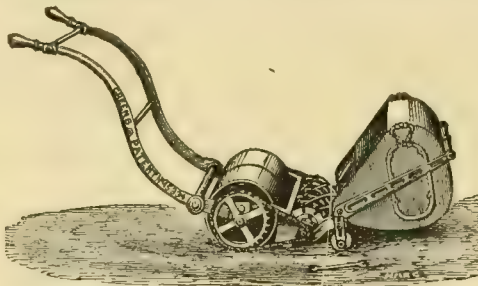
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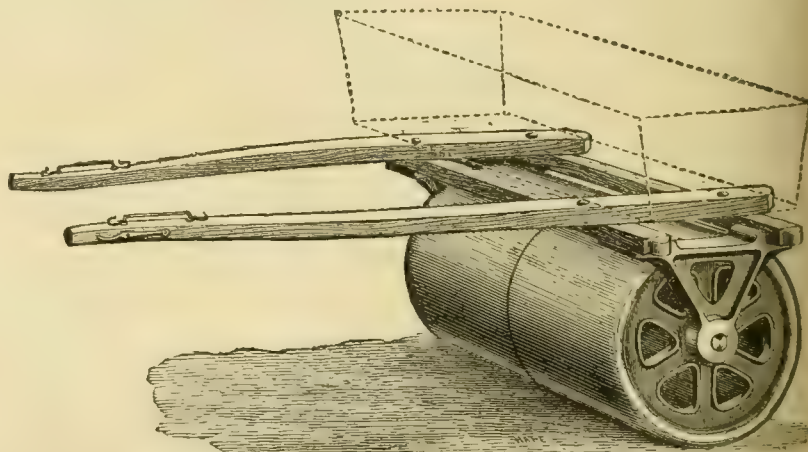
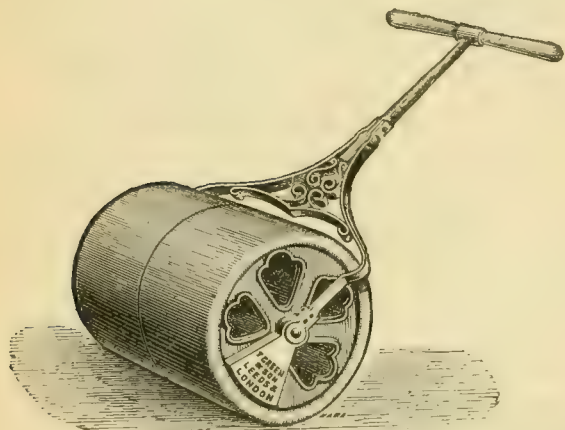
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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 282.—VOL. XI. { NEW SERIES. }

SATURDAY, MAY 24, 1879.

{ Registered at the General Post Office as a Newspaper. } Price 5d. POST FREE, 5½d.

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Note.—Medals to be awarded for Implements, &c., see p. 6 of Schedule.

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T. FLETCHER, Florist, &c., Chesterfield.

Tea-scented Roses.
WILLIAM FLETCHER offers clean healthy plants in 48-pots, now coming into bloom, of all the leading varieties. Price on application.
Ottershaw Nursery, Chertsey.

Tea and other Roses in Pots.
WM. CUTBUSH and SON have a very fine lot of the above to offer, in all the best sorts. Prices on application.
Highgate, London, N.; and Barnet, Herts.

SEEDLING PEDIGREE ROSES.—The greatest floral novelties of the age are H. Bennett's "Pedigree Seedling Roses." Will be ready the first week in June. To ensure good plants at once, as there is only a small stock of each variety. Descriptive LISTS gratis and post-free.
H. BENNETT, Manor Farm Nurseries, Stapleford, Salisbury.

Now Ready.
CRANSTON and CO.'S TRADE LIST of NEW ROSES for 1879.
King's Acre Nurseries, near Hereford.

Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.
THE LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh, respectfully request the attention of intending planters to their most extensive and superior stock of the above.
CATALOGUES on application.

NEW CATALOGUE.—For everything that is new, beautiful and rare, in the tree and shrub way, and for all those things that cannot be procured elsewhere, see above. Free on application.
RODGER, McCLELLAND and CO., 64, Hill Street, Newry.

FOREST TREES, Seedling and Transplanted.—The very extensive stock of the above is this season in splendid condition.
CATALOGUES on application.
The Lawson Seed and Nursery Company (Limited), Edinburgh.

New Dahlias now ready.
CLARA, GEORGE SMITH, REV. J. GOODDAY.
Also all the best varieties over 1-yr. old, 4s. 6d. per dozen.
RAWLINGS BROS., Romford, Essex.

Now Ready.
TWENTY THOUSAND DAHLIAS, in 400 varieties.
Price and CATALOGUE on application to
KELWAY and SON, The Royal Nurseries, Langport, Somerset.

LOBELIA PUMILA MAGNIFICA (Williams).—4000 fine Plants, all from cuttings, established in single pots, 16s. per 100. Free on rail here.
GEO. ROSE, Queen Street, Barnsley.

Drawing from Nature.
MR. WORTHINGTON G. SMITH, F.L.S., F.R.H.S.I., M.A.I., ARTIST and ENGRAVER to the Cambrian Archaeological Association, and Engraver to *Gardeners' Chronicle*, &c.
By request of many friends and correspondents Mr. Worthington Smith has arranged to give occasional practical instruction in DRAWING from NATURE, SCIENTIFIC DRAWING, &c. Ladies or Gentlemen wishing to avail themselves of Mr. Smith's aid, please direct for terms,
125, Grosvenor Road, Canonbury, London, N.

SALES BY AUCTION.

Odontoglossum vexillarium, &c.

MR. J. C. STEVENS has received instructions from Messrs. Jas. Backhouse & Son, of York, to **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY, May 29**, at half-past 12 o'clock precisely, a collection of Established and Imported **ORCHIDS**, including twenty fine blooming Plants of **ODONTOGLOSSUM VEXILLARIUM**, grand specimens of the new **O. LONDESBOROUGHIANUM**, the charming **EPIDENDRUM ERUBESCENS**, a few Plants of the rare and curious **E. antenniferum** and **E. Parkinsonianum**; fine flowering specimens of **BOLLEA COLESTIS**, and a most wonderful, and perhaps unrivalled, **MASDEVALLIA** of the Chimera section, in bloom, named by Prof. Reichenbach, **Masdevallia Backhouseana**; also numerous plants of **Pescatoreas**, **Cattleyas**, **Masdevallas**, &c., several of which are flowering.

On view morning of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will **SELL BY AUCTION**, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **THURSDAY, May 29**, an importation of **ORCHIDS**, consisting of **Dendrobium Freemanii** and other new **Dendrobies**, **Cologynas**, **Vandas**, **Cypripedium pardinum**, **C. Maulei**, **Aerides Fieldingii**, **Cymbidium Mastersii**, and several new **Cymbidiums**, **Pleione præcox**, &c., from Mr. Freeman; three fine specimen **Cologyne cristata**, of upwards of 1000 bulbs each, and seven others nearly as fine, from Mr. R. S. Yates, and various other Orchids.

On view morning of Sale, and Catalogues had.

The Celebrated Collection of Plants at Dangstein.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for **SALE BY AUCTION**, on the Premises, Dangstein, near Petersfield, on **TUESDAY, June 24**, and full wing days, at half-past 12 o'clock precisely each day, this magnificent **COLLECTION OF PLANTS**, without the slightest reserve, comprising **Camellias** and **Azaleas**, **Palms**, **Dracenas**, **Crotons**, fine specimen **Gleichenias**, a most beautiful collection of **Filmy Ferns**, **Trichomanes radicans** in quantity, a grand plant of **Trichomanes reniforme**, **Hymenophyllum demissum**, &c., **Anætochilus**, **Peperomias**, **Darlingtonias**, **Sarracenas**, **Platyceriums**, &c.; also a choice assortment of **Orchids**, consisting of large plants of **Masdevallia tovarensis**, **M. Veitchii**, **M. Harryana**, **Odontoglossum pulchellum**, splendid plants; **Cattleyas** of sorts, **Dendrobies** of sorts, extra fine plants of **Stanhopeas** of sorts, **Angracum sesquipedale**, **Vandas**, and many other rare and valuable plants.

On view day prior and mornings of Sale. Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Conveyances on the days of Sale will meet at Rogate Station the train from Waterloo at 7 o'clock, arriving at Rogate Station at 0.15; also 0.30 from Waterloo, arriving at Rogate Station at 1.16; and meeting 5.11 and 7.29 trains back at Rogate Station.

Shepherd's Bush, W.

10,000 **BEDDING** and **GREENHOUSE PLANTS**, including **Geraniums**, **Fuchsias**, **Pelargoniums**, **Lobelias**, and **Ferns**; also specimen **Camellias** and **Azaleas**, together with a few lots of **HOUSEHOLD FURNITURE** of the usual description.

MESSRS. PRICE AND SON will **SELL BY AUCTION**, by order of the Mortgagee, on the Premises, Willow Vale Nursery, Shepherd's Bush, W., five minutes from the Metropolitan Railway Station, the above Stock-in-Trade of a Florist and Nurseryman, on **MONDAY, May 26**, at 12 o'clock precisely.

May be viewed This Day, Saturday.

The LEASE of the PREMISES, having fifty-eight years unexpired, at a moderate rent, may be **PURCHASED**.

Catalogues and particulars of the Lease to be had at the Auction and Estate Offices, 48, Chancery Lane, W.C.

St John's Nursery, Putney, close to the Station.

MESSRS. PROTHEROE AND MORRIS will **SELL**, on the Premises, on **TUESDAY, at 1 o'clock**, 12,000 **GERANIUMS**, 1000 **CALCEOLARIAS**, 2000 **LOBELIAS**, and thousands of other well-grown **BEDDING PLANTS** of the usual assortment.

On view. Catalogues had on the Premises and of the Auctioneers.

Hornsey, N.

ELEVENTH ANNUAL BEDDING PLANT SALE.

IMPORTANT UNRESERVED SALE of about 80,000 unusually well-grown **GREENHOUSE** and **BEDDING PLANTS**, in rich assortment, consisting of **Verbenas**, **Fuchsias**, **Heliotropes**, 25,000 choice **Geraniums**, the whole of which are wintered plants, including Mrs. Pollock, Madame Vaucher, Vesuvius, and other well-known varieties; 10,000 **Lobelias**, 4000 **Calceolarias**, 5000 **Alternantheras**, of sorts; choice **Roses** in pots, **Spiræas**, **Pelargoniums**, &c., &c.

MESSRS. PROTHEROE AND MORRIS will **SELL** the above stock, on the Premises, The Nursery, Hornsey, N., on **TUESDAY, May 27**, at 12 o'clock, by order of Mr. J. Page (successor to Mr. Cleall).

On view three days prior to Sale. Catalogues, post-free, from the Nursery, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

IMPORTANT ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS will **SELL BY AUCTION**, on the Premises, the Exotic Nursery, S.W., by order of Mr. R. Parker, on **THURSDAY, May 29**, at 1 o'clock, a large quantity of extra stock of **STOVE** and **GREENHOUSE PLANTS**, in healthy and thriving condition, choice **Orchids** in variety, **Exotic Ferns**, selected **Palms**, specimen **Camellias** and **Rhododendrons**, and a fine assortment of **Succulents** and **Hardy Herbaceous Plants**.

May be viewed. Catalogues obtained on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Stoke Newington, N., near the Parish Church.

MESSRS. PROTHEROE AND MORRIS will **SELL**, without reserve, at the Church Walk Nursery, Stoke Newington, N., by order of Mr. Oubridge, on **FRIDAY, May 30**, at 12 o'clock, 50,000 **BEDDING** and **GREENHOUSE PLANTS**, in great variety, ready for immediate effect, including 20,000 choice **Geraniums**.

View two days prior to Sale. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

By Order of the Mortgagees.—Wood Green, N.
Within five minutes' walk of the Palace Gates and Wood Green Railway Stations.
IMPORTANT TO FRUIT GROWERS, NURSERYMEN, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will **SELL BY AUCTION**, at the Mart, Tokenhouse Yard, E.C., on **MONDAY, June 9**, at 2 o'clock precisely, a valuable **FREEHOLD ESTATE**, known as "The Vineries," Wood Green, Middlesex, having important frontages of 212 feet to the Nightingale and Truro Roads, by a total depth of 376 feet, comprising a 6-roomed Cottage, with Coach-house and Stabling, Brick-built Offices, and other Outbuildings; also 8 **GREENHOUSES**, containing 18,000 feet super of Glass, fitted with all requisite appliances, and planted with nearly 500 established Vines and Peach Trees in fine bearing condition, heated by 4500 feet of Hot-water Piping. Tithe free and Land Tax redeemed. The Property is of the estimated rental value of £150 per annum, and offers (apart from its attractions as a going concern) an eligible opportunity to Builders and Others for a profitable speculation in the development of a building scheme.

Particulars, with Plans and Conditions of Sale, may be had at the Mart, of F. PARKER, Esq., Solicitor, Greenwich, S.E.; or of the Auctioneers, Valuers, and Estate Agents (of whom orders to view may be obtained), at their Offices, 98, Gracechurch Street, E.C.

Car Colston, Nottinghamshire.

To NURSERYMEN, MARKET GARDENERS, and FLORISTS.

MR. J. M. POTT is instructed to **SELL BY PUBLIC AUCTION**, at the Mart, Wheeler Gate, Nottingham, on **WEDNESDAY, June 4**, at 4 for half-past 4 o'clock, subject to the Conditions to be then produced, an excellent **NURSERY** and **MARKET GARDEN**, in a very high state of cultivation, with complete and extensive Range of Greenhouses, Conservatories, and Forcing Pits, comprising about 3 acres, with the good Dwelling-house situate upon the same, with Stable, Cart-shed, and Barn, now or late in the occupation of Robert Cragg. The situation is extremely favourable for a Nurseryman, a Market Gardener, or a Florist, being within easy distance of Nottingham and three other market towns. Also Three COTTAGES adjoining the above premises; also Two GRASS FIELDS, known as "The Nervings," containing about 5½ acres, and One ARABLE FIELD, known as "The Moors," containing about 2½ acres. All the above premises are freehold, and are situate in or near to the village of Car Colston, in the county of Nottingham. They will be sold together or in lots.

For further particulars, apply to Mr. J. FLETCHER, on the Premises; to the Auctioneer, Eldon Chambers, Wheeler Gate, Nottingham; or, to Messrs. DOWSON AND WRIGHT, Solicitors, Weekday Cross, Nottingham.

Highly Important Sale of Stove and Greenhouse PLANTS, FERNS, &c., grown at Darnley.—In consequence of the Messrs. Fraser having resolved not to exhibit or compete, they have instructed

MR. MASSON, AUCTIONEER, to **SELL**, in the Music Hall Buildings, during the SECOND WEEK in JUNE, their well-known Collection. Catalogues and further particulars, with cards to view, may be obtained from Messrs. FRASER; or the Auctioneer, 115, Union Street, Aberdeen.

Woodberry Down.

Charming DETACHED FAMILY RESIDENCE, in the Cottage style, occupying a position of unrivalled beauty, standing in its own matured and picturesque Grounds of nearly Two Acres, with a south aspect, overlooking a silvery expanse of water, with a well-timbered landscape in the background, suggesting the Lake District rather than a truly favoured spot within 25 minutes' drive of the Bank or the West-end. For Sale with possession.

MR. F. STATHAM HOBSON is favoured with instructions from the owner, who is going abroad, to **SELL BY AUCTION**, at the Mart, Tokenhouse Yard, Lothbury, on **WEDNESDAY, June 11**, at 2 o'clock precisely, the singularly favoured Residential Property, comprising a detached FAMILY RESIDENCE, known as Gramere, Woodberry Down, standing in ornamental grounds of exquisite beauty, extensive lawns and parterres laid on a deep silky loam, in some places from 2 to 3 feet in thickness, with ample drainage on all sides, and is richly planted with fine specimens of the *Pyrus spectabilis*, the Golden Yew (*Thuja aurea*), Gold and Silver Holly, Portugal Laurel, *Cedrus Deodara*, *Cupressus*, Copper Beech, Weeping Lime, Mountain Ash, a rich variety of Gold and Silver Ives, Clumps of choice *Rhododendrons*, and a magnificent collection of *Roses* arranged in masses, and containing several hundred trees of the best named varieties in Hybrid Perpetual, Bourbon, Tea, and Noisette, all in a high state of cultivation; with *Shrubberies* and shady walks under well-grown timber running down to and along the banks of the New River, with rustic retreats and the exclusive right of excellent fishing. It is approached through an ornamental entrance porch, having outer and inner halls, library, large dining-room, drawing-room, and conservatory, nine principal and secondary bedchambers, dressing-rooms, bathroom, stores, kitchen, offices, and cellars, with ample space for the erection of stabling. The immediate neighbourhood consists entirely of high-class detached residences of similar character, and enjoys a proximity to the metropolis, combined with the attractions of the country, to an extent not equalled by any suburb of London; Stamford Hill Station is within fifteen minutes, Finsbury Park and railway station on the Great Northern Railway a similar distance. It is held from the Ecclesiastical Commissioners for a term of nearly ninety years unexpired.

May be viewed by orders only, to be obtained of the Auctioneer. Particulars and plans may shortly be had of Messrs. TAYLOR and JAQUET, Solicitors, 15, South Street, Finsbury Square, E.C.; at the Mart; and at the Auction Offices, 20, Coleman Street, Bank, E.C.

WANTED TO RENT, a small NURSERY, with Glass attached. Must be a sound concern.
G. W., 11, Avon Terrace, Fisherton, Salisbury.

London, S.E. (4648).

FOR SALE, an excellent **NURSERYMAN'S SEEDSMAN'S, FLORIST'S, and FRUITERER'S BUSINESS** in a main thoroughfare of great traffic. Shop, Greenhouse, Showhouse, and ½ Acre of Land. Price about £400. Open to an immediate offer.
Apply to PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.

TO BE DISPOSED OF (first-class locality), **FLORIST, SEED, and JOBBING BUSINESS**, with Stock, Fixtures, and Lease of eight-roomed House and Shop, doing a good and increasing trade. Illness reason for selling.
For full particulars apply first by letter only, to Mr. HENRY WHITE, 47, Elgin Terrace, Maida Vale, W.

Berkshire (4631).

FOR SALE, a SEED BUSINESS, in a high-class neighbourhood, doing a good local trade and Jobbing Business. House and Shop in High Street of important market town. Good reasons for disposal. Rent, £50. Price about £400.

For detailed particulars apply to Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, E.C.

Croydon (4642).

By Order of the Executrix of the late Archibald Henderson, **FOR IMMEDIATE DISPOSAL**, the valuable LEASE (20 years unexpired) of the **SION NURSERY**, 6 Acres in extent, held, together with the Dwelling-house, Sheds, and Glass Erections, at the low rental of £80 per annum; also the whole of the Stock and Utensils in Trade, Shop Fixtures, and such Greenhouses as belong to the tenant; likewise the Lease of the handsome Shop and Conservatory, occupying a conspicuous corner position in High Street, Croydon, held for a term of 90 years unexpired from Christmas, 1879.

This well-known Nursery has been carried on most successfully for many years by the late proprietor, and to any one in possession of a moderate amount of capital an excellent opportunity is presented for securing a lucrative business on easy terms.

Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.

Printed List of Nurseries in the market may be had on application.

TO BE SOLD, a SMALL NURSERY, well stocked and in good working order. Good neighbourhood for Jobbing. Good Dwelling-house.

Apply to C. FAIRINGTON, 16, Maida Vale, Edgware Road, London, W.

Nursery and Seed Business for Sale.

FOR IMMEDIATE DISPOSAL, a first-class **NURSERY** and **SEED BUSINESS**, established fifty years and doing a large and increasing trade. The Nursery is well situated for railway accommodation, extends to about 45 Acres, and is stocked with a well-selected variety of Forest, Fruit, and Ornamental Trees and Shrubs. A large selection of *Roses*. Probable value of stock, about £10,000.

Apply to "NURSERY X," E. Marlborough & Co., 51, Old Bailey, London, E.C.

MR. CHARLES BURLEY, HORTICULTURAL AUCTIONEER and VALUER, undertakes SALES, in any part of the country, with strict economy.
Office: Brentwood, Essex.

TIVERTON (Devon) HORTICULTURAL SOCIETY.
Ninth EXHIBITION, JULY 3. Cut *Roses* (open to all England), 48 Perpetuals, £7. 4. 4. 2; 12 Teas and Noisettes, £4. 4. 2; 11; Stove and Greenhouse Plants, £8 Silver Cup, £2. 4. 1. Schedules on application to

Messrs. PAINE and MILLS, Hon. Secs.

At the same time and place the DEVON and EXETER BEE-KEEPERS' ASSOCIATION will hold a BEE and HONEY EXHIBITION. Schedules on application to the Hon. Sec., Mr. W. N. GRIFFIN, Alphington, Exeter.

THE WINCHESTER SOCIETY'S EXHIBITION OF POULTRY, PIGEONS, DOGS, FLOWERS, and FRUIT, will be held at Winchester on JULY 9 and 10, 1879. Prize Schedules and Rules on application.
ENTRIES CLOSE—For Dogs, June 25; Poultry, Pigeons, Flowers and Fruit, July 2.

F. RAYMOND BRYAN, Hon. Sec.

DEVIZES HORTICULTURAL SOCIETY.
—Grand SUMMER SHOW, TUESDAY and WEDNESDAY, July 29 and 30, in the Corn Exchange, Devizes.—C. N. MAY, Esq., Elm Lodge, Chairman and Treasurer.

LIST OF PRIZES that are OPEN to all ENGLAND.
Classes.

| | 1st. | 2d. | 3d. |
|---|-------|-------|------|
| 1. 9 Stove or Greenhouse Plants in bloom, s. d. s. d. s. d. | | | |
| distinct varieties | 200 0 | 120 0 | 60 0 |
| 2. 9 Ornamental Foliage Plants, distinct .. | 120 0 | 80 0 | 40 0 |
| 3. 9 Exotic Ferns, distinct varieties .. | 40 0 | 20 0 | 10 0 |
| 4. <i>Roses</i> , 24 single trusses, distinct vars. .. | 30 0 | 20 0 | 10 0 |
| 5. .. 24 varieties, three trusses of each .. | 60 0 | 40 0 | 20 0 |
| 6. <i>Gladioli</i> , 24 spikes, 24 varieties .. | 30 0 | 20 0 | 10 0 |

For Railway arrangements, apply to C. N. MAY.

BRADFORD FLORAL and HORTICULTURAL SOCIETY.—Advertisements solicited for the forthcoming Schedule for 1879. Terms on application to

17, Anderson Street, Bradford. Mr. B. SPENCER, Sec.

BATH and WEST OF ENGLAND SOCIETY (Established 1777) and SOUTHERN COUNTIES ASSOCIATION.

Patron—H.R.H. the PRINCE OF WALES, K.G.

President—The Right Hon. the EARL OF MORLEY.

EXETER MEETING, JUNE 2,

3, 4, 5, and 6, 1879.

GREAT EXHIBITION OF LIVE STOCK, POULTRY, MACHINERY, IMPLEMENTS, WORKS OF ART and HORTICULTURAL SPECIMENS:—COMPETITION OF SHOEING-SMITHS, &c.

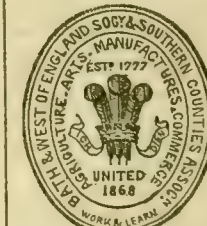
JOSIAH GOODWIN, Sec.

4, Terrace Walk, Bath, May, 1879.

PARIS EXHIBITION, 1878.—We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the peculiar merits of our exhibits at the above exhibition. See *Times* Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON AND SONS, The Queen's Seedsmen, Reading, London and Paris.



Roses—Roses—Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of the Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100. Price to the Trade on application.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879.

RICHARD SMITH, Nur-eryman, Worcester.

Verbenas.

FIFTY THOUSAND now ready for Sale. All good, strong, spring-struck plants, perfectly free from all disease, of Purple King, Scarlet, White, and Pink, 6s. per 100. Good exhibition varieties, true to name, 8s. per 100. Package free for cash. Also strong healthy Cuttings of the above at half-price: free by post.

S. BIDE, Alma Nursery, Farnham, Surrey.

Illustrated Catalogue of Hardy Perennials.

THOMAS S. WARE has pleasure in announcing the issue of the above for the present year, containing New, Rare, and Select Hardy Perennials, with which is combined extensive Lists of Aquatics, Bog Plants, Hardy Terrestrial Orchids, Bamboos, and Ornamental Grasses. Gratis and post-free on application.

Hale Farm Nurseries, Tottenham, London.

Verbenas—Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose, and other mixed sorts, good strong spring-struck Cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders. Queen's Road Nursery, Markhouse Common, Walthamstow, Essex; late of Islington Nursery, Park Street, Islington, N.

VERBENAS—VERBENAS.—150,000, all strong, healthy Plants, of Purple, White, Scarlet, Crimson, Pink, and Rose, at 6s. per 100, 50s. per 1000; extra strong, 8s. per 100, 70s. per 1000. Package free for cash with order. T. FLETCHER, Florist, &c., Chesterfield.

TO FLORISTS AND THE TRADE.—

SPURGEA JAPONICA, 1s. per dozen sprays.
PELAGONIUM, White, 1s. per dozen sprays.
GERANIUM, Scarlet, 6s. per dozen bunches.
ROSES, 3s. per dozen.
GARDENIAS, 4s. per dozen.
MAIDENHAIR FERN, 6s. per dozen bunches.
BOUVARDIA, Scarlet, 12s. per dozen bunches.
SPURGEA JAPONICA, 4s. per dozen in bloom, 9s. per dozen.
PELAGONIUM, Duchess of Edinburgh and Reine Blanche, 11s. and 15s. per dozen.
GERANIUM, Scarlet Bedding, 16s. per 100.
C. WILSON, The Nurseries, Summerhow, Kendal.

NEW ENGLISH ROSES, TEA ROSES, &c.—The following for 25s., packing included: Madame Welche (Tea), Egeria, Dean of Windsor, Lord Beaconsfield, Mabel Morrison, Penelope Mayo, Richard Laxton, Rosy Morn, and Red Dragon—all fine plants, with plenty of buds for working.

TEA ROSES, mostly on seedling Brier, in 48's, in twenty or thirty best varieties, 9s. to 12s. per dozen, cheaper by the 100. Maréchal Niel and Gloire de Dijon, extra strong plants; Queen of Bedders, strong hardy plants in pots, which if planted now would give a profusion of bloom all summer and autumn, 8s. per dozen.

CLEMATISES, in twelve best kinds, 9s. per dozen.
CARNATION La Belle, strong plants, 6s. per dozen.
PANSY Blue King, 16s. per 100.
Cash with orders. Trade price of Roses on application.
EDWIN HILLIER, Nurseries, Winchester.

CARPET BEDDING.

MENTHA PULEGIUM GIBALTARICUM, 6s. per 100.
SEDUM brevifolium majus, 10s. per 100.
acre elegans, 10s. per 100.
ARTEMISIA STELLERIANA, 8s. per 100.
LOBELIA compacta, 6s. per 100.
MESEMBRYANTHEMUM variegatum, 12s. per 100.
MONEYWORT, golden-leaved, for spring bedding, 8s. per 100.
GENTIANA ACALIS, 8s. per 100.
Send cash, with order to,

R. T. PENNETT, Nurseryman, Park Lane, Tottenham.

Dahlias, Verbenas, and New Roses.

KEYNES AND CO. are now prepared to execute orders for DAHLIAS and VERBENAS, both new and old varieties, of which they have a large supply of fine Plants.

Descriptive priced CATALOGUES free on application. Special quotations to the Trade for large quantities. The NEW ROSES for 1879 can still be supplied, with good long shoots for working, and the best sorts selected. Nurseries, Salisbury, May 1, 1879.

Cheap Bedding Plants.

H. I. HARDY offers fine strong and healthy autumn-struck Plants of the following:—
GERANIUMS, Vesuvius and other best scarlets, from single pots, 2s. per dozen; stores, 12s. per 100. Master Christine and Madame Vaucher, single pots, 2s. 6d. per dozen, 15s. per 100.
CALCEOLARIA, aurea floribunda, from single pots, 1s. 6d. per dozen; 10s. per 100.
VERBENAS, from single pots, 1s. 6d. per dozen; stores, 6s. per 100.
LOBELIAS, Emperor William, best blue, 5s. per 100; seedlings, 2s. 6d. per 100, or 20s. per 1000.
AGERATUM, dwarf and tall blue, 2s. 6d. per 100, 20s. per 1000.
PYRETHRUM, Golden Feather, 2s. 6d. per 100, 20s. per 1000.
MUSK, Harrison's Giant, 1s. per dozen.
Terms cash. Package free, and extra Plants for carriage. Stour Valley Seed Grounds, Bures, Suffolk.

THE CHAMPION POTATO.—

Fine samples, for Seed, of this and other leading kinds. Prices on application to The LAWSON SEED AND NURSERY COMPANY (Limited), 1, George IV. Bridge, Edinburgh.

FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including JACKMANNI, &c., at 12s. to 30s. per dozen. Selection left to ourselves.

Descriptive CATALOGUES free on application to WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

MANGEL and SWEDE, Choice Stocks.—

We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.

SANDER AND CO. Seed Growers, St. Albans

Special Offer.—Extra Strong-rooted Plants.

F. AND A. SMITH will be pleased to send LIST of the above, with Prices; also quotations for BEDDING and GREENHOUSE PLANTS, of which they have an immense Stock.

The Nurseries, West Dulwich, S.E.

Teosinte.

EUCHLÆNA LUXURIANS.—The New Forage Plant. Plant grows 6 feet high, leaves large and handsome, and are eaten greedily by horses, cattle, mules. A lovely garden plant.

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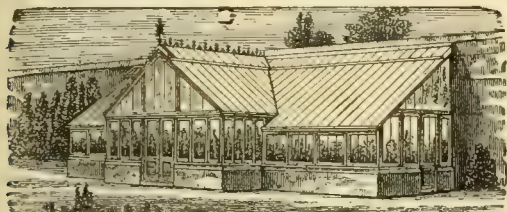
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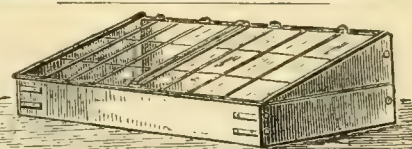
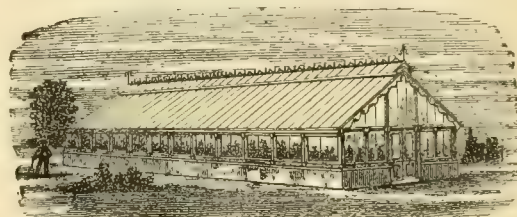
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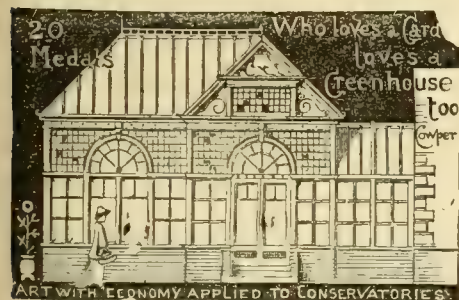
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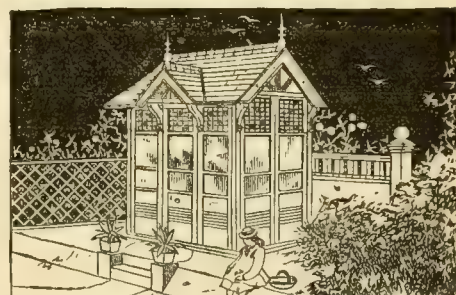
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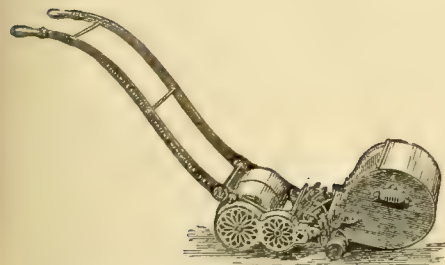
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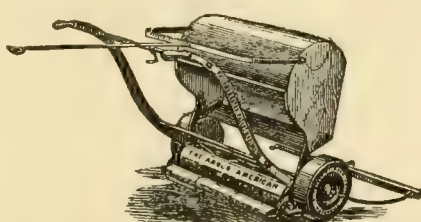
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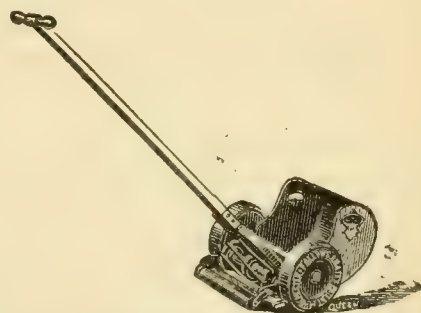
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London International Horticultural
Exhibition for 1880.

LARGE PUBLIC MEETING.

To Horticulturists and others interested in the
Science and Practice of Horticulture and
Floriculture.

You are invited to attend a Public Meeting in one of the large rooms at the Royal Albert Hall, adjoining the Conservatory of the Royal Horticultural Gardens (kindly granted by Her Majesty's Commissioners for the Exhibition of 1851), on Tuesday the 27th of May (the first day of the Royal Horticultural Society's Great Summer Show), at 3 o'clock in the afternoon, for the purpose of electing a Chairman and Committee to carry out the arrangements for holding the above Exhibition next year. It will be seen by copies of letters attached, that H.R.H. the PRINCE OF WALES is inclined to look favourably on the project, and that Her Majesty's Commissioners for the Exhibition of 1851 will also lend their willing aid and powerful support, and it is earnestly to be hoped that it may be convenient for you to attend the meeting, and that you will give the matter your support.

It is very important on this occasion that every shade of opinion should be freely expressed, in order that an accurate idea of the feeling of Horticulturists generally may be ascertained.

Having been enabled to secure the object I have had in view thus far, in calling this meeting together I wish it clearly to be understood, that I will then leave the matter entirely in the hands of the meeting, to take such steps as may be deemed necessary to carry out this most important undertaking.

JOHN WILLS,

May 17, 1879. Onslow Crescent, South Kensington.

The above Circular is sent to the whole of the Subscribers and Guarantors (now living) whose names appeared in the Catalogue of the International Horticultural Exhibition held in London in 1866, together with a new edition of the Catalogue containing all the names, balance-sheet, &c., showing that on the occasion of the last International Horticultural Exhibition there was a surplus of upwards of £4000 after all expenses were paid.

Copy of Letter received from Lieut.-General
Sir Dighton Probyn.

"SIR,—Your letters of the 3d and 14th inst., with enclosures, have been laid before the Prince of Wales.

"In reply I am desired by His Royal Highness to inform you that he is inclined to look favourably on your project of holding a Grand International Horticultural Exhibition in London next year, and that His Royal Highness will consider the question of accepting the Presidentship of the proposed Exhibition later on, when the guarantees required of you are found.

"I am, Sir,

"Yours faithfully,

"D. M. PROBYN, Lieut.-General,

Comptroller and Treasurer to H.R.H. the Prince of Wales.

"To J. Wills, Esq."

Extract from Official Letter received from H.M.
Commissioners for the Exhibition of 1851.

"H.M. Commissioners will be willing to provide on their Estate accommodation for such Exhibition, on their being paid 25 per cent. of the receipts for admission to it.

"I am, Sir,

"Your obedient servant,

"HENRY Y. D. SCOTT,

"Major-General, Secretary.

"To Mr. J. Wills."

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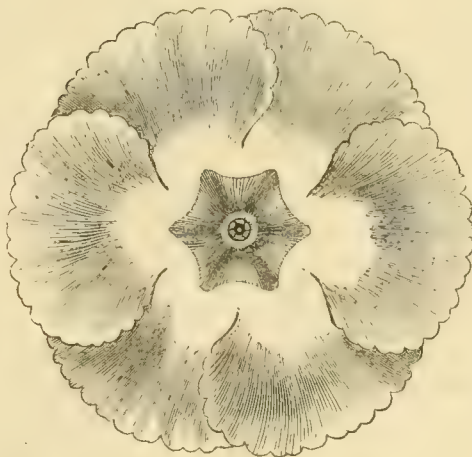
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From Mr. J. B. WARD, *Lower Edmonton, April 8*—

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SATURDAY, MAY 24, 1879.

THE SETTING OF GRAPES.*

JUDGING from recent discussions in the leading horticultural periodicals of the day in regard to the setting of Peaches grown under glass, great variety of opinion appears to exist amongst gardeners as to the necessity of artificial means being used to aid in this process, which, to say the least, must be extremely embarrassing to amateurs and young gardeners. My experience forces me to conclude that most fruits grown under glass, consequently under artificial conditions, require less or more aid in setting their fruit, much, however, depending on the season of the year, the state of the atmosphere when in flower, and whether the weather is dull or bright. In the meantime I have only to do with the Grape Vine, and I believe that most gardeners will be ready to admit the propriety of using artificial means in one way or other to aid in setting the fruit, some varieties requiring more attention than others to secure a good set.

The production of what most gardeners aim at—the finest quality of Grapes, implies that everything connected with their culture has been well done; that they are growing in fresh and suitable soil, that the borders have been well drained, that they have been regularly and liberally supplied with water, particularly while the young growths are being formed, and until the fruit is coloured, and that the temperature in which they grow has been suitable, because if these conditions are not complied with, no artificial aid will enable the Vines to set and mature a good crop of fruit.

It is a safe rule, when Vines are in flower, to keep the temperature a few degrees higher than at other seasons; free-setting sorts, such as Black Hamburgs, Alicantes, Frontignans, &c., should be kept about 70° at night, and 80° with fire-heat during the day; 85° or 90° with air on in bright days, always keeping the atmosphere somewhat drier than at other times during the flowering period. The Muscat Hamburg, one of our finest black Grapes, sets better and colours better when grown in a Hamburg-house than when treated as a Muscat, evidently preferring the cooler temperature; and here it sets and grows quite as freely on its own roots as on the Hamburg stock. Such varieties as the Muscat of Alexandria, the Bowood Muscat, the Canon Hall Muscat, the Muscat Escholata, and the Black Morocco do not set so freely as those named above. I have always found them to set best in a night temperature of 72° or 73°, not falling lower when in flower than about 70° in the morning, rising to at least from 80° to 85° during the day in bright weather, allowing the temperature to rise to 90° or 95° with air on. Late in the season, when the days are long and sunshine strong for hours in succession, lower night temperatures will do.

All the vineries and Peach-houses at Castle Kennedy have the trellises under the roof secured only at the front, back, and ends of the houses, the wires all screwed tight, so that a stroke of the hand on the trellis makes the whole vibrate like a fiddle-string, producing the same effect in dispersing the pollen as a breeze of wind does on a tree out-of-doors. We must never forget that our Vines are grown under glass;

* A paper read at the meeting of the Scottish Horticultural Association on May 6 by Mr. Archibald Fowler, Castle Kennedy.

that they are surrounded by highly artificial conditions, excluded from the benefit of outdoor influences, and to a large extent from the action of insects, at this critical stage of their growth. After Vines in a vinery begin to expand their flowers the process goes on till they have all opened, which does not generally occupy more than a week; day by day the petals are to be seen drooping, and the flowers opening. Each morning while the Vines are in flower—from 10 to 12 o'clock if the day is bright, an hour later if dull—a large number of flowers will have opened, the anthers will be found loaded with pollen ready to discharge. A smart stroke of the hand, repeated a few times on the trellis in the forenoon and afternoon, will cause the whole to vibrate, sending up and dispersing clouds of pollen in all directions, securing a good set of most sorts. With shy-setting varieties, in addition to the above, while the temperature is high, and the atmosphere somewhat dry, I once a day have the whole of the bunches gone over. Spring the finger sharply against the upper part of the fruit-stalks, avoiding the too prevalent custom of drawing the hand over the bunches, which frequently injures the embryo fruit, causing that rough, unsightly appearance on the skin of the Grape which is often confounded with what is technically called "rust."

The Black Morocco, the Muscat Escholata, and the Canon Hall Muscat, are the only varieties I have ever failed to set when treated as just described. The flowers of these varieties are often deficient in pollen, and require to have pollen provided from other sources, and applied in any of the ways generally adopted.

When thus treated, I have always found even the Black Morocco, the shyest of all setters, to set like a Hamburg.

To grow a bunch of Grapes—say for exhibition purposes—it is of importance that it be finished in every respect, of symmetrical form, &c.; but one of the most important points is, that the berries be large for the variety and uniform in size. If more attention were paid to setting Grapes in our cloudy climate, equal-sized berries would be more frequently seen than they are at present.

Vines do not swell their berries equally even when in luxuriant health; many set and swell a little, not growing much larger than pin-heads; others swell to be as large as peas and colour prematurely; others grow about half the ordinary size, and are generally without fertile seeds; others swell to full size, producing perfect seeds. It is neither necessary nor desirable that every flower should set and swell to full size; but it not unfrequently happens that a sufficient number of full-sized berries are not produced, the bunches after being carefully thinned having a number of undersized berries. I do not wish to dogmatise on this subject as other causes tend to produce similar results, still when some bunches swell a sufficient number of full-sized berries, while on other bunches on vigorous shoots, on the same Vine it may be, not more than half the berries swell to full size, I cannot help thinking that imperfect impregnation has had to do with this, and that attention at the proper season would have prevented it, as is demonstrated in the case of the Black Morocco.

I have observed that the Muscat Hamburg, when forced early, as well as some other varieties, is more liable to fail in this respect than when grown later, and thus having the advantage of a longer day and more sunshine when in flower.

It would be a very interesting question to ascertain, whether, when a berry is once impregnated, other conditions being favourable, it will grow to maturity, and swell to full size, or whether there be such a thing as partial fecunda-

tion, causing less or more growth of the berry, tending to produce imperfect fruit? My observation leads me to conclude that the latter question should be answered in the affirmative; if so, it is a reasonable inference that more attention should be paid in aiding the fertilisation of our forced Grapes.

There are many causes at work to prevent Vines setting their fruit freely, which we do not always discover. In my experience one or two things occur to me which illustrate this, and which I may be excused for noticing here. A good many years ago I had charge of some Vines which were in fine health, without being extra luxuriant: a Vine of the West's St. Peter's was planted near one end of the house. The greater number of the flowers suddenly dropped off from a number of the most advanced bunches before a single flower had expanded, leaving the fruit-stalks of numerous bunches without a flower or set berry on them. Had the flowers expanded and then fallen off, I should have attributed it to the want of impregnation from some cause. After a careful examination I discovered that the border was very dry at that end of the house, which stood higher than the other end, the house having been built on hanging ground; a liberal supply of water was at once administered, the remainder of the bunches flowered in due course, and set their fruit abundantly—the dryness at the roots telling on the tender organs of the flower before it was apparent on the foliage or general health of the Vine.

Another and important point to aid in setting Grapes to swell their berries regularly is to have the wood well ripened. I have frequently observed strong grown young Vines, with the wood indifferently ripened, set badly, particularly Muscats. Unless the flowers are perfect, which is not the case unless last year's wood has been perfectly ripened, no aid in fertilisation will secure a good set. This is better understood, and more generally admitted amongst Peach than Grape growers.

New Garden Plants.

ACINETA SULCATA, *n. sp.**

This is an interesting novelty. If it had not two special features at once I would not dare to name it, since I have but a single flower at hand, half-dried, which arrived in my absence, and which looks like a yellow *Acineta Humboldtii*. It was a very queer sulcate "sella turcica," with two teeth in front, and two larger and two smaller ones on the base; then there are exceedingly developed wings lying on the hinder side of the side partitions, adnate a greater part to them; finally, a good part of the column is hairy. I have a sketch of Wallis', no doubt from New Granada or Ecuador, answering to it very well. It was sent from the gardens, Brantingham Thorpe, Brough, East Yorkshire, by Mr. Kingston, gr. to Chris. Sykes, Esq., M.P. *H. G. Rehb. f.*

EXPERIMENTS WITH KUBANKA AND SAXONICA WHEAT.

FIRST YEAR'S EXPERIMENTS AND RESULTS.

IN April, 1878, I had the honour of receiving the following letter:—

"Down, Beckenham, Kent, April 24.

"My dear Sir,—I send you herewith some specimens which may perhaps interest you, as you have so carefully studied the varieties of Wheat. They were sent me by the governor of the province of Samara in Russia, at the request of Dr. Asher (son of the great Berlin publisher), who farmed for some years in the province. The specimen marked Kubanka is a very valuable kind, but which keeps true only when cultivated in fresh steppe-land in Samara and in Saratoff. After two years it degenerates into the variety Saxonica, or its synonym Ghirca. The latter alone is imported into this country. Dr. Asher says that it is universally known, and he has himself

witnessed the fact, that if grain of the Kubanka be sown in the same steppe-land for more than two years it changes into Saxonica. He has seen a field with parts still Kubanka, and the remainder Saxonica. On this account the Government, in letting steppe-land, contract that after two years Wheat must not be sown again until an interval of eight years.

"The ears of the two kinds appear different, as you will see, but the chief difference is in the quality of the grains. Dr. Asher has witnessed sales of equal weights of Kubanka and Saxonica grain, and the price of the former was to that of the latter as 7:4. The peasants say that the change commences in the terminal grain of the ear. The most remarkable point, as Dr. Asher positively asserts, is that there are no intermediate varieties; but that a grain produces a plant yielding either true Kubanka or true Saxonica. He thinks that it would be interesting to sow here both kinds, in a good and bad Wheat soil, and observe the result. Should you think it worth while to make any such trials, and should you require further information, Dr. Asher, whose address I enclose, will be happy to give any in his power. I hope that I have not troubled you uselessly, and remain,

"My dear Sir, yours faithfully,

(Signed)

"CH. DARWIN.

"Mr. A. Stephen Wilson."

On receiving the two Wheats described in Mr. Darwin's letter, I immediately set to work. I was occupied at the time repeating M. Fabre's experiments with *Ægilops*, and it was possible the one set of experiments would throw some light upon the other. But before detailing my first year's operations, I would beg to give such description of Kubanka and Saxonica Wheat as may help to show in what particulars the one differs from the other.

Kubanka belongs to the class of Wheats called turgid. The ear is compact or thickset, there being on each side of the rachis four spikelets in the length of an inch, and eight or nine ranks of spikelets in the ear. The glumes are very smooth and reflect the light. The awns are about twice the length of the rachis. In the ears sent to me none of the spikelets had more than two grains or fertile florets. The straw, for some distance below the ear, is nearly solid. The grains are about .24 of an inch in length, and of a faint yellow colour, the average weighing about .56 of a troy grain, and the best seeds .66, and a good ear containing about thirty-six seeds. (Fig. 93—figs. 1 and 3).

Saxonica is not distinguishable from ordinary awny spring Wheat. It has an open or thin-set ear, there being three spikelets on a side in about the length of 1 inch, and seven or eight ranks in the ear. The awns are about the same length as the rachis. In some of the ears the chaff-scales (glumes and pales) are reddish, and in others white. The straw or culm is a hollow tube throughout. The grain is what is called a red Wheat, and is about .25 of an inch in length, weighs on an average .45 of a troy grain, the best seeds weighing .52, and the best ears containing from thirty to forty seeds. (Fig. 93—figs. 2 and 4).

The Kubanka figures on the left hand of the illustration (1, 3, 5, 7, 9,) may be compared with the Saxonica figures on the right (2, 4, 6, 8, 10). Figs. 1 and 2 are the edge views of ears as traced directly on thin horn plates, the awns being shortened for want of room. Fig. 3 is a front view of a Kubanka spikelet of two grains; fig. 4 the same view of a Saxonica spikelet of three grains, though many of the spikelets have only two; fig. 5 is a transverse section of a grain of Kubanka near the middle, to show the form of the grain; fig. 6 is the corresponding section of a grain of Saxonica; fig. 7 is a transverse section of the coats of a Kubanka grain as expanded in water and magnified 184 times; fig. 8 is the corresponding section of Saxonica, *a, a*, is the epicarp, which is thicker in the Kubanka than in the Saxonica in the proportion of 100 to 74; *b, b*, is a delicate membrane underlying the epicarp; *c, c*, is the proper exterior of the fruit, in which is developed the colouring matter which makes one Wheat a "white" Wheat, another a "yellow," and another a "red." The Kubanka is a yellowish Wheat, the Saxonica a reddish. Under the testa lies a matrix of clear gum, extending from *c* to *f* and running up the veins through the starch granules towards the midrib. In the matrix, *c, f*, the cells, *e, e*, lie over the whole exterior of the grain. Seen from above, or in plan, they are nearly hexagonal in form, as if an irregular honeycomb were deposited on the surface, with canals of transparent gum between the cells. The aleurone grains filling these cells are small, and give the albuminoid reaction with iodine.

* *Acineta sulcata*, *n. sp.*—Affinis *Acinetae Humboldtii*: labello simpliciter curvato, lacinia lateralibus dolabriformibus margine posteriori lamina semiadnata oblonga incumbente, lacinia mediana cuneato ligulata obtuse acuta, callo disci humili lineariligulato sulcato, antice bidentato, postice dentibus duobus obtusis extrorsis, denticulis obsoletis geminis interpositis; processu ligulato obtuse postico retrorso supposito; columna ante apicem circacircum pilosa.—Flores verosimiliter flavi.

This important tunic is thicker in Kubanka than in Saxonica, in the ratio of 100 to 92. Under the hexagonal cells lies the mass of starch, *f*, *f*, subdivided into small deposits by the carpellary venation. No difference of any value can be detected in this region of the grains compared. Figs. 9 and 10 are cross sections of Kubanka and Saxonica embryos, at a point where three roots, *r*, *r*, *r*, are bisected. It will be seen from the figures that while the interior extremity of the scutellum, *sc*, in the Kubanka, fig. 9, is slightly convex towards the midrib or starch,

At this station there were two rows of each Wheat, one row of each being an outside row, so as to give equality of conditions, it being known from former experiments that the outside rows always grow best. At the same time seeds of each sort were also planted in a better exposure close to the garden wall facing the south. On April 30 seeds of both sorts were planted 3 inches apart and about 1 inch deep in a continuous line near the border of a field just sown with Oats, the position being marked by pins. These seeds, like the others, had been put in damp cloth to

old and about 12 inches high, the tillers or culms were counted and found to number as follows:—

(1). At south wall. Best soil and situation.

| Kubanka. | | | | | Saxonica. | | | | |
|-----------------------------|---|---|---|---|-----------------------|-----------------------------|---|---|---|
| No. of Culms on each Plant. | 7 | 6 | 5 | 6 | 0 | No. of Culms on each Plant. | 3 | 3 | 5 |
| | 7 | 8 | 7 | 5 | 4 | | 3 | 5 | 3 |
| | 6 | 8 | 7 | 5 | 4 | | 7 | 7 | 8 |
| Average number, 6.36. | | | | | Average number, 5.42. | | | | |

(2). At east wall. Medium station.

| Kubanka. | | | | | Saxonica. | | | | |
|-----------------------|---|---|---|----|-----------------------|----|---|---|---|
| 7 | 5 | 5 | 5 | 4 | 10 | 7 | 7 | 7 | 7 |
| 5 | 4 | 5 | 5 | 4 | 4 | 5 | 5 | 3 | 3 |
| 5 | 4 | 5 | 4 | 3 | 4 | 3 | 4 | 4 | 4 |
| 3 | 4 | 3 | 3 | 6 | 4 | 4 | 4 | 4 | 4 |
| 4 | 5 | 6 | 5 | 3 | 3 | 3 | 2 | 5 | 5 |
| 6 | 9 | 8 | 8 | 5 | 0 | 10 | 5 | 8 | 8 |
| 10 | 9 | 8 | 8 | 10 | 11 | 4 | 7 | 6 | 6 |
| 6 | 6 | 6 | 8 | 3 | 4 | 4 | 5 | 6 | 6 |
| 4 | 4 | 5 | 4 | 5 | 4 | 5 | 4 | 5 | 5 |
| 5 | 6 | 0 | 5 | 5 | 4 | 2 | | | |
| Average number, 5.33. | | | | | Average number, 7.97. | | | | |

Eleven Kubanka plants in the best position (the twelfth being killed by a grub) thus gave an average of 6.36 stalks; while twelve Saxonica similarly placed gave an average of 5.42. In the medium station eighty-eight Kubanka plants gave an average of 5.33 stalks, while eighty-seven Saxonica plants beside them gave an average of 7.97. The greatest number of stalks on a stem of Kubanka at eight weeks old was eleven, the smallest two; the greatest number of stalks on a stem of Saxonica (occurring twice) was thirteen, the least two.

Up till the beginning of July, at which time red-rust (*Trichobasis rubigo-vera*, Lev.) began its attack, the Saxonica in the medium station was much healthier-looking, and stronger and taller than the Kubanka. Little more tillering had taken place in the Kubanka, but the Saxonica went on adding stalks till there were three or four times as many on the stock of Saxonica as on that of Kubanka. The numbers would have been counted and accurately given when the final tillering had ceased, but in July, as already stated, an enemy had come upon the scene. And although hitherto the Saxonica had looked by far the most vigorous, it was now attacked by red-rust, which gradually spread over the leaves into a complete orange blaze, while for a considerable time the Kubanka within a few inches of it, and indeed mixing ears with it in the play of the summer wind, looked as if it would entirely escape. The ears of the Saxonica were not affected by the rust up to July 19, at which time flowering began. At this date the Kubanka had overtopped its contemporary, and began to flower about the 20th. The Kubanka had purplish anthers, the Saxonica yellowish.

In the two plots in the garden the Saxonica was so much destroyed by the rust that a great many of the stalks which had come forward so luxuriantly never produced their ears at all. Gradually the rust began to attack the Kubanka also, so that all hope of making a quantitative comparison of results in the garden was at an end. But it seemed probable that in the station which had the best soil and exposure, the Kubanka, but for the rust, would have yielded a larger return than the Saxonica. It was not so largely damaged as the latter, nearly all the ears being allowed to carry their fruit to some degree of completion.

Whether the one form of Wheat is more liable to disease than the other, is a question of considerable evolutionary importance, which cannot be here answered. We have seen that in the present case the Saxonica was by much the more severely damaged by red-rust. In one Kubanka plant of four stalks all the ears were totally destroyed by smut (*Ustilago segetum*, Ditm.) In a plant of Saxonica of six stalks all the ears were also destroyed by smut, one ear only coming out of the sheath. On opening the other five sheaths the ears were all found a powdery mass of black dust. Whatever may be the mode of attack of the smut fungus, the ears are destroyed by it in their very earliest stages, probably in the embryo itself. It is hardly even a local disease; if the plant of Wheat, Barley, or Oats, has five or six stalks, it is extremely rare to find a case in which the ear of any one escapes.

Notwithstanding the great damage done to both sets of plants in the garden, a few kernels here and

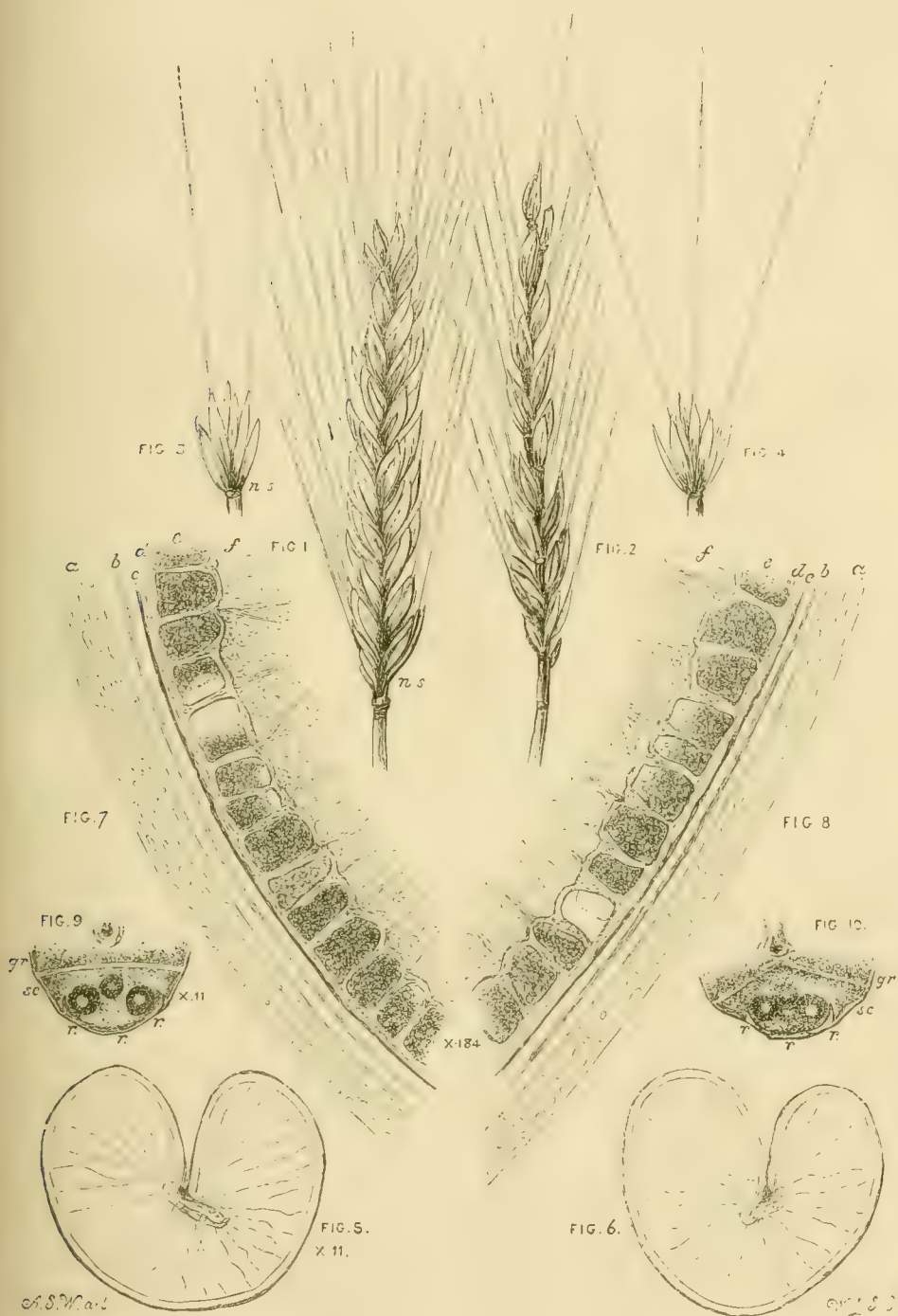


FIG. 93.—RUSSIAN WHEAT.

Figs. 1, 3, 5, 7, 9, relate to Kubanka Wheat; figs. 2, 4, 6, 8, 10, relate to Saxonica Wheat. Figs. 1-4 are nat. size, the others magnified. (See text.)

that of the Saxonica presents an angular point. Undoubtedly other differences would be found in a full comparison of the embryo in all their aspects; but as at present we do not know whether differences such as the one here pointed out have any specific value, or any morphological import, the subject need not be further pursued.

I shall now proceed to describe my experiments. In germinating, the Saxonica took the lead very decidedly, both sorts being put in damp cloth on April 27, 1878. On the 29th, seeds of both the Wheats were planted in the east border of the garden, in rows 9 inches apart, the seeds being deposited at intervals of 3 inches, at depths of about half-an-inch,

germinate on the 27th, and while all the Saxonica were distinctly showing indications of germination only a few of the Kubanka had begun to awaken.

In brairding, the Saxonica also took the lead, the first leaf being stronger, taller, and broader than in the Kubanka. But all the Kubanka as well as Saxonica seeds planted in the garden ultimately brairded. The difference in hue between the two sorts when the first leaves were about 2 inches in height was very observable, the Kubanka being a much lighter green than the Saxonica. Probably all the Wheats which have white grains have leaves of a lighter green than those which have red grains.

When the plants in the garden were eight weeks

there came to fair maturity. The ears of the Saxonica remained of about the same size as the ears I received; but in some of the best Kubanka ears the spikelets had three or four grains, in place of two as in all the original. I have already given the weight and size of the corns as received by me. The best corns of Kubanka which escaped the rust weigh .92 of a grain, being an increase of 39 per cent., while the best and most plump of the Saxonica weigh .57 of a grain, being an increase of 9 per cent. So that if size is any index of excellence, the grains produced here are better than in the Russian crop supplying the seed.

The row of plants in station three, growing surrounded by Oats, entirely escaped red-rust. The soil is a good Oat-growing soil, but not suitable for raising Wheat. The Oats were rather thick, so that every Wheat plant had a severe fight for his room. In only two cases of Saxonica was one seed able to throw up two culms. All the other plants had single stalks of small diameter, and smaller ears than the original, but exactly of the same type. Both sets came to fair maturity, and were pulled on September 14. No shedding of seed or breaking down of stalks had taken place. Only a very few grains had been eaten out of the pales by insects, and these have been allowed for in the comparison. When both parcels were perfectly air-dry the stalks were cut off close above their roots, and the following are the comparative facts:—

(3.) KUBANKA.

Of 115 seeds planted 89 grew, producing 89 stalks about 3½ feet high. The total weight was 1478 grains, giving an average weight to each stalk and ear of 16.61 grains. The weight of corn was 362 grains; of straw, 1116 grains; the corn being thus to the straw in the proportion of 100 to 308. The numbers of grains in the ears were as under:—

| | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 5 | 0 | 21 | 1 | 6 | 13 | 15 | 6 | 14 | 6 | 6 | 15 | 26 |
| 9 | 15 | 15 | 7 | 6 | 16 | 10 | 6 | 16 | 4 | 5 | 14 | 3 |
| 21 | 13 | 15 | 10 | 16 | 4 | 5 | 13 | 13 | 9 | 23 | 11 | 19 |
| 13 | 3 | 15 | 10 | 4 | 20 | 12 | 4 | 5 | 6 | 8 | 15 | 8 |
| 3 | 5 | 16 | 5 | 9 | 7 | 6 | 7 | 19 | 17 | 9 | 7 | 1 |
| 0 | 13 | 0 | 3 | 7 | 8 | 1 | 5 | 3 | 4 | 13 | 22 | 12 |
| 5 | 0 | 5 | 4 | 6 | | | | | | | | |

—giving an average number of grains in 89 ears of 9.81.

SAXONICA.

Of 113 seeds planted 91 grew, producing 93 stalks about 3½ feet high. The total weight of straw and corn was 1910 grains, giving an average weight to each stalk and ear of 20.54 grains. The weight of corn was 519 grains; of straw, 1391 grains; the corn being thus to the straw in the proportion of 100 to 268. The numbers of seeds in the ears were—

| | | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 2 | 13 | 14 | 6 | 30 | 17 | 2 | 11 | 17 | 15 | 9 | 15 | 24 | 21 |
| 18 | 15 | 8 | 4 | 7 | 24 | 25 | 5 | 12 | 21 | 14 | 0 | 0 | 14 |
| 8 | 3 | 22 | 17 | 10 | 22 | 11 | 26 | 20 | 4 | 21 | 6 | 19 | |
| 27 | 2 | 1 | 8 | 12 | 21 | 18 | 9 | 25 | 17 | 28 | 8 | 21 | 9 |
| 14 | 11 | 6 | 6 | 5 | 16 | 7 | 0 | 13 | 25 | 8 | 10 | 23 | 7 |
| 19 | 18 | 14 | 5 | 21 | 12 | 1 | 16 | 21 | 20 | 22 | 21 | 1 | 6 |
| 17 | 1 | 7 | 14 | 17 | 23 | 15 | 0 | 9 | | | | | |

—giving an average number of grains in 93 ears of 13.39, and an average number of grains in 91 plants of 13.69.

In the question before us the items which are more or less important in the comparison of the two Wheats with each other may be tabulated as follows:—

| | Weight of Stalk. | Weight of Grain per Ear. | Weight of Straw per Ear. | Average No. of Seeds per Plant. | Average No. of Seeds in 20 best Ears. | Ratio of Grain to Straw. | Average Weight of Seeds. | Weight of Best Seeds. |
|-----------|------------------|--------------------------|--------------------------|---------------------------------|---------------------------------------|--------------------------|--------------------------|-----------------------|
| | Gr. | Gr. | Gr. | | | | Gr. | Gr. |
| Saxonica. | 50.54 | 5.58 | 11.96 | 13.69 | 23.80 | 100:268 | .416 | .5 |
| Kubanka. | 11.61 | 4.07 | 12.54 | 9.81 | 18.70 | 100:308 | .415 | .6 |

In such an experiment as this every seed can be followed from the time it is picked out of the ear and deposited in the ground to the time at which it expands into a full-grown and ripened plant. Where there is any room for doubt as to what variety of seed was sown the experiment loses all value. It can be confidently affirmed in the present case that the ears which grew from the Kubanka seeds had varied in nothing but size and colour from the Kubanka ears which supplied the seeds; the same being true of the Saxonica. The ears and seeds remain for examination; the plants from Kubanka seeds have not changed into the Saxonica form, nor have the plants from Saxonica seeds changed into the Kubanka form.

But although this experiment does not present an

instance of transformation, it brings evolution before our eyes as the work of the current hour, by presenting us with what seems a clear example of the prevalence of the most prolific.

Until some further experiments have told their story I am not warranted in saying that the explanation of Dr. Asher must be abandoned, but at the present stage the following preliminary hypothesis is suggested by the above facts.

Fields are to be seen, we are told, in Samara and Saratoff, "with parts still Kubanka, and the remainder Saxonica;" and "there are no intermediate varieties; a grain produces a plant yielding either true Kubanka or true Saxonica." It thus appears that the crops are mixed crops of Kubanka and Saxonica, and that consequently the seed sown is mixed seed. The same is the case in all corn crops in all countries; and has been the case in all ages. Except in a few restricted instances, there is no such thing as a crop of Wheat, Barley, or Oats, exclusively of one variety. The housing and threshing of different varieties, in one barn or at one threshing-floor, is fatal to the perpetuation of pure varieties. And when varieties have been once mixed they can never be separated, except by systematically rearing a new stock from a single plant, and this is a work of scientific cultivation seldom engaged in, and soon obliterated.

It is seen from an experiment that the Saxonica form is more prolific on inferior Wheat land than the Kubanka. Had the red-rust not attacked the medium station, the produce of the Saxonica would have been three or four times as great as the produce of Kubanka, since the number of tillers on the Saxonica stocks was ultimately three or four times as great as on the Kubanka. On the station affording comparable results, the seed of Saxonica yields 13.69 returns, while the seed of Kubanka yields but 9.81. In other words, where the first seeding consists of 100 of each sort, the resulting crop consists of 100 Saxonica and seventy-two Kubanka. If next year this mixture is used as seed, the second crop will consist of 100 Saxonica and fifty-one Kubanka; the third crop of 100 Saxonica and thirty-six Kubanka, and so on; the proportion of Kubanka diminishing and the proportion of Saxonica increasing, till, to a casual observer, the whole of the Kubanka will appear to have changed into Saxonica. But there were in reality two forms to begin with; the more prolific has multiplied and the less prolific has proportionately decreased; but representatives of both still remain, and there are no intermediate forms because there has been no transformation.

The aspect of evolution thus presented is not that of transformation, but that of the extinction of the less prolific by the more prolific, of the weaker by the stronger. It is just because the one form of Wheat cannot readily change into the other that a struggle for predominance is possible. Without any change of form in a given flora an entire change of scene thus creeps over vegetation, presenting new kinds of animal food and giving physiological impulses new directions. Nor can there be any doubt that changes of form are much more slowly worked out than changes of flora. But with the altered vegetable soil, for example, arising from an incursion of dominant forms, new cosmical factors come into operation, and change of form may at length be the necessary resultant. Both processes are the harmonious details, the insensible steps of that great daily work going on before our eyes, which embraces the moulding of a plant and the making of a planet. A. Stephen Wilson.

OUED EL KALIA, EL BIAR, ALGIERS.

(Concluded from p. 592.)

THE grounds attached to Lady Charleville's residence are in extent about 35 English acres, one-third of which is under plantations, which consist of Cypressess, Olives, Pines, and a low-growing evergreen Oak bearing large quantities of fine long acorns, similar to what I have often seen at home, and which were imported from Brazil for tanning purposes, and a large variety of other low-growing plants calling for no special notice, and which form the undergrowth.

The carriage-road from the entrance-gates is quite a zig zag, this form being necessary to reach the residence, which is still higher up than the entrance-gates. The carriage road is, therefore, in three tiers, one above the other, on the sloping hill which faces the south. On either side of these tiers of road there are broad borders for shrubs at the back and flowers in

front, which are well planted at back with Cypressess, Junipers, Carobs, Peppers, Neriums, or Oleanders, Japan Medlars, and other suitable things; while the edgings of the borders are all done in a good thick bank, 18 inches deep, of Ivies, and inside this are growing the various sorts of Pelargoniums—big bushes—which were in full blossom at Christmas time, mixed with other things, as Roses, annuals, &c., and with large clusters of a herbaceous Gladiolus plant, common here in this place, which blooms in January, when it sends up its long reddish-coloured spikes, so beautiful and useful for vases, &c.

Inside an enclosure, and attached to the residence, and to which the carriage road now described leads, is made a nice little flower garden, which is on raised ground, and overlooked from a terrace walk which leads to the drawing-room. The garden is a long square, surrounded by the courtyard wall. On the walls and wire trellises are a varied lot of climbers, such as Bougainvillea, Bignonia capensis, both of which were laden with masses of bloom at Christmas; three or four other beautiful Bignonias, Plumbago capensis, Tacsonias, Passifloras, Lantanas, Mandevillas, and amongst which are climbing Roses, Teas and Noisettes, which do so well here. In the beds are planted dwarf Palms, Strelitzias, Dracenas, Yuccas, and Brugmansias, the Bignonia capensis, and Poinsettias, with Bananas, Oranges and Lemons, and Peppers, planted in suitable points of the garden walks. Amongst these, to the front of the beds, are planted Pelargoniums, Fuchsias, Cinerarias, herbaceous Calceolarias, Linum trigynum, Violas, Mignonette, and Sweet Peas. Here in this enclosure on gravel are some good specimens of Ficus elastica and F. Roxburghii, 20 feet high.

The grounds are beautifully undulated. A well-kept walk is planted on one side with Eucalyptus of sorts, some 50 feet high, and on the other with noble-looking specimens of Japan Medlars, some 8 feet high by 6 feet through. This walk, over a quarter of a mile long, leads from the residence, and descends between two sloping hilly surfaces to the valley below. In passing down this winding walk you pass a square walled-in enclosure, in which the gardener's cottage is situated. It is on the sloping ground, and the walled enclosure is surrounded by gigantic Prickly Pears and Agaves, with their bristling spines setting the intruder at defiance.

At the end of this walk in the valley there is enough ground on the level and by the side of the ravine and little trickling stream for gardens, and it is here you find yourself on looking up surrounded with mountain-like hills. In this situation there are flower gardens and vegetable ground, the flower garden at one end with various shaped beds, edged in many instances with Rosemary and with tiles. In these beds are Bamboos, Bananas, Palms, Japan Medlars, and splendid Roses and Pelargoniums in full bloom at Christmas—and such Tea Roses! and climbing over and through many trees and shrubs are to be seen the splendid Bignonias and white Clematises, &c.

At the other end of this flat ground is the Orange grove, and vegetables are grown underneath them. Here there are something like 200 Orange and Lemon trees, which with their heavy crops in December present to the observer for the first time such a sight as is not easily forgotten—large grown Citrons, fine St. Michael Oranges, and last, but not least, the sweet little Mandarin. This is an enjoyable place at which to spend an hour or two at Christmas time, with the shade over you and water by your side, and with the ground on which you tread at a temperature of 60°, and the atmosphere around you at 70°, and the well-furnished hills in view, and close enough to you to make you enjoy the situation. The Orange ground and vegetable plots here are irrigated during summer, but there are large breadths of Potatoes and Peas, Turnips, Carrots, and Artichokes, on the slopes which are referred to above as touching the long descending walk, and these do not get water by that means.

In the grounds on the slopes are great numbers of Fig trees and Mulberry trees, white and red, which, when seen in full foliage, must look very well. Some are 25 feet high, and are dotted about on the sloping bank, and bear, I was informed, heavy crops of fruit. There are also Pomegranates, Almond, Peach, Nectarine, and Apricot trees—some large standard trees, but not very many of the latter three fruits.

Large plots of Peas, Beans, and Potatoes are grown here, and good supplies of them were being furnished through December, and largely increasing in January; also splendid Cauliflowers, Turnips, Carrots,

Spinach, and Salading in abundance, with Capsicums, Gourds, and Tomatos. I saw ripe Strawberries here in the second week in January. There are not many Apple trees to be seen. Raspberries are grown here, but I have not observed them growing elsewhere, and I think I have only seen one Gooseberry tree, and that is in Lady Charleville's garden.

In the grounds here are to be seen hedges of Mesembryanthemum, and it is also extensively used for edging purposes. On the boundaries and enclosures the fences are made of the Aloe and Prickly Pear, both of which make most formidable barriers, and such as a mad bull would not readily force. The Aloe blooms quite frequently in summer, as is evident from the numerous dead flower-stems to be seen in winter in the hedge-rows, many up to 25 feet high, and some over that height.

The specialties amongst flowering shrubs, climbing and trailing plants, for winter blooming, are the Bougainvillea spectabilis, and two other varieties which I do not know; one is of a brick-red colour. I have not seen the variety named glabra. These Bougainvilleas are gorgeous, covering such extensive surfaces of walls, and even the rocky sides of roads; the colours of their bracts can be seen for miles, and they bloom for a very long period, and at Christmas time. Next come Bignonias; they are a beautiful class of climbers out here, so also are the Passifloras, but less so than the Bignonias. I do not see why the Allamandas should not do well here, as I consider the soil warm enough in winter for them. Ipomœas and Justicias are good, and so also are Brugmansias: big trees of these can be seen at Christmas time, with splendid trees of Poinsettia also blooming or showing the brilliant bracts during the winter months; and in January the lovely Buddleia Lindleyana, with its trailing racemes of flowers. Bananas are very common here, but I have not noticed the Musa Cavendishii, although I should think it would answer here better than the taller kinds, as the wind seems to knock those about a good deal.

There is a small vineyard in the grounds here, as there is attached to most of the residences adjacent. The system of management in these is identical with that carried out by the large Vine growers.

Few who visit Algiers ever think of leaving it without going to see Blidah, a fortified place south-east of Algiers, and 20 miles distant from it by rail. It is a nice little town, strongly garrisoned with horse and foot soldiers, and has large barracks. There are some good hotels in the town. It is situated at the base of the Atlas Mountains, at a distance, I think, of about 30 miles from the sea. The views of the mountains from this place are something to cause wonder in the mind of the spectator, and the sight of the Orange plantations opposite is not calculated to lessen the amazement of the newly arrived visitor. These Orange groves extend over acres of flat level land. Here you can see Orange and Lemon trees by the thousand, fine-headed, robust, straight-stemmed trees, laden with fruit, the weight of which bends down the branches, and tends to make the heads still more handsome. At the end of January and in February the air here and for miles away is perfumed by the immense quantity of Orange blossoms which are produced in these plantations.

There are several public squares in this town, with fountains and basins for water, of which latter there is a never-failing supply conveyed from the mountains. The central square is enclosed with Plane trees of large size, which must give lovely shade, so much needed here during the summer and autumn. In another square of garden borders, flower-beds, and fountains, are to be seen some splendid specimens of Palms, large and small; together with Guavas, Magnolias, the Avocado Pear, sundry Ficuses, and some half-dozen splendid specimens of the Norfolk Island Pine, Araucaria excelsa, furnished to the ground, and 25 to 30 feet high.

The only British subject residing here, or perhaps nearer than Algiers, I had the good luck to meet in quite an accidental way. An Arab lying on his back in a fit was seen surrounded by a lot of other Arabs. We went to see what was wrong, and here we discovered an Englishman trying to resuscitate the Arab. On my saying to my friend, "Is he dead?" meaning the Arab, we were replied to by this gentleman, who said, "No, he is not, he is in a fit." We were rather astonished at first to find we had so suddenly been answered in English. At first we thought he might be a doctor, but in a few minutes we were in conversation, and ascertained from this gentleman,

whom we found exceedingly kind, that he was the only British resident here, and engaged in the bee-keeping trade, also that the process of producing the honey in glass cases surrounded with wood was an invention of his own. From what we saw I believe his business will prove a success. He fixed on this position near Blidah on account of the immense quantities of flowering plants on the mountain sides, and also because of the extent of Orange plantations, the flowers of which are so desirable for the bees.

A drive by an Arab, with a pair of light Arab horses, is generally enjoyed. With his heavy long whip he will take you as fast as you could well desire to go by such means of travelling. And it was by such a driver and vehicle that we were taken in to see the Cheffa Pass or the "gorge" in the Atlas Mountains. It is well worth going the distance (some 10 or 15 miles) to see it. Leaving Blidah behind you, the road lies south-west straight for miles on the side of the vast plain on your right, and parallel with and at the base of the mountains on your left. On this road you are conveyed for some miles until a road on the left is reached, and which is at right angles with the one you are travelling on. Turning and taking this course, you find yourself facing the mountains, and less than an hour's drive from here brings you into the gorge.

Here the stranger has a magnificent view or views. The road through the gorge follows a river, which cuts its way right through these mountains—severs them, as it were, and takes its serpentine course through these vast piles, reaching apparently, when you are below, up to the sky. But it is not at the bottom, where the river is, that the road is carried. The road is above that some hundreds of feet, on the right-hand side of the gorge as you enter it, and is cut out and made on the declivities and precipices of the mountain sides. The mountains are all covered with vegetation, as Cedars, Pinuses, evergreen Oaks, &c., but presenting a somewhat scrubby and stunted appearance. About halfway through the gorge there is a nice little hotel. It is a cleanly-looking place, where refreshments are obtained. It is here travellers put up while they enjoy the situation. From this standpoint the mountain-sides enclose your position—three aspects of them brought to one base, their surface representing a triangle of mountain slopes to look at, apparently coming from the sky to your feet, or to the valley below you. This appearance is caused by another "gorge" entering here into the principal one. We gathered many Ferns hereabouts, but saw nothing new; plenty of the true Maidenhair Fern is growing here on the entrances to caves where there is a constant fall of water. A journey here in winter is a treat for the tourist; three or four days are required to see the whole of it. The temperature at this season is everything one could wish for, with a fine bracing atmosphere and the earth quite warm to your feet. But the road is not nice for the nervously inclined to take, unless he can be sure that he has a quiet-going driver. If he should happen to have one like the Arab who took me there, and the traveller be of a nervous temperament, then I pity him while he is being taken through the Cheffa Pass. It would be well not to allow the idea to enter your mind as to your position if the horses bolted here when you are being "slung" round the sharp curves which are quite frequently occurring, and in most cases without protection, the road being entirely formed on ledges of rock, with the precipices on one side too awful to look down upon, and often with projecting rock on the other side hanging overhead. On the return journey you again enter the road on the plain side, having it now on your left. It is a vast tract of land, and to all appearances splendidly adapted for agricultural or horticultural purposes, but from its general aspect it does not appear to be turned to much account. The character of the soil is strong heavy loam; it is of a yellow colour, approaching to red, good for Wheat growing, or for Vines or Oranges. J. Roberts, Charleville Forest, Tullamore.

MUSCART PARADOXUM.—Under this name Messrs. Backhouse & Son send a very fine Grape Hyacinth with flowering stems fully a foot in height, and as thick as a small goose-quill, terminating in a raceme nearly 3 inches long. The colour of the flowers is a very deep indigo-blue, with a white mouth to the tube of the perianth.

LILIES OF THE VALLEY AT TWICKENHAM.

THE fine spikes of bloom of the Victoria or major variety of Lily of the Valley shown by Messrs. Hawkins & Bennett, Lily Nursery, Twickenham, at the last meeting of the Royal Horticultural Society, and again on Tuesday last at the Royal Botanic Society's first summer show, were so striking, in consequence of the size both of the spikes and individual blossoms, that it will interest many to know how they are grown with such remarkable development of character. It is well named the Lily Nursery, for a considerable portion of it is devoted to the culture of Lilies of the Valley in the open air, in the form of long beds of varying length, and from 6 to 8 feet in width. These beds are of varying ages, for there is a necessity for forming new plantations every year; those that are now producing flowers are a mass of rich green leaves of rare dimensions, from amongst which rise up the fragrant flower-spikes, springing from "earth, of man the bounteous mother," who gives him leaf and blossom, clustered ear and golden wreath in her own good time.

A bed of Lilies of the Valley like those grown by Messrs. Hawkins & Bennett is replanted once in six or seven years. The construction and planting of a new bed is gone about in a business fashion, and is a thing of some moment. The bed is trenched to the depth of two spits or so, and after being levelled on the surface is left so that when the soil subsides it will be 4 inches below the level of the ground. Planting is done at the end of the summer or in autumn, and when the business commences a layer of thoroughly good manure from a hotbed to the depth of 3 inches is laid on the top of the soil; on this the roots are laid and covered with 2 inches of good soil, and on this is placed a final covering of fresh stable manure some 3 inches in depth.

During the first year after planting the roots, the work of the plants is to establish themselves in the soil and make a leaf-growth; the second year a few flowers are gathered, but the plants, growing stronger and renewing themselves with a richer prime, break forth the third year into flower, plentifully and richly arrayed in simple charms, before which the pride and glory of Solomon gives place. Then they are gathered, put up into bunches of a dozen, tied up with a few leaves, and sent to market. One hundred to one hundred and twenty dozen of the bunches are sent to market every day in the season, to say nothing about what is required to satisfy the home demand.

Every year the beds are carefully dressed to assist the plants in producing their precious harvest of blossoms. So soon as the leaves die away in the course of Nature the bed is cleared of stones, &c., and no weeds are allowed to grow, and before Christmas time a top-dressing of prepared manure, 2 inches in thickness, is laid on. This is made up of leaf-mould, cow-dung, and horse-dung well mixed together, and full of fertilising influences. In spring, before the plants put up their growth, a rake is passed over them to loosen the surface-soil, and remove anything in the way of stones or such-like that would impede the progress of the plants.

The earliest crop of flowers is gathered in April. It is obvious that generally, and especially in the case of such an uncongenial spring as that we have passed through, the earliest flowers would be harmed by frost and wet. To prevent this, some rough boards are carried along at the back and in front of the beds, higher behind than in front, as in the case of a frame. Some rough pieces are laid across from back to front at intervals, in the form of rafters, and on these any spare lights, mats, &c., are laid as a measure of protection. While one portion of the bed is being gathered, another is covered up; and this is how it is the flower-spikes can be presented to view, in all their virgin purity, in April.

It would be a startling statement were the precise dimensions of the ground devoted to the culture of Lilies of the Valley at Messrs. Hawkins & Bennett's nursery given. The individual plants are beyond computation—the entrancing beauty of the flowers beyond all praise. It was a happy accident that put Messrs. Hawkins & Bennett in possession of their Victoria Lily of the Valley. Their care of the out-cast is repaid in that it brought a golden reward, and it is now a matured and honoured guest as well as a beneficent visitant. R. D.

THE SPECIES OF FOURCROYA.

(Continued from p. 624)

SERIES I.—CORIACEÆ.—Leaves rigidly coriaceous, furnished generally with large spines down the margin, which is entire between them.

Group III.—Trunk none or short below the rosette of leaves, which are dull green and furnished with smaller marginal spines than those of the *cubensis* group.

9. *F. Barilleti*, Jacobi, Nachtrage, p. 51.—Trunk half a foot long, 2—3 inches in diameter below the rosette of leaves. Leaves many in a rosette, lanceolate, 2½—3 feet long, 4—5 inches broad at the middle, narrowed to 2 inches above the base, a subopaque deep green with streaks of darker colour, the face concave and wrinkled, the point long but not pungent, the margin with only a few minute deltoid teeth, similar in substance to the lamina. Inflorescence unknown.

Described by Jacobi from specimens seen in 1867 in the Parc Monceau, at Paris. I have not seen it in any of the English collections.

10. *F. undulata*, Jacobi, Nachtrage, p. 55; Hook. fil. in Bot. Mag., tab. 6160.—Acaulescent. Leaves 20—30 in a rosette, lanceolate, 1½ foot long, 1½—2 inches broad at the middle, narrowed to ¾—1 inch above the base, dull green, channelled down the face, scabrous on the back, the point long and subpungent, the edge furnished all down with regular hooked horny brown prickles ½ inch long. Scape, including the panicle, 10 feet long, the panicle about as long as the barren portion, narrow, with erecto-patent branches, cernuous at the tip; lower flowers in pairs; pedicels ¼ inch long, jointed at the tip. Ovary glabrous, under 1 inch long; expanded perianth-limb 2½ inches across; segments oblong-lanceolate, greenish-white, ¾—½ inch broad. Stamens half as long as the segments.

A native of the provinces of Chiapas and Tabasco in Mexico, sent by Ghiesbreght to Verschaffelt. It flowered in the Kew collection in October, 1874, and was figured in the *Botanical Magazine*.

11. *F. lipsiensis*, Jacobi, Nachtrage, p. 54.—Acaulescent. Leaves 20—30 in a rosette, lanceolate, 2—2½ feet long, 3 inches broad at the middle, narrowed to 1 inch above the base, the brown end spine very short, the face, an intense light opaque green with pruinose streaks when young, the upper part wrinkled, the marginal teeth minute, deltoid, tolerably crowded, upcurved, brown and horny at the tip. Scape, including the panicle, 12 feet long, the latter beginning 3 feet from its base; ovary ¾ inch long; perianth-segments 1½ inch long, the outer about ½ inch and the inner ½ inch broad. Stamens half as long as the limb.

Described by General Jacobi in 1868, from plants raised from bulbils received as those of *F. tuberosa* from the Leipsic Botanic Garden. I have not seen it.

12. *F. Desmouliniana*, Jacobi, Monogr., p. 297.—Acaulescent. Leaves numerous, lanceolate, about 2 feet long, 2½ inches broad at the middle, narrowed to an inch above the base, opaque green, the point unarmed, the face concave, the edge entire, except a few minute deltoid brownish teeth. Scape 9—10 feet long, including the panicle, which begins 3—4 feet from the base. Flowers unknown, all of them in the specimen seen being changed into bulbils.

A native of Mexico, introduced into cultivation by Galeotti. Described by General Jacobi from specimens seen in 1866 in the Botanic Garden at Brussels. I have not seen it in the English collections.

13. *F. depauperata*, Jacobi, Monogr., p. 293.—Acaulescent. Leaves few, lanceolate, about 1 foot long, above 2 inches broad at the middle, narrowed to ½ inch above the base, opaque green, the tip not pungent, the minute teeth curved upwards, horny and brown at the tip. Scape 3 feet long, the lowest branch arising half a foot from its base. Flowers all solitary, on short pedicels. Ovary under 1 inch long; perianth-segments 14 lines long, the outer oblong-lanceolate, ¾ inch broad, the inner oblong, twice as broad.

Described by Jacobi from specimens received in 1865 from Herr Bedinghaus of Mons. The exact country is not known, and I have not seen it in the English collections.

With *F. Roelii*, recently introduced from New Granada and exhibited by De Smet at Brussels, I am acquainted only by the notice which appeared in the periodicals at the time of the show. The leaves are described as being upwards of 1 foot long, rather thin in texture, wavy at the edge, and of a pale bronzy purplish tint.

SERIES II.—FLEXILES.—Leaves thinner and more flexible than in the Coriaceæ, minutely denticulate, as in *Beschorniera*, all down the edges, never furnished with large marginal prickles.

14. *F. Bedinghausii*, K. Koch, in Wochenschrift, 1863, p. 233; Jacobi, Monogr., p. 290; Morren, in Belg. Hort., vol. xiii. (1863), p. 327, with a figure; Yucca Parmentieri, Roelz; Y. argyrophylla and Tonelliana, Hort.; Roelzia regia, Hort.—Trunk a yard high below the rosette of leaves, 6—8 inches in diameter. Leaves 30—50 in a rosette, lanceolate, 2—3 feet long, 2—3 inches broad at the middle, narrowed to 1¼—1½ inch above the base, flexible in texture, very glaucous on both sides, with the oblique close veins distinctly visible, the face concave all down, the point not at all pungent, the back very scabrous, the edge whitish and minutely denticulate. Scape 12—15 feet high, including the panicle, which is about as long as the barren part of the scape; branches drooping, the central ones the longest; lower flowers 2—3-nate; pedicels very short. Ovary about 1 inch long, pubescent; perianth-segments 1 inch long, yellowish-white, tinged green externally, the outer ones oblong-lanceolate, the inner ones much broader. Stamens half as long as the perianth-segments.

A native of Mexico, introduced by Roelz about 1860. It was first flowered by Herr Bedinghaus, of Nimy, near Mons, from whose specimens it was described by K. Koch, and figured by Morren. It is widely spread in English collections, but I am not aware that it has ever flowered in this country. There is a fine plant now at Kew, from which my description of the habit and leaf is taken. In colouring and texture the leaves are very like those of a *Beschorniera*, and on the other hand its alliance is close with *F. longæva*.

15. *F. longæva*, Karw. and Zucc., in Nova Acta, vol. xvi., part ii., p. 665, tab. 48; Kunth, Enum., vol. v., p. 839; Jacobi, Monogr., p. 265; Hook. in Bot. Mag., tab. 5519.—Trunk in cultivation reaching a height of 3—4 feet, hidden by the drooping outer leaves, but said in a wild state to reach 40—50 feet. Leaves 100 or more in a dense rosette, lanceolate, 4—5 feet long, 4—5 inches broad at the middle, tapering to 2 inches above the base, flexible in texture so that most of the leaves droop over, opaque green, the face flat in the centre, the back with a scabrous keel, not at all pungent at the tip, the edge whitish and regularly minutely denticulate. Scape, including the panicle, said to reach a length of 40 feet; branches spreading, very compound, reaching a length of 12—15 feet; lower flowers 2—3-nate; bracts lanceolate, ¼—½ inch long; pedicels very short. Ovary green, pubescent, under 1 inch long; segments of the perianth about 1 inch long, the inner ones oblong, the outer oblong-lanceolate.

A native of the mountains of Mexico and Guatemala, ascending to an elevation of 10,000 feet above sea-level. As every one knows, this is the crown and glory of all the fruticose *Amaryllidaceæ*. The fine figure in the *Botanical Magazine* was made from a plant flowered by Mr. Robinson at the Regent's Park in the summer of 1864. *J. G. Baker.*

CAMELLIAS AND CAMELLIA CULTURE.

(Continued from p. 594.)

DESCRIPTIVE LIST OF THE BEST VARIETIES FOR VARIOUS PURPOSES.

It always appears to us a most difficult matter to give lists of the best of anything, unless one knows the circumstances under which they are to be grown, or the precise objects the cultivator has in view. With regard to Camellias some value them for the symmetry and beauty of the flower where even the ideal of beauty is not always the same; some value more highly the habit of the plant; some, where the glass structures are small, ignore altogether plants of rampant growth; and others, where there are large conservatories, require such to furnish them. With the view of meeting all requirements I shall arrange the varieties in three groups:—

1. Exact or symmetrical flowers, selected to meet the florist's taste.

2. Free-flowering varieties, which produce the finest effect viewed *en masse*.

3. Large-growing varieties, suited only for conservatories.

1. *Exact or Symmetrical Flowers, Selected to Meet the Florist's Taste.*

1. Adellna Benvenuti.—Flowers flesh-colour, flaked and dotted with crimson, large, full, flat, imbricated; petals pointed, even and regular; foliage and habit fine.

2. Adriana.—Flowers rosy-crimson, broadly striped with white, medium size, full, reflexed; petals round; foliage and habit good.

3. Alba Casoreti.—Flowers pure white, large, pale, flat; petals round, imbricated, even and regularly arranged; foliage and habit good.

4. Alba plena (the old Double White).—Flowers pure white, large, full; petals round, evenly and regularly arranged; form perfect.

5. Amabilis.—Flowers pink, shading through flesh-colour to white at the edges, sometimes veined with red, large, full, and imbricated.

6. Auguste Delfosse.—Flowers deep bright crimson, striped with white, large, full; petals somewhat pointed evenly and regularly arranged; foliage and habit good; very distinct.

7. Augustina Superba.—Flowers bright pink, large, full, cupped; petals round, evenly and regularly arranged; habit good; a striking and fine variety.

8. Baron de Vriere.—Flowers pink or peach-colour, with a white band down the centre of each; petal of medium size, full, flat, and imbricated; foliage and habit fine.

9. Beauty Supreme.—Flowers rosy-pink, faintly dashed with white, of medium size, full, cupped; foliage and habit good.

10. Bella d'Arignone.—Flowers rose-colour changing to purple or slate, occasionally striped with white, large, full, imbricated, reflexed in the later stages of the flower.

11. Belle Jeannette.—Flowers crimson, tipped and striped with white, large, full, cupped; petals round; foliage very fine.

12. Benneyii.—Flowers rosy-red, slightly striped with white, of medium size, imbricated, full; petals round, even and regular; foliage and habit very fine.

13. Bicolor de la Reine.—Flowers clear blush-pink, large, full, imbricated; petals good and evenly arranged; foliage and habit good.

14. Bonomiana.—Flowers white, dotted and flaked with rosy-crimson, large, full, flattish; petals slightly pointed, evenly and regularly arranged; habit good, foliage small, very free.

15. Centifolia carnea.—Flowers blush-white, sometimes slightly dashed with rose, large, full, flat, imbricated; petals pointed; foliage and habit good.

16. C. H. Hovey.—Flowers dark velvety-crimson; petals round and symmetrical, imbricated; habit vigorous, foliage rich and ample.

17. C. M. Hovey.—Flowers scarlet-crimson, large and regular in outline; petals finely formed and of great substance; growth vigorous, habit fine.

18. Conte Boutourlin.—Flowers rosy-crimson, bright, clear, large, and with finely rounded petals; a noble flower; foliage and habit fine.

19. Comtesse Hainault.—Flowers rosy-peach, shading off to white at the edges, large, full, flat.

20. Comtesse Woronzoff.—Flowers rosy-flesh, suffused and veined with delicate pink, colour very lovely, full, flat; petals round, imbricated.

21. Coradino.—Flowers rosy-crimson, large, full, and flattish; petals pointed, imbricated, very even and regular; foliage and habit good; a splendid flower.

22. Countess of Orkney.—Flowers white, often flaked with crimson, of medium size, full, cupped; petals bilobate, even and regular; foliage and habit good.

23. Cup of Beauty.—Flowers blush-white, slightly flaked with crimson, large, full, cupped; petals slightly incurved in the early stages of the flower, round, even and regular; foliage fine.

24. Dante.—Flowers white, occasionally faintly striped with pink, large, full, and of exquisite form.

25. Duchesse d'Orleans.—Flowers flesh-colour, nicely flaked with crimson, of medium size, full; petals long and rounded; foliage and habit good.

26. Eugène Massena.—Flowers rosy-blush, shading off to white at the circumference of the flower, large, full; petals round and regularly set; foliage good.

27. Eximia.—Flowers deep transparent crimson, large, full, cupped; petals often toothed, but even and regular; foliage good.

28. Fanny Sanchiali.—Flowers milk-white, sometimes partly pink; petals round, imbricated, even and regular; foliage and habit good.

29. Fatima.—Flowers soft rosy-cerise, large, full, flattish; petals round, even and regularly set; colour pleasing, foliage good.

30. Fimbriata.—Flowers white, large, full, flattish; the edges of the petals finely serrated, evenly and regularly arranged.

31. Guillaume III.—Flowers bright rosy-red; petals round, even, and regular; foliage and habit good.

32. Halleyi.—Flowers red, sometimes striped with white, large, full, flat; petals pointed, imbricated, even, and regular; foliage and habit good.

33. Henri Favre.—Flowers bright rosy-pink, of medium size, full, flattish; petals rounded, even, and regular; foliage and habit good; a beautiful shade of colour.

34. Il 22 Marzo.—Flowers fine bright red, with a band of white running down the centre of each petal; foliage and habit good.

35. *Imbricata*. — Flowers rosy-crimson, sometimes blotched with white, large, full, and of perfect form; petals pointed, evenly arranged; a free-growing and effective variety of good habit.

William Paul, F.L.S., F.R.H.S., Paul's Nurseries, Waltham Cross.

(To be continued.)

GARDEN TOOLS IN RUSSIA.— TRUMP SPADES.

THERE are several circumstances which should be well considered when we come to speak of tools and implements suitable for this country (Russia). In the first place, in general there are no stones. The soil, in this part of Russia especially, is either pure black loam, or a mixture of loam and sandy clay, so that in any case it is always easy to work, except in hot dry weather, when the surface becomes exceedingly hard; in fact, when it is thoroughly baked with a burning sun, immediately after a drenching rain, it gets to be as hard as stone. But this is chiefly felt on the roads, especially if you have the ill-luck to be driven along in a "periclodnoy," or any other jumbling cart. During the growing season, both in the garden and field, there is generally enough rain to keep the ground soft enough for working; so that garden soil that has been well cultivated for two or three years may be dug with the greatest ease.

It might, therefore, be supposed that English spades of the usual size, if only sharp enough at the lower edge, would be the best of all for this part of the world. Yet such is not the fact, for not only are those employed in gardens required to bring their own tools, but in nine cases out of ten it is not men with strong arms that work the ground, but women—sometimes even mere girls, who have no idea of digging, and certainly who have not the strength necessary for such an important operation. I am told that men are too scarce here to be occupied in gardens—they are all required for the fields, to plough and drive: even boys that are good for anything are all wanted to look after horses and cattle, so that it is only now and then that two or three men can be spared for the heavy work of a garden during the spring and autumn. It is only in some favoured places that the garden is not under the control of the steward or general manager of the estate, with respect to hands, and is only in some rare exceptional cases that it is not dependent on what is called "economy." The steward furnishes the workpeople and everything else the gardener requires, and the people are only to be had if the peasants happen to be in want of work and choose to come. One day there are plenty, another day very few or none at all, except those that have been hired for the whole summer or for the year. It frequently happens that people are brought a considerable distance from other villages and hired for the season, or perhaps longer. Every winter the steward sends out his "prikashtchiks" in different directions, to look up and hire people who are bound over to keep their engagement, and who come, or, if the distance is great, are brought in vans at the time wanted. Of course these happy, free, and independent people, would never think of leaving their huts or even condescend to enter into negotiations at all, unless they received at once a certain sum of money called a *zadatok*, and in any case it is only a son or daughter that can be spared. Sometimes two or three of those flying agents happen to be in a village at the same time, all trying to get as many people as they can—for they receive a certain premium for every young man or woman they engage. Their best time is immediately after the *fêtes* of Christmas and New Year, when the peasants, having spent perhaps all their floating cash (it generally floats away at this season in rivers of *vodka*), are greatly in want of a little money, and of course he who gives the largest *zadatok* is almost certain to be the most successful.

Another statement is that it is not because men are scarce that they are not to be had for gardens, but because the pay, fixed by the steward, is too low, and that this control makes it difficult if not impossible for any gardener to acquit himself satisfactorily. But this is a question which I do not wish to discuss here, and I have only made this digression to explain why English spades of the usual size are not the most suitable for this country. There are not always men to do the work required, only ignorant women or still more ignorant little girls to dig the ground, who would certainly be frightened at the idea of having to dig

with a tool such as an English spade. In fact they would be sure to refuse, with the usual exclamation, "Nehie im skazits! Yah ne hotchoo," that is to say, "Exceedingly obliged, but would rather not." The peasants know nothing of spades (*lopata*), what they use is called a *zastoop*, and is very different from anything to be seen in other countries. I think only a Russian blacksmith or peasant would be capable of inventing such a tool. You may be quite sure it is perfectly original and even ingenious in its construction, so much so indeed that I should scarcely undertake to make a correct drawing of it. No doubt it I were pressed, and if I thought it would be a decided acquisition to English horticulture, I should set aside all scruples and only think of the advantages I should be conferring on society at large by trying to make the real nature of such an invention known. Then I should spare neither pencil nor paper, and I do not think there would be any risk of infringing the patent. But in the absence of such strong and laudable motives I have thought that a short description of it would be all that might be desired. One important part, then, in the process of making a *zastoop*, is to choose a strong deal board about 3 feet long, and with a hatchet fashion a spade out of it, quite straight from one end to the other, without any cross-bar at the top, and sharpened and rounded at the lower extremity, where the width may be about 7 inches or 8 inches and the length nearly as much. If this remarkable tool were made of white Acacia, or any other hard wood, very probably nothing more would be required;

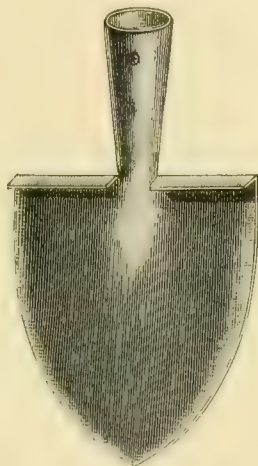


FIG. 94.—RUSSIAN SPADE.

but as the quality of the wood is not often above the average, it is usually shod with thin light iron, sold ready-made for this purpose, and which lasts about as long as the wood.

Except their hatchet (*topor*) the peasants have rarely any other carpenter's tools, and therefore their *zastoops* are always made in the same manner. But when it happens that some pains have been bestowed on its form, and especially when the iron has been firmly nailed on at the lower edge, this sort of tool is sometimes suitable enough for the work to be done, because it is sharp; at least it is sure to be preferred to a spade. The irons are always to be had at every fair and in hardware shops of small towns. They cost very little—about thirty or forty copeks, or 1s.

So far as I am aware, it is only in the town of Cherkass, on the banks of the Dnieper, 200 versts beyond Kieff, that larger and better *zastoops* are to be obtained ready made. These are much more workable tools, somewhat resembling English shovels but heavier; but they are not often used except by *grabbers*, or navvies, accustomed to the work of making ditches, artificial ponds, &c. They cost about one rouble, say 2s. But for women and girls something smaller and lighter is necessary. *Zastoops*, such as are used by the peasants, are almost never well made, the irons are always coming off, and for fear of this accident their owners are careful not to use them too freely.

The best of all tools I have yet seen for this country are moderate sized iron spades of shovel form, and for some time they have been plentiful enough in Kieff, where it appears they obtain a ready sale. They, *i.e.*, the blades, are from 7 inches to

8 inches broad and 9 inches or 10 inches long, with a slight turn of the iron at the "shoulder" for the foot—a provision of no slight importance. They are usually sold without handles.

As will be seen from the accompanying sketch (fig. 94), these spades are simple in form, and may be easily made by any common blacksmith. They are strong as well as light, but the socket would be improved if it were an inch or two longer in front, so as to admit of two nails instead of one. Tool-makers in England would no doubt handle and finish them nicely for gardeners, amateurs and others, but it is quite certain that the great majority of our fair under-gardeners here will be satisfied with something less.

Whether these spades are of Russian invention or of foreign extraction, I am not prepared to say; but they are of recent introduction here, and when furnished with good handles, well sharpened, and bent a little to the right shape, they are better than either English or German spades. It is certain that they are much cheaper, and perhaps last longer; German spades, at least, rarely last a month here. What is called an "English spade" may be bought for two roubles, sometimes more, sometimes less. A "German spade" costs a rouble, or a rouble and a half.* These new spades without handles cost only fifty or sixty copeks, say half a rouble; when more than usually well finished, perhaps seventy copeks, but in any case the difference is considerable. These spades are made of thickish iron, especially they are strong enough in the back or middle to last long. The thin iron shovels from England are soon broken here, because they are not made for digging, and perhaps because people in the steppes are very fond of using a spade—but not their own *zastoop*—as they use a common hatchet whenever they come to a stubborn root. It is this particular test which German spades cannot stand. They soon break at the socket or at the middle, and then they are good for nothing.

There are some things which we are accustomed to see every day, and which never arrest our attention; so it happens that we have been going on for generations having our spades made in the same way, and according to the same model. Will any person be good enough to explain the technical, practical, or scientific reason, why a spade should have the form of a sheet of paper, that is, with the lower edge cut at right angles, and not rounded and pointed as a shovel sometimes is? For ages people have been accustomed to play at cards and see the fashion of spades before them every time they sat down to catch the ten, or anything else; but nobody seems to have caught the idea that garden spades might be improved if fashioned in the same way as those on the cards. Here, in the steppes, everybody prefers the more modern contrivance, which, for the sake of distinguishing it from other forms and varieties, I think we might call trump spade. When properly handled and sharpened it cuts into the ground, and in general works more easily than any other hitherto used for digging.

As I have already noticed in my article on hedges (November 16), the common white Acacia, so plentiful here, furnishes the best and cheapest handles for such spades, not only because they never break, but because they can be obtained almost quite ready with any bend or form required. *P. F. Keir, Kieff.*

Forestry.

WIRE FENCING, though now practised less or more in all parts of the kingdom, is probably not in every case well done, and if a few suggestions upon the subject can avail it would be wrong to withhold them. The erection of wire fences when first commenced was altogether a formidable and serious undertaking. No ordinary labourer could trust himself or be trusted with the work; hence skilled tradesmen had to be employed, and it was no uncommon thing, at the erection of a good and substantial wire fence, to call in the aid of mason, blacksmith, carpenter, and plumber. As the practice, however, became more general, the various tradesmen were dispensed with, till now the work is both much cheaper and better done by ordinary active labourers. Without going back more than twenty-five years, and dividing that period into four epochs, the cost of erecting a six-wire fence for cattle and sheep, &c., would stand about thus per lineal yard:—

| | |
|---------------------------------|---------------------------------|
| First epoch of say 6 years, 4d. | Third epoch of say 6 years, 2d. |
| Second do. 6 „ 3d. | Fourth do. 7 „ 1d. |

* The rouble at the present time is worth about 2s.

The common way of securing iron or metal straining pillars was by attaching them to large blocks of stone by means of bolts and screws, and such stones being in many districts difficult to procure, entailed great expense in cartage or other means of transit. The pillars alone, with stones, stays, &c., complete, commonly cost from £2 to £3 each; and where they were required to act as strainer and gate-pillar combined they as commonly cost over £4. In districts where stones could not be procured, as in some parts of Sussex, I have seen a hole taken out of the ground 10 feet square by about 5 feet deep, and as much Oak timber used for underground stays, &c., as would build a common fishing-boat. There are many ways of securing the straining posts, but the following for wooden ones I regard as the best:—A hole is dug lengthwise in the line of fence about 4 feet long, and 3½ feet deep by 2 feet wide, perpendicular on all sides. The post is put in at one end of the hole, usually at that furthest from the strain; but it really matters little at which. At the opposite end of the hole a piece of plank 3 feet long and about 7 inches by 3 inches is put perpendicular, with its top a little below the surface of the ground. Between the base of the post and the plank another piece of plank of the same dimensions is cut to the exact required length, and forced tightly down to the bottom of the hole, and then firmly packed with earth to within a foot of the surface, when another plank is put in a similar manner, and the earth filled in to the surface of the hole, when it is finished. This method, it has to be observed, possesses the advantage over others in so far that all the bracing is below ground, and consequently kept from decay for a much longer time than if done in the usual way above ground. In securing a corner post instead of an end one, as described, the principal difference is that the hole is cut exactly in a line between the opposite lines of fence, as shown in the margin. The dotted line shows the position of the brace, or underground stay, and the plain lines that

of the fences. No further proof need be adduced to prove that the dotted line is where the brace should be placed than by getting two men to attach a rope to a post and each by his own end pulling in the direction of the strain of the wires indicated, when it will be found that it will fall over, or incline in the direction of the dotted line. Instead of putting in one brace, it is no uncommon thing to see two put in, each in the direction of the strain of the wire, which is altogether an improper method of doing the work.

At the present time, when much of the inferior description of land is being put under pasture, for the reason that it no longer pays to cultivate it for grain, it is found necessary to erect wire fences to keep in sheep as well as cattle, for which purpose the following description of fence answers well, and costs per 200 yards as follows:—

| | £ | s. | d. |
|---|----|----|----|
| 2 straining Larch posts, 7 feet long, 6 inches by 6 inches, at 2s. 6d. each | 0 | 5 | 0 |
| 100 intermediate do. posts, 5½ feet long, 3 inches by 3 inches, at 5d. each | 2 | 1 | 8 |
| 6 braces to straining posts, at 4d. each | 0 | 2 | 0 |
| 1 top wire, No. 4 | 0 | 14 | 0 |
| 2 lower wires, No. 5 | 1 | 4 | 0 |
| 4 do. No. 6 | 2 | 0 | 0 |
| 4 gallo is of prepared coal-tar, at 6d. per gallon | 0 | 2 | 0 |
| Labour of tarring | 0 | 4 | 4 |
| 750 cut staples at 10d. per 100 | 0 | 5 | 10 |
| Cost of labour erecting fence | 0 | 16 | 8 |
| Cartage of materials, say | 0 | 2 | 6 |
| Total | £7 | 18 | 0 |

—or about 9½d. per lineal yard.

The great difficulty in fencing against sheep is that of their going through between the wires; they seldom leap over, and as seldom break the wire, but creep through between them. The divisions, therefore, between the wires should be as follows, which answer well:—

| | |
|-----------------------------------|----------|
| Between the two top wires | 9 inches |
| Between next two | 8 " |
| Do. do. | 6 " |
| Do. do. | 5½ " |
| Do. do. | 5½ " |
| Do. do. | 5½ " |

Height of fence altogether, about 3 feet 8 inches, allowing 4 inches below the bottom wire.

Of all others I prefer what is known as bright wire in long lengths for the two upper wires—say Nos. 3 or 4, or No. 2 for heavy cattle and horses—and the lower wires steel or Bessemer. Cut staples are preferable to sharpened ones, as they do not split the posts so much, or fall out when the posts dry and rend, which they commonly do less or more.

In using sawn posts, the best practice is to put the wires upon the sawn side of the posts, thereby driving the staples into the heartwood, which holds them better, and is the last part to decay.

Charring the wood I consider of no use in preserving the posts; and in no condition does the post last longer than by cutting the wood in winter, and putting the posts into the ground in the round state with the bark on. I know these are disputed questions, but the opinion given is based upon many years' practice and extensive observation. C. Y. Michie, Cullen House, Banffshire.

The Poultry Yard.

A LADY'S EXPERIENCE IN POULTRY KEEPING.—Every lady who keeps a few fowls considers herself an authority on all matters connected with poultry. Having read up all the books on the subject that have come within her reach, she feels quite sure that she knows far more about the right management of fowls than any farmer's wife, albeit the latter may have inherited the experience of many generations of poultry keepers.

She will tell you that some one breed—to which she has paid special attention—is by far the best, if not the only one you ought to keep; that "eggs pay," but "chickens don't"—or, if she has the knack of managing young birds, she may perhaps reverse this statement. If she goes in for exhibitions, she tells you confidently that she is going to make a fortune by her prize birds (I never met with the lady who had made it); if she confines her attention to furnishing her own table with chickens and eggs you hear of the number she has produced, and you hear (or more probably do not hear) what their food has cost. Possibly if the husband be present, he will cut short her boasting with the assertion that his eggs cost him 2s. 6d. apiece. The poultry mania has spread so rapidly during the last twenty-five years—from the time when Leech caricatured the pet cochins, dressed in jackets and trousers, out walking with their mistresses, fostered by the publication of books like Mr. Kinraid Edwards' well known pamphlet, *How to Make Fowls Pay 500 Per Cent.*, that the number of lady-authorities on poultry keeping is endless, and the directions given for the management of poultry so varied (and often so contradictory), that it may well be asked, Why write more on the subject, and especially why give us a lady's experience?

I do so because I think that a faithful record of blunders and mishaps may serve the purpose of warning others from falling into errors, and the experiences of fourteen years' poultry keeping may tone down the over-sanguine hopes which are sure to be entertained by beginners.

Fourteen years ago we lived in a country town, and had a small garden at the back of our house, in which we thought we might profitably keep a few fowls to supply us with eggs, and to utilise the table "scraps" of a rather numerous household.

Though I had lived in the country nearly all my life, I knew nothing whatever about the management of fowls, and did not know one breed from another by sight. Therefore we commenced operations by buying a book on poultry-keeping, and then set to work to get a fowl-house erected. A little wooden shed with a small run was the result. The architect being deeply impressed with the necessity for good ventilation, was particularly careful to provide plenty of fresh air. Spaces were left between the boards, close to the top above the fowls' perches, and the little opening by which the birds entered was left without a door. Then we began to make enquiries as to where we could purchase birds. We had an idea that Spanish birds were the best layers, and we knew that Spanish birds were black. So we bought some nondescript black hens at 2s. 6d. apiece, which we were told were Spanish, and a friend gave us a cock and hen which I think she called "grey cochins," we called them Chanticleer and Dame Partelet. Looking down on those early days from the elevated region of later experience, I suspect them of having been half-bred birds. With these and two "everlasting layers" we started our run of one cock and six hens.

At first all went well, and we looked forward to the time when our birds should begin to lay, but we had commenced poultry-keeping in the autumn, and soon the cold winds of the winter set in, and then a strange phenomenon occurred. My birds began to lose their feathers—first their heads became bare,

then their backs, and gradually they acquired a dreadfully undressed appearance. It was not their moulting season; what did it mean? Various causes were suggested. The one that struck us as the most probable was that the birds were suffering from too much ventilation—in other words, they were sleeping in a thorough draught, and the loss of feathers was the consequence. So we boarded up the openings on the windy side of the house, and did what we could to make our fowls warmer, and after a time the feathers grew again, and we were never more troubled with bare-backed fowls. In January our fowls began to lay, and we certainly enjoyed their eggs more than any we had ever bought.

In March Dame Partelet wanted to sit, and a discussion arose. Should we set her, and if so, on what? We thought March very early for rearing chickens, but went to consult a nursery gardener who sold birds and eggs. He shook his head; he "didn't" hold to early chickens, they were very hard to rear. April was a nice month for setting hens. Ducks were harder." So we concluded to buy ducks' eggs, and accordingly paid 1s. 6d. for a setting, and gave them to the hen, setting her in an elevated box, which, I believe, had been made for a rabbit hutch. One day we noticed one of her own eggs laid among the duck eggs. We left it to hatch, but without feeling quite certain as to the day on which it had been laid. So it chanced that one day, when we went to feed the hen, a poor little dead chicken was found lying on the ground below the hutch, having fallen through the open bars. We mourned over the loss of our first chicken, but hoped for better luck with the ducks. I am afraid the number of these hatched and reared was very small; indeed we were anything but successful in our early attempts at rearing birds, though we succeeded in getting a fair allowance of eggs throughout our first year of poultry keeping.

I have often noticed this result when fowls are first started—the first year's produce in eggs beats those that follow. Is it that at starting the birds are all young, and that the ladies are too soft-hearted to kill off old pets so soon as they ought?—or is it that extra care and attention is paid to them while the hobby is a new one?—or is it that the first year's success leads to increasing the stock beyond the capabilities of the place where they are kept, and the larger number of birds, having the same quantity of "scraps" divided among them, are not so highly fed, and do not lay so well in consequence? I think we fell into the latter error, for before our first year of poultry keeping came to an end we had established three runs of fowls, besides ducks and pigeons, and I have often noticed since that the more birds I have kept the lower has been the average number of eggs to each hen. A. B.

(To be continued.)

Garden Operations.

KITCHEN GARDEN.

Mulching or dressing with manure in any stage of decomposition, the surface-soil around Cauliflowers, Globe Artichokes, and plants of a similar character, and placing it beside the lines of Peas and rows of Beans, &c., has become with us an operation of established periodical practice throughout the dry and hot months of the year. We at once now give this matter attention, and as a rule apply the material about 3 inches thick before much sunshine and aridity prevails, so that the effects of these elements may be counteracted, and a more equable state of moisture be preserved about the roots. In the case of plants placed together in beds we cover the whole surface of the ground between them, and where lines and rows stand we border them with it to the extent necessary to keep them constantly moist and to prevent the soil from cracking. As we may at any moment have a favourable change in the weather, and as with it at this advanced period a rapid growth must naturally ensue, let every description of work which it is practicable to forward be kept well in hand. Such matters as the sticking of Peas and the placing of stakes against subjects which will ultimately require them should be done now. From the effects of the season the soil, which in some places will have become somewhat obdurate, should be forked up lightly, so that it may become more friable and ameliorated for drawing up to the stems of Potatoes when they are sufficiently advanced to require it. Although the early planted sets have lain in the ground for a longer period than is usual without vegetating, they are now up satisfactorily. We applied the customary covering of stable litter, as indicated in this Calendar some time ago, and its protection up to the present time (May 19) has been

sufficient to preserve the haulm free from injury by frost. Later plantations of these tubers are likewise fast breaking through the soil; these should be earthed up so as to prevent the stems being injured by frost bite. The most forward plants of Brussels Sprouts which were pricked out under protection should now be fully exposed. We plant these out between the rows of the most advanced sections of Ashleaf Kidney Potatoes as soon as possible after they are soiled up at about 3 feet apart. The successional sowing of these and other kindred subjects for next winter's work should be seen to, and either be thinned out or transplanted, in order to keep them out of an impoverished state. Let a sufficient quantity of Celery plants be pricked out into well-enriched soil now. If the plants are not properly hardened off slightly protect them until they will withstand exposure without being injured. The most approved kinds of this excellent edible for general purposes, in our estimation, are Leicester or Col. Clarke's Red, and Incomparable or Sandringham White. Prepare trenches for the reception of forward plants, and be not parsimonious with the supply of the best manure. To grow Leeks to a large size they should be treated identically as forward crops of Celery. Take advantage of suitable weather to proceed with the thinning out of Onions, Carrots, Parsnips, &c. As soon as it is safe let the out-of-door crop of Tomato plants, also Vegetable Marrows and other tender subjects, as ridge Cucumbers, be put out. Gherkins, for pickling, are invariably wanted; the plants, if placed in frames as soon as they are freed from bedding stuff, will, under these conditions, yield an abundance, with but ordinary attention to watering and stopping. In a similar place Basil and Knotted Marjoram may also be grown: sow in drills about 12 inches apart.

FORCING DEPARTMENT.—Plentiful supplies of water will be necessary to the crop of French Beans, Potatoes, Carrots, &c., and they will require an abundance of it every day when the weather is favourable. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

ORCHARD-HOUSE.—In the early house, where the fruit is ripening, see that it is exposed quite to the sun, either by laying the leaves aside or pinching off any that may be lying directly on the fruit; a leaf between the sun and fruit will leave its mark, the fruit will be coloured on the exposed side except where the leaf lay, and that part will be paler. After the fruit has begun to take its second swelling the trees do not make much more growth: their energies are then taken up by the swelling and ripening of the fruit, and also by the formation of flower-buds for next season. See, then, how important it is that the leaves should not be required to nourish red-spider or the Peach aphid at such a time, or that the bark of the young wood should be clogged by brown-scale. The cultivator must certainly be now upon the alert. An hour's inattention to watering will mar the labours of a whole season. In the late house the trees are making good growth, and the fruits swelling freely. The "maiden" trees that were potted in the autumn are all making strong growths; in some cases it is necessary to remove a portion of these, and those that remain are pinched back to the fourth or fifth leaf. This must be done in an early stage of growth, as soon, indeed, as it is possible to get hold of the point of the growths with the finger and thumb. It is injudicious to allow a tree to waste its energies in producing superfluous wood. Fumigate to destroy aphid if there are any upon the trees; it has been too cold at nights hitherto for us to syringe the trees, but this is done with considerable force in the morning between 6 and 7 o'clock, a little air being admitted when the house has been well syringed; as soon as the nights are warmer we will syringe between 4 and 5 P.M. It will not be necessary to enlarge further on watering, ventilating, &c., at present. Strawberries on the shelves are now all in flower, or the flowers have faded and the fruit is swelling. We look over the plants and thin out the blossoms, leaving only a sufficient number for a crop; as the plants are strong a dozen fruits more or less will be allowed on each plant. As soon as the fruit has swelled a little it is supported above the leaves by means of sticks cut from the Pea sticks, or any small branches at hand. It is best to leave them with forks at the end over which the fruit hangs. The fruit ripens and colours much better in this way than when it is left to hang down and be shaded by the leaves. Abundant supplies of water are also required at this time. Many growers, to save labour, have tried placing the pots in saucers of water. This it will do, but at the expense of quality in the fruit, and often also size and appearance. The leaves also become enfeebled, and a more easy prey to red-spider and mildew. The Strawberry plants also require as much syringing as the Peach and Nectarine trees. *J. Douglas.*

PINES.—The sunless character of this season will naturally very much affect the condition of the inmates of houses of a tropical nature. So far as this department is concerned it will be wise to be on the alert to avert the danger which will arise when the sun beams forth powerfully, and give early attention to airing so to get any superfluous moisture on the foliage dissipated betimes in the day. In the fruiting department, where much interest will at this time be centred, give every attention in the way of heating, watering, and keeping up a satisfactory state of humidity. Plants in full health with fruit swelling off will need plentiful supplies of tepid water, which should contain some stimulating agent, as guano, in a moderate proportion. Continue to give attention as occasion requires to the removal of all superfluous suckers, leaving only one or two on each plant, and for stock close up this compartment with sun-heat, whenever it abounds, at 90°, and induce a humid state in the house during the night, by means of a plentiful supply of water being sprinkled about all available surfaces in it. Successional plants will now be commencing growth. Liberally ventilate these whenever natural conditions are favourable for so doing, and use no more fire-heat about these plants than is necessary: 70° at night will suffice. Fire-heat will scarcely be required in the daytime except under most unpropitious conditions. Shut up the house early in the afternoon, and syringe the plants two or three times every week: just prior to doing so, also moisten other parts for the sake of humidity. Recently potted plants should have a liberal supply of heat—90° or 95° at the base of the pots—in order to induce them to take hold of the new soil quickly. *G. T. Miles, Wycombe Abbey.*

STRAWBERRIES IN POTS.—With improved conditions for Strawberry growing during the present and following month, which will bring the forcing season very nearly to a close, it must not be forgotten that the time has arrived for making provision for an early autumn supply where Strawberries are expected at that season. I can confidently recommend the practice of growing late Strawberries to fruit growers generally and to exhibitors especially, who are sometimes placed at a disadvantage for want of the requisite number of dishes to compete in the larger classes. The varieties which I have found to answer best for late fruiting are Vicomtesse Héricart de Thury (also known as Garibaldi and Duc de Malakoff) and Underhill's Sir Harry, the latter being, in my opinion, the best Strawberry in cultivation for fruiting in the autumn and winter. At the same time I have no doubt that Keens' Seedling, where it does well, or any other early variety, can be made to fruit in the autumn with ordinary judgment and care. I have never used very early forced plants for this purpose, on account of their being exposed to so many vicissitudes of temperature, having always found that my object was best gained by keeping plants from the middle of April and onwards. They require the protection of glass for a time after they are turned out of the forcing-houses until their leaves become developed and properly hardened, when those in small pots may have a shift into a size larger, while the drainage of those that are already in pots of a suitable size should be examined and rectified if necessary. The plants should then be set behind a north wall for a time, where they will furnish themselves with a fresh supply of roots previous to being pushed forward in the autumn. It is also a good plan, after a short rest, to plant out a batch in pits or frames to come in early in September. *W. Hinds, Canford Manor.*

VINES.—A most acceptable change in the weather having at last set in, growth in every department will now be rapid, and owing to the fact that many operations have been so long delayed great vigilance and perseverance will be needed for keeping the daily routine under hand. An effort must, however, be made, particularly in this department, as few subjects run away so rapidly as healthy Vines in the first flush of spring growth. One of the most tedious operations, it is hardly necessary to say, is thinning, and as this must be performed by careful painstaking hands, the work must not be allowed to give way to the most pressing demands of other departments. Early autumn and winter houses will require daily attention, as many of the varieties now in flower are shy setters and may be assisted by artificial fertilisation, that is, providing the operation is performed in time. Keep the stopping and tying regularly performed, and aim at an even spread of foliage all over the trellis by laying-in laterals as long as there is room for full development without crowding. Thin out the berries with a liberal hand, and give preference to handsome medium-sized bunches for hanging through the winter. Houses in which Grapes are now stoning must be kept cool and steady at night, as the roots in the best managed borders must have time; and it is better to let the supplies run in advance than allow the berries to want materials for the completion of this exhausting process. Ripe Grapes may be kept cooler, and the house should have a free circulation of sweet fresh air, with just

sufficient moisture in the atmosphere to prevent injury from drought or insects. Examine the borders, and if sufficiently moist let them be covered with some dry nonconducting material to prevent evaporation, always bearing in mind that Vines carrying ripe Grapes through June and July require a great deal more water than they do in the autumn. Make a general examination of all the borders, and top-dress in accordance with the requirements of the Vines. If the borders are poor a good mulching with rotten cow-dung will be of service; but if rich, and the Vines are young and full of vigour, a nice dressing of short horse-dung will be found most suitable. Look after old Vines that were lifted last autumn, as well as newly-planted young ones, and encourage new roots to find their way to the surface by the use of good stable litter as a mulching. Give the tops generous treatment, and encourage free growth by closing early in the afternoon with plenty of sun-heat and atmospheric moisture. Do not exceed a temperature of 60° by night until the roots have taken freely to the soil. Disbud lightly. Stop side shoots at once to secure a plump pruning-bud, and then allow the laterals to ramble over every part of the trellis. Vine borders may now be planted with spring-struck Vines, with every chance of their filling the house with fine canes before the autumn. *W. Coleman, Eastnor Castle.*

PLANT HOUSES.

ORCHIDS.—The tropical temperature which must now be given to the inmates of the East Indian-house to enable them to grow properly will assist the yellow or black thrips, should there be any in the house, to increase their number rapidly. Should they get the uppermost hand of sponge and brush cleaning, fumigation must be resorted to. Filling an Orchid-house with tobacco-smoke is an operation which should never be taken hastily or lightly in hand. It is a necessary evil which, when skilfully performed, injures the plants slightly and their enemies much; when badly done it injures the plants much, which is simply all that their worst enemies can do. Out of many methods of fumigating Orchids I prefer the following. Suppose the day is Monday and that fumigation has been decided upon—in the morning go carefully through the plants, watering any that are dry, but do no damping down all day. On the Tuesday remove from the house any plant in flower that is clear of insects, or any valuable plant known to be in a delicate state. Do no watering or yet damping down; maintain a moderately high temperature, which will induce the thrips to come out from the axils of the leaves, and disport themselves on the blades. At 5 P.M., the house being closed and the temperature on the decline, run down the blinds, and as speedily as possible fill the house with smoke. It should be dense enough to obscure any object 2 yards ahead. At 6 next morning repeat the operation. By 7.30 the smoke will have lost its killing power, when the top ventilators should be slightly opened, and the house thoroughly damped down; later on water any plant that requires it. No plant should be syringed, as that would wash off the bitter film settled on every leaf, through which the insects must penetrate ere they can suck the juices of the plants. Let no one suppose that these two smokings will have entirely settled the thrips. The many dead ones which may be seen lying on the surface of the leaves proves that they have met with heavy losses; but in the case of yellow thrips, enough to speedily restock the house will have escaped to the extreme bottom of such funnel-shaped breaks as Chysis possess, or below the contracted portion of the leaves of such plants as *Angræcum sesquipedale*. Any plant that has been troubled with black thrips must certainly be cleaned with soap and water; this will remove from the under-side of the leaves those tar-like spots, which are simply the eggs of the black thrips carefully sealed down. The best fumigating material is undoubtedly tobacco leaves in their entirety, a bale of which to the grower would be priceless. Unfortunately, the law does not allow these leaves to be distributed in their entirety. Perhaps the best thing within our reach is paper heavily charged with the juice from the tobacco leaves. I have used this tobacco-paper in the wet, moist, dry, and very dry state, obtaining the best results from the dry. It must be well torn up, and should be dropped lightly on to a few live coals in the fumigator. Start at one end of the house, and move the fumigator back a few yards every minute; it must never be left long in one place, or the plants nearest it will suffer. If the operator wraps a good piece of cotton-wool in a handkerchief, and holds it firmly over his mouth and nostrils, he will experience little or no nausea. It should also be more generally known how very easy it is to catch a cold immediately after fumigating. The white-scale and mealy-bug are at times very troublesome pests among the East Indian-house plants. I know of no insecticide, nor can I imagine it possible to make one, that would kill such a hardy insect as the mealy-bug without severely injuring the young Orchid-breaks. *J. C. Spyers, Burford Lodge, Dorking.*

THE

Gardeners' Chronicle.

SATURDAY, MAY 24, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| TUESDAY, | May 27 | Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; and Scientific Committee, at 1 P.M. Also Great Summer Show (four days). Sale of Bedding Plants at the Nurseries, Hornsey, by Protheroe & Morris. |
| THURSDAY, | May 29 | Colchester Horticultural Society's Show. Sale of Stove and Greenhouse Plants, at the Exotic Nursery, Tooting, by Protheroe & Morris. |
| FRIDAY, | May 30 | Manchester Botanical and Horticultural Society's Grand National Exhibition opens at Old Trafford. |

MR. WILLS is irrepressible. Not satisfied with the all but unanimous verdict of his fellow committeemen, that the present time is unpropitious to organise an INTERNATIONAL HORTICULTURAL EXHIBITION—meeting the objection of bad times with the hopeful statement that they will mend, and that it behoves us to look forward for the good time coming—his zeal unquenched by the general apathy shown in the matter, he advances to the charge again. As will be seen from our advertising columns, Mr. WILLS, on his own responsibility, has called a “large public meeting,” in the Albert Hall, on Tuesday next, the first day of the great show of the Royal Horticultural Society, in order to elect a chairman and committee to carry out the arrangements for holding the above exhibition next year. So far Mr. WILLS is entirely within his right. The original International committee, after several meetings, decided to postpone their action till a more convenient season. Mr. WILLS thinks there is no time like the present, and, with a courage and zeal worthy of all praise, takes upon himself the responsibility of calling a meeting which shall in his opinion be more truly representative than those which have hitherto been held. All that we have to do then would seem to be to await the issue of Mr. WILLS' meeting, and then be prepared to act as circumstances may dictate.

In the meanwhile, however, we think it right to state that the question has been already well and carefully considered by a large and representative committee, and that they have decided against proceeding with the scheme for the present, chiefly on account of the depressed state of commerce, partly because there has been no such zealous feeling evinced as there was in 1866, partly because we know not where to look for a leader who would devote, for month after month, his time, his energies, his money, to the prosecution of the work, as the late Sir WENTWORTH DILKE did. To his admirable leadership and unwearying labour, as well as to the zeal and unity of purpose animating the committee, the success of the International Exhibition of 1866 was due. But although it was a great success, those who had the management of the affair remember full well that it was like to be a dismal failure financially. Bearing all these things in mind, we think the committee did wisely in postponing the matter. That committee, be it remembered, was chiefly composed of those who were familiar with the labour and cost involved in carrying out the former scheme. Their decision has been upheld by all those who have done us the honour of stating their views in our columns. It is at least possible, however, that had there been a larger infusion of young blood more zeal would have been shown in the matter. At any rate, Mr. WILLS was, we believe, the only dissident on that committee, and he now takes independent action.

We cannot pretend to forecast the result of the large public meeting that has been announced, but we trust that, if the matter be really brought to a practical issue, it will be

worked on the broadest and most comprehensive scale. There can be no doubt that half-a-dozen exhibitors, or even Mr. WILLS himself, could make an exhibition which would gratify the public: but that is not what is wanted in the general interests of horticulture. We have too many flower-shows already. Financially they do not pay as a rule, and hence the tendency of such exhibitions to become mere trade bazaars. We do not wish to disparage or underrate a flower-show on this account—the commercial motive is a perfectly legitimate one; but the competitive system and the award of money prizes, though by no means free from objection, are yet valuable aids in stimulating horticulturists and aiding the progress of gardening. In a great undertaking such as that contemplated by Mr. WILLS, such motives must be subordinated and kept in the background. As in 1866, committeemen and exhibitors—all concerned, in fact—must work for the general advance of horticulture and of all the collateral sciences and handicrafts connected with it, and not for the individual glorification of Messrs. A., B., or C. Nothing was more remarkable than the manner in which the committees worked in 1865 towards the glorious result of 1866. The meetings were frequent, the work constant and laborious, the interests of the members often apparently conflicting; yet all these matters were sunk in an unanimous hearty effort, and the result, as we all remember, was a success such as has not been before or since. Unless Mr. WILLS and his committee are prepared to work on this large basis, and to co-operate as cordially as in 1865, they had better, in the interests of horticulture, not go on with their project. As we have said, there is not the slightest doubt that a show, and a fine show too, could be made, but unless such exhibition be carried out on the broadest principles of the advancement of the science and art of horticulture, it will do more harm than good to the cause that we all have at heart.

— CROCUSES.—A short time since Mr. FITCH embellished our pages with a representation of Snowdrops, seen as an artist likes to see them. We now (fig. 95) give a companion group of Crocuses massed in a clump by the side of a streamlet running through the “Wild Garden,” where the modest Daisy is not looked on as an intruder, but where its form and colour form a strong contrast with those of the Crocus.

— THE ROYAL HORTICULTURAL SOCIETY'S GREAT SUMMER SHOW.—The exhibition which is to open in the gardens at South Kensington on Tuesday next, and to close on the Friday night following, promises to be one of great interest and unusual excellence. The pot Roses will be at their best, and as Mr. TURNER and Messrs. PAUL & SON will both exhibit in their full strength, it is more than likely that the display of these flowers will be the finest that has ever been seen. The Messrs. PAUL's plants are, we hear, in splendid condition, while Mr. TURNER's we have seen, and can affirm that grander plants were never sent from Slough. A Charles Lawson, measuring 7 feet through, has nearly 300 blooms, which will be open altogether, while another gigantic plant of Céline Forestier will, if all goes well, have more than 300 blooms open. Besides the Roses, it is anticipated that Azaleas and Rhododendrons will also be shown both in considerable numbers and in fine condition; while the display of miscellaneous articles, such as garden structures, garden implements, and garden furniture will be very extensive, and, as usual, of great interest to the craft. In the evening of the first day the large conservatory will be illuminated with the electric light, by Mr. SIEMENS; the large marquee, by the British Electric Light Company; and the long tent by Mr. WYLD; and probably M. JABLOCHOFF will also be present. The Quekett Microscopical Club will have a number of microscopical objects on view in the conservatory; and at some part of the day it is expected that the exhibition will be visited by their Royal Highnesses the Prince and Princess of WALES, the Count and Countess of FLANDERS, the Crown Prince of DENMARK, and other distinguished personages. It is highly satisfactory to see such signs of vigorous life in the old Society.

— CARDINAL HAYNALD.—Archbishop HAYNALD, who will be remembered by those of our readers who took part in the Florence Exhibition, and who is eminent as a botanist and revered as a man, has been made a Cardinal at the same time as our distinguished countryman, Dr. NEWMAN. The *Saturday Review* thus speaks of Cardinal HAYNALD:—“HAYNALD, virtually exiled from Austria on account of his liberal opinions under the old despotic régime, was recalled after the coronation of the Emperor as King of Hungary, and in 1867 he became Archbishop of Kalocsa. He took a leading part in the opposition at the Vatican Council, and voted amongst the *non placets*. Three years later he gave offence to PIUS IX. by taking part in a deputation to the King of Italy on the occasion of a grand horticultural exhibition at Florence, when he was consequently admonished not to come to Rome. It is hardly surprising that the repeated requests of the Austrian Government for his elevation to the purple met with a steady refusal, which however the present Pope has taken the earliest opportunity of reversing.” We have known of Bishops in the ranks of botanists, but so far as we know Archbishop HAYNALD is the first Cardinal botanist. His Eminence is held in such esteem that botanists all the world over will rejoice at the honour paid him.

— FROST IN JUNE.—In June, 1749, as recorded in the *Philosophical Transactions*, xli., p. 208, there were several sharp frosts. The Rev. HENRY MILES, suspecting a frost on the night of the 10th, set a china saucer full of water on the grass-plot in the garden, and the next morning, a little before sun-rising, the water was frozen over of such a consistence that he forced a hole through the centre of it with his finger without breaking it elsewhere, and carried the cake of ice into the house, where it remained a good while not dissolved. The wind was north-west. On some following days there were several considerable frosts, the wind continuing the same way, producing disastrous effects throughout the kingdom. In the same place it is recorded that on July 2 of the same year the thermometer stood at 88° Fahr. in the shade at 12.20, and at 87° at 2 P.M.. Two other thermometers of the same make, in London, stood exactly at the same height at the same time. We may add that thermometrical observation was quite in its infancy at the date mentioned. Thus we read that the Rev. H. MILES, of Tooting, agreed with a Mr. JOHN CANTON, of Spital Square, London, to make observations of the temperature of the air at the same hour. For this purpose “they procured thermometers made exactly alike by that accurate workman, Mr. BIRD, and having found, by hanging them first together for a sufficient time, that they perfectly agreed, they began their observations in April, 1749, and continued them ever since.”

— MEXICAN CLOVER.—This name is given in the Southern States of North America to *Richardsonia scabra*, a prostrate spreading herbaceous plant belonging to the Rubiaceæ. It has a wide area of distribution, ranging from Uruguay and Peru through Central America to Mexico and the West Indies, and it inhabits both mountainous and littoral regions. There is a figure of this plant in SWEET's *British Flower Garden*, plate 91: it is related to the Woodruff, and has small white flowers. It appears from MOHR's account of the grasses and other forage plants of Alabama, that the so-called Mexican Clover is spreading extensively along the seaboard of that State, covering the sandy uplands completely with its succulent prostrate leafy stems. In regard to its nutritive value, it is said to be scarcely inferior to Clover, and horses, cattle, and sheep are fond of it particularly as hay. As a green manure, Mr. MOHR states that it is of the greatest benefit to the former, lower Pine or sea-coast region. This plant deserves the attention of Australian farmers.

— CATTLEYA SKINNERI ALBA.—We lately saw at Mr. BULL's nursery a couple of examples of this chastely beautiful plant, each bearing a fine spike of snowy flowers. It is at once one of the rarest of Orchids and unsurpassed by any white-flowered species. Beside it was a splendid new *Cattleya*, in form partaking much of the character of *C. Mossiæ*, the whole of the flower of the purest white, except the ample labellum, on which is a pale lemon zone, and below this a central blotch of pale purple broadly margined with white, the edge beautifully fringed, as in the best forms of *C. Mossiæ*.

— THE ROYAL BOTANIC SOCIETY OF BELGIUM. — This Society has arranged a few days' herborising on the banks of the Rhine, from June 21 to 24, leaving Brussels on the first named day, and going *via* Luxembourg to Bingen, which is to be made head-quarters. The expenses from Brussels and back, including three days' sojourn at Bingen, need not exceed 100 francs (£4).

— THE VIOLET. — Now that the flower season has passed, growers are busy putting out new plantations in preparation for future years. The mention of this fact should remind those who have small gardens, and are apt to allow their Violets to remain

best single kinds are those previously named and Lee's *Victoria Regina*; and of doubles Neapolitan, Marie Louise, and De Parme, which are lilac or mauve; King of Violets and Blandyanum, dark blue; Queen of Violets and Belle de Chatenay, white; and Rubra plena, red. A few plants grown in pots or in a frame give early flowers, and advance the blooming season.

— HORTICULTURAL AND BOTANICAL CONGRESS. — At a recent meeting of the Royal Botanic Society of Belgium it was decided to organise, in conjunction with the Linnean Society of Brussels, a Botanical Congress to be held in 1880, on the occasion

that it will entirely displace Wonderful. Their practical belief is shown in that they are largely increasing their stock of Vesta, while reducing that of Wonderful. The cut blooms are of great value for bouquets and buttonholes.

— YEW POISONING. — A correspondent kindly sends us the following cutting from the *Annandale Observer* of the 16th inst. :—"A few days ago the gardeners at Kirkmichael House, after pruning a Yew tree growing on an island in the pond, brought the branches on shore, and threw them into the adjoining field. A favourite piebald pony belonging to the children of Captain LYON, which was put into the



FIG. 95.—CROCUSES IN THE WILD GARDEN.

too long in the same place, that a few young plants of whatever kinds they may prefer should be put out into fresh soil every year, and some of the older clumps should be destroyed. Market growers in dealing with the single Russian and the Czar, the only kinds largely grown for trade gathering, pull old stools to pieces and dibble them out in rows about 20 inches apart. Private gardeners may treat their own stocks in just the same way, but in the case of the double kinds the best plants and the finest bloom is obtained from those struck from cuttings or runners. If the outer shoots or runners be now taken off and be dibbled in somewhat thickly in a properly prepared piece of ground, they will grow into good flowering plants by next spring, especially if replanted out with plenty of space allowed early in the winter. The

of the grand national *fiets* in celebration of Belgian independence to be then held.

— DOUBLE ZONAL PELARGONIUM VESTA. — This represents a new variety, in the exclusive possession of Messrs. HAWKINS & BENNETT, Lily Nursery, Twickenham, by whom it is to be shortly distributed. It is a double-flowered form, in the way of Wonderful, but of a much richer and brighter scarlet-crimson hue, the foliage deep green, with a well displayed dark zone, and a rare "doer," meaning thereby growing robustly and freely, and yet very compact. One great advantage about it is its undeniable superiority for market purposes; as it will open its flowers in a lower temperature than Wonderful. Messrs. HAWKINS & BENNETT are of opinion

field on Saturday morning, was found dead a few hours thereafter, and on examination its stomach was found to be full of Yew tree shoots."

— PLANTS AND ANIMALS. — At one time the presence of the green colouring matter, called chlorophyll, was supposed to be characteristic of plants as distinguished from animals; but in addition to the fact that the fungi contain none of this leaf-green it was soon found that a large number of the lower animals did contain leaf-green. Mr. GEDDES has lately shown that one of these creatures, *Convoluta Schulzii*, a Planarian, produces chlorophyll, and that when exposed to sunlight oxygen is evolved, just as in the case of a leaf. Further, from the discovery of starch within their tissues, it was proved that these

animals not only decompose carbonic acid and evolve oxygen, but they fix carbon in their tissues in the same way that plants do. As the Sundews and the *Dioneas* have, says Mr. GEDDES, received the name of carnivorous plants, these Planarians may not unfairly be called vegetating animals, for the one case is the precise reciprocal of the other. Not only does the *Dionea* imitate the carnivorous animal, and the *Convoluta* the ordinary green plant, but each tends to lose its own normal character. The tiny root of the *Drosera*, and the half-blanching leaves of the *Pinguicula* are paralleled by the absence of a distinct alimentary canal and the abstemious habits of the Planarian.

— JAPANESE CLOVER. — This name has been given by the inhabitants of the Southern States of North America to *Lespedeza striata*, a leguminous plant of Eastern Asia. According to MOHR (*Grasses and other Forage Plants of Alabama*), it has during the last ten years overspread the Southern States from the Atlantic shores to the banks of the Mississippi, and cattle and horses feed upon it. The national Department of Agriculture will, it is expected, shortly publish an analysis to determine its nutritive value as food. Several species of the allied genus *Desmodium*, as *D. acuminatum* and *D. nudiflorum*, are common all over the South-eastern States, and much esteemed as nutritious milk-producing plants. They bear the popular names of Tick-Trefoils or Tick-seed, from the fact that the flat-jointed hispid seed-pods attach themselves to the hair and fleece of animals, and to clothing.

— VITALITY OF FUNGUS SPORES. — The question has not unfrequently been asked as to how long the resting-spores of the Potato fungus will under favourable conditions preserve their vitality. We are not aware that any definite answer has been given to this particular question, but we have before us a paper of M. CRIÉ in which he shows that the stylospores of *Pestalozzia*, preserved for more than half a century in the herbarium, germinated as readily as those which were taken freshly from the host plant on the same day.

— ODONTOGLOSSUM VEXILLARIUM. — The fine plant of this splendid *Odontoglossum* in the collection of Baron LIONEL DE ROTHSCHILD, at Gunnersbury Park, promises to have a remarkably fine head of bloom; it has already produced twenty-six flower-stems, which it is expected will produce about 160 flowers. It is in fine condition, and in common with the general collection of Orchids shows how well they are cared for by Mr. ROBERTS.

— ROYAL NATIONAL TULIP SOCIETY. — The date of this annual exhibition has been fixed for Whit-Thursdays, June 5, at the gardens of the Manchester Botanical and Horticultural Society, at Old Trafford, which will be the introduction of a fresh feature on the last day of the great Whitsun exhibition. For the future it will be a standing rule to have the Tulip show on the first Saturday in June. One important feature will be introduced at the coming show, namely, the appointment of judges who are not exhibitors to make the awards. This used to be the practice at the National Tulip Show, then it gave place to the method of forming juries from the exhibitors, but as this has not worked well in practice it has been determined to revert to the old custom. The prospects of the show can scarcely be determined yet, but as a rule the flowers will be late unless a surprising change of a favourable character takes place in the weather, and the show consequently small, with blooms wanting in size and finish. Mr. SAMUEL BARLOW, of Manchester, reports in a letter just received: — "Weather cold and dull, with a bitter east wind. Tulips have small green heads, not a trace of colour or marking yet showing. I do not think my bloom can be out before the middle of June; for the 5th it seems hopeless." Since this was written a change of weather for the best has set in in the South, but it is doubtful if Nature, under the most quickening influences, can make up for lost time.

— GRAPE WINE IN ENGLAND. — COLLINSON, writing to LINNÆUS under date of Oct. 3, 1748, says: — "We have had a fine summer. Great plenty of all sorts of fruit and grain, and a very delightful autumn. It is now as warm as summer; no bearing of fires; my Orange trees are yet abroad, my vineyard Grapes are very ripe. A considerable quantity of wine will

be made this year in England. We have not had one frosty morning this autumn. Marvel of Peru, double-flowered *Nasturtiums*, and all other annuals, are not touched. My garden makes a fine show." Writing again in the spring of 1749, he states that the Elm hedges had small leaves in February, and Peas and Beans under south walls were in blossom on March 5. Again, in 1757, he states that "the extraordinary heat of our summer has ripened all sorts of fruits to perfection. In two gardens I saw this year Pomegranates against south walls, without any art, ripened beyond what can be imagined in so northern a climate. They look extremely beautiful, and are of the size of some brought from abroad." At Christmas of the same year they had a great variety of spring flowers already in bloom.

— ABUTILON DARWINI TESSELLATUM. — In this plant, which is perhaps unequalled for the beauty of its leaf variegation in a young state, gardeners have an invaluable decorative subject which can be turned to many uses both indoors and out. Its flowers are very pretty, but if it never bore a single blossom its utility would not be impaired in the slightest degree; its bold, handsome, well-displayed leaves and distinct variegation are so handsome and so strikingly effective, that its flowers are but of small moment. In all indoor arrangements, plants 6 inches to 9 inches from the pots make an excellent edging to groups in balconies, alcoves, &c.; while in the open ground large plants can be used in beds of ornamental leaved plants, the smaller ones making edgings that are as effective as they are useful. Mr. ROBERTS is growing it largely at Gunnersbury Park for use both indoors and out, and others are following his example.

— ADIANTUM GRACILLIMUM AS A GREENHOUSE FERN. — This elegant Fern stands a much cooler temperature than is generally supposed. At Gunnersbury House, Acton, the residence of H. J. ATKINSON, Esq., Mr. HUDSON has a fine plant growing in a suspended basket that did well in a greenhouse when the temperature during the past winter was as low as 38°. It is now, as during the winter, clothed with beautiful fronds of a very healthy character.

— FORCED STRAWBERRIES. — Something like 7500 pots of Strawberries have been and are being forced into fruit this spring at Gunnersbury Park, Ealing. Generally they have done remarkably well. Mr. ROBERTS has this season made a trial of several sorts, but will in the future depend mainly on Keens' Seedling, Vicomtesse Héricart de Thury, and British Queen, using the former for the first crop. They represent a good selection of approved varieties, and where large quantities of fruit are required, free setters and liberal croppers are of the highest value.

— THE EUCALYPTUS IN HONG KONG. — The *Hong Kong Daily Press* of March 27 contains an interesting report on the cultivation of the Eucalyptus in Hong Kong by Mr. CHARLES FORD, the superintendent of the Botanical Gardens. It appears that hitherto the Blue Gum has not flourished in the colony, but Mr. FORD is of opinion that it might do well as a shrub. He, however, suggests that another species, *Eucalyptus citriodora*, which is indigenous to Queensland, should be tried, and His Excellency, POPE HENNESSY, Governor, has accordingly directed that seeds should be obtained and 4000 seedlings be planted as soon as possible. "The Blue Gum has been a failure," the *Press* believes, "owing to climatic causes rather than unsuitability of soil, since when first planted the trees thrive very well. But unfortunately the heat forces them, and they grow too fast to be able to resist the wind or to put out branches. It is satisfactory to find that other varieties grow sturdily, and we trust the *E. citriodora* will justify Mr. FORD's anticipations. It is well to have variety in the forests of the future, and whenever a new tree can be advantageously introduced the opportunity should not be lost." Our contemporary notices that in the published documents the name of the "Public Gardens" has been changed to that of "Botanical Gardens;" and remarks that the gardens certainly merit their new designation, being admittedly the finest gardens in the East, as well from a botanical as an ornamental point of view."

— CALLIXENE ERECTA is one of the rare and choice plants in flower at Kew. It has the most lovely pure white starry flowers, each an inch across,

and several pendent together from nearly all of the elegant Fern-like branchlets. The leaves are elliptical in form, and about half an inch in length. The very short petioles, if such it can be said to have, are twisted partly round, as in the case of *Bomarea*, so that the under-surface by insertion becomes the upper in actual position, the appearance and function of which it assumes. Although so rare this is one of the prettiest members of the *Convallariæ*. It has a creeping habit, and the plant in the Temperate-house quite conceals the piece of Tree Fern stem on which it grows, forming a mass of wiry stems, clothed with the most delicate foliage. It is a native of Chili.

— FLOWER OF GLOIRE DE DIJON ON A SHOOT OF MARÉCHAL NIEL. — Nonsense! some will say. The fact remains that a correspondent has sent us a flower which, even in the faded state in which it reached us, is much more like the *Gloire* than it is like the *Maréchal*. We note the occurrence as one of the many instances of the influence of the stock on the scion. We subjoin our correspondent's letter:—

"I send you with this two Roses cut from a plant of *Maréchal Niel*; one is certainly the fac-simile of *Gloire de Dijon* in colour and in scent, the other is the true *Maréchal*. It seems a curiosity to me, coming from one plant and the same shoot. I believe the *Maréchal* is budded on *Gloire de Dijon* stock, but all the growth is from the bud with the true *Maréchal Niel* foliage. The plant bore about 200 blooms last spring, not a trace of *Gloire de Dijon* among them. The same shoot is now bearing both. The plant is not blooming as freely as last year." Charles Herrin, Chalfont Park, Slough.

— ADONIS VERNALIS MAJOR. — We omitted to mention that the specimen figured by us last week was obtained from Mr. PARKER'S nurseries at Tooting.

— THE CIGAR TRADE OF CUBA. — In a report on the trade, commerce, and agriculture of the Island of Cuba for the year 1877-78, it is stated that the crop of the celebrated Tobacco of the *Vuelta Abaja* was less, and of a very inferior quality to that of the preceding year, owing to excessive rains, and although the export of cigars amounted to 200,000,000, all the best have been made of the residue of the former crop, which was exceptionally good. The supply, however, being limited, some of the manufacturers used the old Tobacco for wrappers, and the new for fillers, but the cigars thus made were not so satisfactory as those in which the wrappers were of the new and the fillers of the old tobacco. The prices of cigars have been so bad in Cuba, owing to the overstocking of the English market, that many manufacturers reduced their prices, but one first-class establishment adopted a contrary course, and increased its prices, and will sell nothing for the English market excepting through its agent in London, to whom all such purchases have to be consigned. About 200,000 bales of leaf Tobacco were exported from Cuba during the past year, the bulk of which went to the United States and Germany. The largest proportion of cigars, and almost all the best qualities, were sent to England. The value of this year's Tobacco crop, it is estimated, will probably not exceed £4,000,000 sterling.

— WAIFS AND STRAYS. — The action of currents in throwing up on our shores the products of other climes has often been noted. A year or two since we received from Cornwall seeds of *Guilandina* from the West Indies, and which, in spite of their long immersion, germinated. It is usually on our western coasts, as might be expected, that such flotsam and jetsam are deposited, but we have now before us a portion of the pod of a species of *Cassia*, allied to *C. fistulosa*, washed up on the east coast of Yorkshire. It is possible, of course, that the pod in question was thrown overboard from some ship.

— ORCHIDS IN FLOWER IN MR. BORWICK'S COLLECTION. — A week ago we paid a visit to Mr. ALFRED BORWICK'S most interesting collection of Orchids at Higham Hill, Walthamstow, and found quite a number of good things in bloom. The *Cattleya*-house was remarkably gay with the flowers of several varieties of *C. Mendelii* and *C. Mossiae*. Among the former was an exceedingly fine form, with the darkest coloured lip that we believe has yet been seen; while another was remarkable for its purity and chasteness, the whole flower being like white satin, with the exception of the lip, which is a deli-

cate shade of violet. Of the forms of *Cattleya Mossiae* no two were alike, but all beautiful in size, form, and colour. *Cattleya intermedia* was represented by blooms of remarkable purity and great substance; while of *Cattleya lobata*, which is usually considered the shyest of all Orchids to bloom, we noticed a plant with exceedingly strong growths throwing up three spikes of flowers, on which could be counted thirteen buds. A plant of the handsome *C. Schilleriana* Regnell bore two most lovely-coloured blossoms, and near to it stood a plant of VEITCH'S variety of *Vanilla suavis*, with about three dozen flowers produced on three spikes. A form of *Dendrobium Wardianum* in bloom was remarkable for the curious colour of its flowers, the petals being blotched at the tips with a shade of slate-blue. Another singular curiosity was an unrecognised species of *Catasetum* from Guatemala, with a solitary green flower, which in shape bore a singular resemblance to a monk's hood. In the *Odontoglossum*-house, a span-roofed structure, with the plants placed well up to the light, was a most striking group of *O. cirrhosum*, composed of about three dozen strong spikes of variously marked flowers, scarcely two being alike, and all worth classing as good varieties. Also in flower were *O. odoratum*, *O. triumphans*, *O. maculatum*, *O. Alexandre*, *O. cucullatum*, a plant of *Epidendrum vitellinum majus*, only two years imported, and now carrying four grand spikes of flowers; *Masdevallia Harryana*, in an 8-inch pot, with fifty-four flowers in various stages of development, and which was bought in 1875 when it had only four leaves; a smaller plant, with twenty-three blooms; *M. Veitchiana*, with three splendid blooms; *M. bella*, coming into bloom, with twelve flowers; and a wonderfully healthy little plant of the curiously pretty *M. Estradae*, with quite two dozen blooms. Some other objects of considerable interest we must deal with on another occasion; in the meantime we may remark as a noteworthy feature of Mr. BORWICK'S collection that it contains only plants that were bought as they were imported, and which have been grown on in a style that is highly creditable to the grower, Mr. WALTON, the healthiness and perfect cleanliness of the whole collection being especially conspicuous; and the result of a system of cultivation, the details of which may be summed up in general terms as "plenty of water, plenty of air, plenty of light, and as little fire-heat as you can safely give them."

— *PYRUS FLORIBUNDA* is at present by far the most attractive shrub in flower at Kew. The specimens are literally covered with rosy Apple-like flowers, and those of small size even are conspicuous from a distance. Nothing can be more ornamental for lawns or choice shrubberies, contributing as it does such a lively glow of colour, not supplied by anything else of similar character. We might, perhaps, except the well-known and beautiful *P. spectabilis*, but this year two fine trees usually pictures of beauty are quite destitute of flowers. The late winter has probably been detrimental to this species, while *P. floribunda* has been unaffected.

— *AURICULA ACME*.—In a notice of this flower which appeared on p. 594 an omission occurred, to the effect that it was awarded a First-class Certificate of Merit at the Northern Auricula Exhibition held at Manchester on the 29th ult.

— THE FIRST DISH OF PEAS.—We learn from the *Cornish Telegraph* of May 20 that Mr. ROBERTS, gardener to Mr. W. MITCHELL, of the Western Hotel, Penzance, has picked a fine dish of green Peas (Sutton's Ringleader) in the open at Boskinning, Madron—the first in the district. Last year the first dish was picked several days earlier.

— THE WEATHER.—We learn from the report issued by the Meteorological Office, for the week ending May 19, that the weather was cloudy and unsettled generally. A severe thunderstorm was experienced in many parts of England on the 14th, with heavy rain in some places. There was a slight thunderstorm in "Scotland, W." on the 17th. The temperature was again below the mean, but the deficit not so large as in previous weeks. The maxima was frequently below 55°, but exceeding 60° on some occasions, and reaching 66° at Nottingham on the 17th, and 67° at Barnstable on the 13th. There were

no night frosts reported. The rainfall was more than the mean in all districts, the excess ranging from one-tenth of an inch in "Scotland, E." to six-tenths in "England, N.E.," the Midland Counties, and "Ireland, S." The heaviest amounts recorded during the thunderstorm of the 14th were 0.83 inch at Kelstern, 1.15 inch at Nottingham, and 1.40 inch at Scarborough. Heavy rain fell over Ireland on the 16th. The wind (light) was westerly to southerly at first, but afterwards veering to the north, and blowing strongly on the 15th, with a gale on the north-east coast of England. Southerly winds appeared in the west and north on the 16th, but falling light and becoming variable at the close of the week.

TULIPS AT MANCHESTER.

THERE is now to be seen (May 17) at the Alexandra Park here—one of the public parks of this great city—a collection of Tulips such as is perhaps nowhere else in the kingdom to be witnessed, tastefully arranged in beds slightly raised, and also in one grand vista, according to a regular plan, laid down and accurately worked out, with all its curves and bends, lines and points. I recollect a house made of bunting built over a Tulip-bed, the property of the late George Glenny, of floricultural notoriety, and as I have never seen it equalled I am entitled to hold it up to admiration until some one shall show me a finer sample.

One word in passing upon this house of bunting. The late Dr. Philpots, Bishop of Exeter, had one at his seat near Torquay for summer flowers; and the late James Veitch had one or more over show specimens when out-of-doors. These three persons had seen the importance of this kind of house for plants. On entering you had the idea of "dwelling in tents," and the slightly yellow subdued light deepened the green of the foliage, and was a better light than ordinary in which to view the highly-coloured flowers, which are amongst the choicest favours the Goddess Flora hath bestowed.

Our business now, however, is to tell people what a treat there is in store for them, at no expense; for these parterres are all furnished at the cost of the Corporation. If I were to say that these beds of flowers were large, were gay, &c., were admirably arranged, it would give only a faint idea of what such a costly plantation is capable of producing. All the brave defenders of Ekowe might get a gay buttonhole flower by way of breast-knot and they would not be missed; and those heroes of Isandula that fell gloriously in their country's cause might have every one a wreath or garland laid upon his grave, for the Tulips in this park could do all this without impairing the beauty of the spring flowers there exhibited.

The Tulip has had its day, and the history of its importance has been told a hundred times. Some 300 years ago Tulips were said to have come to our shores, and as much as 2000 dols. are reported to have been given for a bulb by those bit with what is known as the Tulip mania in the Low Countries. Its name, as given in Loudon, is said to be from Thulyban, its Persian name, or from the Eastern head-dress, the turban, on account of the similarity of shape. The flower is the very cream of gaudiness, heavily coloured in general, yet having some fairly white flowers, and carrying during the flowering season only a few inconspicuous leaves. The double dwarf ones are usually bedded out-of-doors, and the choice ones usually get some protection, such as the bunting tent above named, on account of the time of flowering being usually in unsettled weather. This particular season of 1878 and 1879, the column "time of flowering" must be modified to suit the season, for the Hyacinth had hardly done its work when the Tulip was at its heels. The Christmas Rose and the Snow-drop have been detained in the ice, literally "ice-bound," until the Daffodils of May had driven them quite out of date, and we must hereafter add, in sailor's phrase, weather permitting. This is a great drawback to beginners learning botany, as they cannot now depend upon the time of the plant flowering; and as for plants reckoned tender or hardy, this season gives no true criterion.

The Tulip beds, however, in the Alexandra Park, Manchester, are all perfect at this time, with no frosted gaps to fill up, and spring flowers—always a scarce commodity—should be seen in their season lest our summer days get shortened by frost as our winter days have been. *Alex. Forsyth.*

Home Correspondence.

The Weather and the Fruit Crops.—The weather prophets are, as usual, much out in their forecasts, for as we had such a winter it was predicted by many that the spring would be balmy and genial, whereas it has been one of the coldest and most sunless on record, and were it not for the unusual lateness of Apples and Pears and other hardy fruit trees in unfolding their blossoms, it would be simply impossible for any of them to set. As it is, I fear the tender germs are injured, and that later on the embryo fruits instead of swelling will tumble off, for on several occasions during the earlier part of the month they must have been frozen completely through, and in their then tender state that is almost sure to result in serious injury. There is one hopeful feature about it all, which is, that the trees are so laden with bloom that three parts of it in most cases can be well spared, and should that quantity fall it will still leave enough for a crop. Disheartening as such seasons are, they are not altogether profitless, at least they should not be so, if we take note of the different varieties best adapted for withstanding cold, as from past experience during the last three or four years I am convinced that trees vary much in this respect, although no doubt soil and situation have a good deal to do with it. The only sure and fair way of forming a correct estimate of their several capabilities to resist cold as compared with others, is when they are in the same garden and alike circumstanced as to shelter and aspect, for being under exactly similar conditions their chances are equal, and they may therefore be judged of accordingly. On going round our Peach wall and giving the trees a close scrutiny, I have been much struck with the great difference there is among the several kinds in regard to their setting as well as in the state of the foliage and the young wood laid in last year, some being quite healthy and free from blister, while others have their leaves much distorted and a good deal of the wood injured so much as to be dead or dying. One that has suffered the most in this latter respect is the Stirling Castle, which although it looked one of the most promising trees we had some two months back is now the worst and most decrepit of any we have. As it is in a new border, and made such splendid wood last summer, its failure and present condition is, I feel sure, owing entirely to the inclement state of the weather, as in the same border close by its side stands a Walburton Admirable that looks as well as can be wished, and it will to all appearance bear a full crop. Of this latter Peach I feel I cannot speak too highly, as it is not only a hardy good doer, but is one of the most serviceable and best flavoured grown, as in a fine autumn it is quite equal to a Noblesse, to which in appearance it bears the closest resemblance. It has the merit, however, of being quite a month or six weeks later, and is therefore even more valuable on that account, as it comes at a time when others that are worth growing are over, excepting Lord Palmerston, which seems to be an enlarged variety of it, but is not, I think, equal to it in quality. Dr. Hogg will, I believe, turn out one of the most useful Peaches that have been sent out for many years, as it evidently possesses a very hardy constitution and sets its fruit freely, which when ripe is remarkably high-coloured and showy and has a rich luscious flavour. As proof of its fertility I may add that I counted to-day on one shoot that is only 9 inches long twenty-five Peaches, and they are nearly as thick all over the small tree, although it has fared in every way as regards protection just the same as the others, and all we grow are on one aspect, facing east-south-east, where they have been much exposed to the bitter winds we have had from the latter quarter for so long past. The worst with us in point of setting is the Malta, a fine young tree of which, although it flowered very freely, will not, I think, swell a single fruit, and it is one therefore I should not advise for planting outdoors. Pourpre Hâtive is as promising as any, and is a Peach well deserving of extended cultivation, as it seldom fails and is one of the very best. Goshawk, an American variety, is likewise deserving a place even in the most select collections, as it is a heavy cropper and first-class at all points. Bellegarde is likely to maintain its good reputation among the old sorts, and with us is this year equal to any. What I notice more particularly among Peaches during the present season is that the large-flowered sorts have set and stood the worst, which failing appears to me to be attributable to the organs of fructification being more exposed owing to the petals opening out so fully, thus leaving the stigma projecting without the least cover, or the anthers anything to shield them from damp. Another peculiarity with the large-flowered sorts is that the pistils are larger, and so also are the stems supporting the anthers, but not in the same proportion; and this may account in some measure for their comparative shyness in setting, as the stigma is pushed out too far away from the pollen: and yet in Nectarines some o

the large-blossomed sorts are the freest. Take the Pitmaston Orange for instance, which is one of the most showy and yet it is a sure cropper; and that splendid early new Nectarine, Lord Napier, which has the same characteristic, promises to be equally good. Then again there is the Pine-apple, and another much like it, named Humboldt, both large-flowered sorts, and yet they set well either indoors or out. The best with us, however, in the last named situation are the Impératrice and Elruge, the blooms of which are so small and insignificant that they are scarcely noticed on walls, and I have no doubt that, take the seasons through, such as these will be found the most remunerative. Later on I hope to have some remarks to make as to the behaviour of Apples, Pears, Cherries and Plums, for as yet it is too early to form an opinion of these, and if others will give particulars of sorts that succeed best with them in this adverse season, the knowledge gained will be of much use to fruit growers, as it will enable them to select kinds that may be more depended on. J. S.—P.S. Since writing the above I have had an opportunity of visiting the gardens at Orwell Park, where I find they have a capital set of Nectarines, while Peaches that have been protected in the same way, either under scrim canvas or fish-net, are thin. It would thus appear that the woolly coating of the fruit of Peaches, by holding the damp, renders them more tender than their smooth-skinned congeners, instead of helping to keep them warm as one would suppose; but whether this is so or not, certain it is that from some cause or other they have not stood the bad weather so well. In going through the houses in the same grounds I was much struck with a remarkably fine specimen of *Dendrobium chrysanthum* growing in a basket, measuring about 15 inches square and 9 inches deep, which had forty-eight racemes of flowers just past their prime, but which, when in perfection, must have been quite a sight. British Queen Strawberries, too, along the various shelves, hung in immense numbers, and the perfume with which they filled the air testified to their high quality, while as to size, many of them could not be far short of an ounce each. This fine Strawberry is held in such esteem by Colonel Tomline that Mr. Wallis forces none other, and to have them in so early, and in the condition he has them year after year, is a feat to be proud of. J. S.

—It can hardly fail to be a matter of interest just now to take stock as far as possible of our hardy fruit prospects in West Middlesex, where the large fruit orchards have been or yet are with Apple blossom gay. It will be of still further interest to compare this with the returns as to the actual fruit produce which will be furnished in due time. Generally the greatest quantity of blossom was seen on the Cherry, the trees having been literally hung with bloom. The graceful standard trees of the Morello have been very beautiful. Pears stand next in quantity of bloom, for although, owing to the greater range of sorts, it is not so general, yet it has been very large—far more than enough to give, if spared, an enormous crop of fruit. Plums have bloomed but partially, some trees covered with blossom, others having little or none. Some of this has without doubt been injured by frost, but there is hope of a fair sprinkling of fruit, and that will make a good average crop. Apples are flowering very late indeed, and it would seem absolutely impossible that at this late period of the spring they can suffer. It is comparative, like the Plum bloom, and not general; still there is enough to give a large crop. The Wellingtons have the reputation of being thin of bloom, but looking to the prospects of another year it is not an evil if some trees are this year unproductive. Currants have bloomed very abundantly, Gooseberries also, but it is feared that these are much cut by frost; Strawberries and Raspberries promise a very fine show of bloom. A. D.

Garden Plans.—Your correspondent, Mr. H. Howlett, has done good service in bringing before the horticultural public his views regarding the practice of enclosing gardens with brick walls as compared with the more modern idea of glasshouses. Mr. Howlett does not seem to be aware that his views have already been anticipated, and, if I mistake not, actually carried out by Mr. Thomson, of Drumlanrig Castle—I do not say as an exact duplicate of Mr. Howlett's plans, for it is improbable indeed that the same idea would answer in all places alike; but I believe one side of the garden at Drumlanrig is enclosed with glass, and I think Mr. Thomson has in addition drawn public attention to the economy of such a principle. I do not think there will be two opinions upon the question in its original shape, although, doubtless, people may differ in carrying out the details. Mr. Howlett has, however, in my opinion hardly done his subject justice; he is not only one of our best practical authorities on hothouse building, but he is also a practical gardener, and he could have told us in plain figures the difference between an inexpensive glass range and a brick wall. That would be bringing the two sides of the question into

close quarters, and there is no doubt that those who contemplate horticultural building would be glad of such information. If we take the climate of the North of England generally, and examine for ourselves the advantages of such a scheme as Mr. Howlett proposes in regard to garden walls *versus* glass-houses, we have the facts all in favour of the latter. We may (for sake of example) take the majority of Lancashire gardens, where walls are to be built, at the highest rate of wages and material. Trees are to be purchased, and the soil to plant them in costs on an average 12s. a load; men have to be paid comparatively high wages for training and attending to them, and yet I dare venture to say that there is not an average crop of Peaches, Plums, or Nectarines gathered once in five years. What is the reason? Blame the gardener, of course!—call him a stupid fellow because he cannot make a climate, and keep buying tree after tree, which seldom or never bear fruit, if, indeed, they survive the effects of the climate. Now, if all these items be calculated, and the loss and disappointment of crop, and a fair line be drawn, I have no doubt that employers would see for their own advantage which was the most profitable course to adopt. The change would only harm one class, viz., the "traders in soft-soap," who vend the article under various titles of insecticide. I hope the subject will not die out now that it is before the public until it is thoroughly analysed by practical gardeners and others interested in the welfare of horticulture. W. Hinds.

The Mimulus.—Strong well-established seedling plants of the large spotted Mimulus are now being planted out in a north border, the soil being well prepared and pulverised. In this position they will bloom freely for a long season, and produce in abundance their rich-coloured and gorgeous flowers. Seed should be sown in shallow pans very early in the year if wanted for greenhouse decoration; but for summer blooming early in March will do well, as, if needed, the placing the seed-pans into a little heat will accelerate growth. As a rule, no seed so minute as the Mimulus germinates more freely even without; and as the plant likes cool treatment, the more heat can be dispensed with the better. To produce strong-spreading bottoms it is well to pinch out the lead of the main stem, and that will induce the side-shoots to develop and grow together. If strong plants are required to grow into specimens for exhibition or for house decoration some of the finest of the seedling plants should be marked, and these, lifted and kept through the winter in a cool house, will in the spring soon make fine plants, carrying rich heads of bloom. Seed requires considerable care in the sowing, as it is difficult to note just when the pods are fit to gather, as the seeds often ripen ere the calyx has changed its colour. We gather just as the pods feel hard, and the seed ripens well after it has been exposed to the sun. A. D.

Sparrows.—Your correspondent "R." says: "We are sorry that sparrows are still regarded as enemies by many of our village husbandmen. It is a pity we have not yet learned more humanity, for without doubt this persecuted bird is one of the best friends, both of the gardener and farmer." The "we," I suppose, includes the florists who have calculated the grubs destroyed and the flies and cockchafers devoured by their *protégés*. I will, with your permission, give a few reasons for the persecution, as practised by ignorant husbandmen, both farmers and gardeners. In the first place I have not seen any proof of their insect-destroying propensities, nor of their wholesale grub-eating performances, and cannot accept without it this and similar statements made by their friends and advocates. I will not attempt to deny that they will eat grubs, &c., or that they feed their young with them, but I am not convinced that they prefer grubs to crops necessary to the human race; and the farmer and gardener are neither ignorant nor inhuman who do their best to destroy these winged pests which, if let alone, would make their calling worthless. If "R." doubts this let him examine a corn field threshed out by sparrows before it was ripe enough to cut. Let him examine the Pea rows where these pests abound. Let him examine the Gooseberry and Currant bushes stripped of buds to the bare stems by them—some killed outright, others rendered worthless for fruit-bearing. Let him sow a bed of Radishes where they have access, and he will find they will pluck them up and destroy them in twenty-four hours. Turnips and the Cabbage tribe the same. Montague's sparrows caught in the mats were stealing the Lettuce, not the mat. Poultry-keepers where not protected have a swarm to keep, and I am inclined to think that of all created animals they are the most voracious. As for nest-building, who ever saw a sparrow's nest that was not a picture of slovenly idleness—a lump of rubbish thrown together without method, proving their vagabond habits? Rob, rob, rob, is their motto—eat, eat, eat—chirrup, and deride the farmer and gardener. We are his friends, but he does not know it. Yes, I for one like the sparrow;

and if I were in the position of Noah, and held the only pair, money would not purchase them—extinct as the dodo would be their race. G. E. Elliott, Huddersfield.

The Discovery of a Perfect Plant in semine.

—The observations of Mr. Henry Baker, as quoted on p. 630 of the present volume, and which appear in *Philosophical Transactions*, No. 457 (1741), were not suffered to remain unchallenged even in his day. That singular individual, Sir John Hill, in his entertaining but spiteful attack on the Royal Society, which was published in 1751 under the title of *A Review of the Work of the Royal Society of London*, seizes every opportunity to hold Baker up to ridicule. In the case now under consideration Hill points out that the object supposed to be a juvenile plant, contained in the seed of *Briza media*, L., was in reality the unexpanded flower. "His plant in Semine is no other than the Pistil of the Flower, whose Germen makes what he calls the Root, and its two Styli with their Stigmata, the two Stems of equal height, each having, as he says, many Leaves on it perfectly like those of the Grass itself. It would have been too hard to expect a *Royal Society* to understand the Characters of Plants, tho' *Linnaeus* has already described them; but one would have thought that they might have discovered at least, that what Mr. Baker calls Leaves perfectly like Grass, and has figured growing on the two Stems of equal Height, were much too numerous for the Plant itself when full grown, and were not like either Grass or Leaves at all" (p. 172). The same member of the Royal Society afforded Hill an opening for devoting six quarto pages to "An Account of a Strange Creature called Bakera, described in the *Philosophical Transactions* under the name of An Odd Aquatick Animal." It recounts how Dr. Henry Miles of Tooting found some seeds of *Bidens* in a ditch, and fancying that they were some non-descript animals, sent them to Baker, who forthwith drew up a full description of the creatures, and how they sank in the water on the approach of a stick—when taken out and laid on paper sprang "away like a grasshopper," and died in a "Day-and-halves" time, with much more in a similar strain. B. D. J.

Ants in an Orchid-house.—These insect pests can only breed and increase where they can find a dry warm place to deposit their eggs, and therefore if their home be searched out and destroyed there is quickly an end of them. By close watching it will be seen in what direction they steer and where they take up their abode, as they always have tracks leading to it which they continually traverse. In houses it generally happens that they found a colony near a boiler, or where the pipes enter, the earth there being warm and dry, or if the walls are old and hollow they resort to them, in which case they are easily dealt with, by running cement into the joints so as to effectually fill them up, for if a crevice is left no wider than is sufficient to get in the point of a knife they will effect an entry, and by dint of great perseverance soon make it larger. I had a lot in a Peach-house here that had taken up their quarters among the bricks forming the base of a chimney-stack in one corner, the bulk of which are hermetically sealed in by the means above-named, and the stragglers caught by being stuck fast in pans baited with treacle. Any thick sweet liquid of this kind has great attractions for them, as have also dead birds or meat of any kind, by which they may be readily entrapped and their number quickly reduced. This, however, is of little avail if their nests are not disturbed, for, like bees, they soon come out in swarms and re-stock the place. If their home is in the soil, the best way is to carry out the part containing it and replace it with fresh, or keep it drenched with water at boiling heat, that they may be scalded in their beds. I have frequently got rid of them in this way, and have no doubt "X," if he follows up the same remedy, will be equally successful. J. S.

Berberis stenophylla.—Our experience with this most desirable evergreen shrub is, that it is perfectly hardy: the last winter should be a pretty good test as to the endurance of plants, with perpetual frost, and all the elements dead set against vegetable life. At the present time (May 14) we have a plant of *B. stenophylla* with millions of blossoms now open, and it is a most beautiful object in our shrubbery border; the plant is over 40 feet in circumference, and nearly 10 feet high. Wm. Payne, Gr. to John Marshall, Esq., Belmont, Taunton.

Lost and Saved in a Lady's Garden (Midland Counties), 1878-9.—In accordance with your request, I beg to offer a list of lost and saved, as nearly correct as possible at present, for some of the plants will recover, and others may do so. The soil is light loam, rather sandy; the situation is high and often windy, the climate that of the West Midlands. The garden is sheltered on the north and east, open to the south; it is not overshadowed by trees. I will add a postscript (at a later date) to make the summary more complete for those amateurs whom it may concern, as the so-called "American" plants and

herbs, bulbs, and the lovely little alpine of minor size but major interest are not included in the list. The balance on the season is a very encouraging one to those who love their gardens. *H. M. E., May 15.*

Saved, and Recovering.

Aralia japonica and *spinosa*, well
Arbutus Cro. mit
Akebia quinata, very hardy
Azara microphylla
Aquilegia chrysantha
Alaternus (variegated), much cut
 " *Rhamn.* (?)
Buddleia globosa, cut
Bridgesia pyricata, cut
Berberis Darwinii, much cut
 " *Beali*, *japonica*, *Jamessonia*, *stenophylla*, *culcis*, *magnifica*, *fasciculata*, *glumacea*, and *repens*, not much affected
Bignonia radicans, much damaged
Bramble, Parsley-leaf and double white much injured
Coriaria (*Myrtle* Sumach)
Clematis bicolorica, quite well
 " *hybrida* — *Jackmanni*, suffered; *Mrs. S. C. Baker*, full of buds; so is *montana grandiflora*; and many others are well
Cotoneaster (evergreen), much injured
 " *microphylla*, *buxifolia*, *thymifolia*, *Wheel-*
ern, and *Simonsii*, in order named
Chimonanthus fragrans, flowered well
Ceanothus azureus, much cut; old plant trimmed in the autumn, un-
 " *Gloire de Versailles* is well
Cistus laurifolius, well
 " *ladanifera*, much cut (*Gum Cistus*)
Daphne (*Van Houtte's purple*), is recovering
 " *autumn-flowering*, well
Deutzia gracilis and *crenata purpurea fl. pl.*
Escallonia macrantha, much damaged
 " *pterocladia*, quite hardy
Eryngium campestre
 " *alpinum*, on rocks
 " *rigidum*, best of all
Euonymus (silver, gold, and tricolor), suffered much. The old kind was a buttress of living green all the winter, in frost and snow
Forysthia viridissima and *suspensa*, both in bloom
Ferula glauca and *ungitana*, both ornamental now
Fraucoa ramosa, recovering
Fuchsias, doubtful, except *Riccortoni*
Garrya elliptica, injured
Hellebores, were never so fine, *H. colchicus* especially so, with its fruity bloom
Hedera, or common Irish, suffered most. *H. canariensis pallida* not so much
 " *canescens*, much hurt, and all the leathery leaved kinds, except *H. dentata*. The most robust of eighty sorts are angularis, Hibberd's Emerald, lucida, and Jersey Helix, green all the winter
 " *succinata* (amber), very hardy and pretty

Lost or Dying.

Aristolochia alti-sima
Aquilegia glandulosa and *Skinneri*
Arum Dracuncul., *crinitum*, *comutum*, and *Arisarum*, others surviving
Berberidopsis corallina, killed to the ground
Berberis Fortunei and *empetridifolia*
Convolvulus Cneorum, died at once
 " *mauritanicus*
Coronilla Emerus
Colletia norrida (*spinosa* ?), may come again
Clematis cirrhosa, killed to the soil. probably come again
Campanula pyramidalis—the only one that died out of twenty-three or twenty-four kinds
Daphne Doniana
 " *collina* may revive, and so also, perhaps, may *punctata*
Cneorum, disappeared
Desfontainia spinosa, quite dead
Eucalyptus globulus, quite dead
Eurya latifolia variegata
Eurybia ilicifolia
Eryngium bromeliæfolium, these died at once

Eryngium amethystinum, *maritimum*
Eugenia Ugni
Fabiana umbicata
Gri-elina littoralis
Hollies (silver-edged) in pots, perished
Lavender-cotton, all died
Lupin. Tree Lupin, white, a very fine specimen
Ligustrum macrophyllum, large shrub
Libertia pulchella
Olea ilicifolia, one out of two shrubs
Polygonum complexum, or *vespertilionis* ?
Roses, *Marie Van Houtte*, *Tea*, lately planted—three invalid *Roses* out of 383 varieties
Rosemary, a large tree, young plants survived
Sweet Bays killed to the ground, may come
Solanum jasminoides, died at once
Thyme, all the common garden
Thyme, much of the golden.
 The silver is pretty hardy, though some of that died.
Wallflowers, nearly all the double amber and dark
Yucca Whipplei, died at once : four specimens.

Clematis Willisoni.—By this post we have the pleasure of sending you a flower of *Clematis Willisoni* remarkably double. This was one of the last productions, in the way of hybridising, of the late William Willison of Whitby, after whom it is named. The "doubleness" of the flowers is not certain, some coming single, some semi-double, and some fully double, like the one we send you, but the better the plant is grown the more double flowers there are. But whether as giving double or single flowers it is a beautiful plant, from the profusion and size of the flowers, as well as from the beautiful shade of lavender-mauve which they take on. It is also wonderfully free-flowering, the blossom we send you being one of about forty fully expanded flowers borne by a plant in a 12-inch pot in a cool greenhouse. *Jas. Backhouse & Sons, Nurseries, York.* [The flower sent is a very handsome double one, similar to that sent us by Mr. Willison himself some years ago, and described in our volume for 1875 (n.s., iv., 17). Eds.]

Double-flowered Nasturtium.—The accompanying woodcut (fig. 96) represents the old double orange *Nasturtium*, *Tropæolum majus flore-pleno*, which was much grown for greenhouse decoration and for flower-garden beds in the early days of bedding out, when, though planted with flowers of



FIG. 96.—TROPÆOLUM MAJUS FLORE-PLENO.

one kind, in masses, a flower garden contained a goodly number of interesting plants which have now been elbowed out by the irrepressible Zonal Pelargonium. Of the *Tropæolum* it is sufficient to say that in sunny beds, of light soil, it had a brilliant effect, and we have no doubt that Mr. Caie could tell of some of these, in that well-remembered garden at Campden Hill, of which he then had the charge. It makes also a pretty pot plant, and grown in moderate sized pots forms a very useful decorative subject. Of late years it has been but seldom seen, its place being usurped by novelties which often are less deserving of the space they occupy. It should be kept rather dry at the root, to secure a free development of flowers, and should not be planted in too rich a soil. *M.*

Ranunculus Lyallii.—It is now more than forty years since I first saw this splendid plant in its native home. Some few years back I saw two unhappy plants at Kew, sent, I believe, by Sir G. Grey. It is, without exception, the queen of the genus, and is a plant that will always remain scarce, like the beautiful *Myosotidium* from the same country, as few persons have a proper place to grow it. It prefers damp shady gulleys; the foot of a waterfall within the influence of the spray is the place to see it in perfection. In such situations, growing with the grand *Selaginella Billardi*, it attains a height of 3 to 4 feet, with large panicles of flowers fifteen to

twenty in number, of a peculiar opaque white, 3 to 4 inches in diameter. I believe in suitable situations in Wales it will prove perfectly hardy. There is yet another *Ranunculus* well worthy of cultivation which I have not as yet seen in this country, viz., *R. Gunnii*; this I saw growing in profusion on Mount Arthur, Tasmania. The flowers are bright yellow on the upper or inner side, and purple on the lower or outer side; it is found easy of cultivation by the colonists. *T. Shortt, Penmaenmawr.*

A Correction.—Will you allow me to correct a word you make me responsible for in the short report you published last week on the effects of the winter on Carnations and Picotees? I wrote "long-continued cold, combined with 'dirt' and damp, deplete and destroy in a degree pitiable to witness." By a printer's error the word "dirt" is made "drip." [The printer may plead a justification, for in the MS. the word looks as much like "drip" as "dirt." Eds.] To suffer from dirt is my misfortune, as I cannot stop the hundreds of locomotives daily passing within a few yards of my garden, or the smoke and dirt thrown out from countless chimneys; but to expose plants to drip would be a fault, and unpardonable. *E. S. Dodwell, Clapham, S.W.*

Cypripedium Calceolus and spectabile.—These very interesting and beautiful Orchids succeed well with us in the hardy fernery here, planted where they are well sheltered and shaded from the sun by the tops of tall trees. The position they occupy is immediately over a watercourse, where the runnings from a tiny spring are brought through some common drain tiles open at the joints, and which consequently allow sufficient moisture to get through between so as to keep the soil exactly in that condition just suited to their requirements. Any one having a damp shady spot where they can prepare for them a bed of peat, intermixed with sphagnum, leaf-mould, or such-like vegetable matter, will, if they plant them there, find them just at home: as in a loose root medium, such as would then be afforded them, they would be almost as favourably circumstanced as in their native habitats. *C. spectabile* is by far the handsomest of the two, the lip being of a lovely delicate pink tint, large in size, and greatly distended. A yet more beautiful variety even than this is *C. japonica*, a recent introduction from Japan, and therefore not over plentiful as yet. *C. spectabile* may, however, be had at a low price in fresh imported clumps, which are even better and stronger than established plants in pots, they having large plump crowns that always flower well the first season. The tufts as they came from America are in a kind of moss and vegetable debris, which shows at a glance the kind of stuff they require to grow in. As yet I have had no experience of them under glass, but have no doubt that they will do well in cool damp frames kept from the sun and allowed to come on naturally, and if so they will be of great use for the embellishment of windows or greenhouses. *J. S.*

New Primrose.—I send you two blooms gathered from a stalk containing five blooms of the handsomest Primrose I have ever seen. It is sweet-scented. It is a perfect circle, each bloom 1½ inch in diameter, crimson, with a white spot at the border of each petal, and it has an orange-coloured centre three-quarters of an inch in diameter. The stalk on which the blooms are is 7½ inches long. It is a hybrid, and I have called it "*Polyhymnia*." The colour is peculiarly rich and brilliant. *L. J. Lowe, Highfield House, May 14.* [A very handsome and noble flower as a border variety, but pin-eyed. Eds.]

Canary Creeper, &c.—A row of this beautiful climber should be sown at once to secure a most charming effect in the late summer and autumn. To vary the monotony incidental to one hue of colour, a few deep-coloured kinds of the climbing *Tropæolums* and *Sweet Peas* may be sown in with the seed of the *Canary* plants, and the result will be so pleasing by-and-by as to elicit the warmest admiration. As soon as the plants are well through the soil, some branches of Hazel, Birch, or Elm, should be fixed in on either side, and these will soon be covered. The bloom will be continuous until the frost comes, but long ere then the hedge will have become a line of colour and beauty. *A. D.*

An Orchid-house in May.—Complete success has attended an endeavour to rescue Orchids in flower from the plant-houses where nobody but the gardeners and myself could look at them, to a conservatory viewed and entered from the drawing-room, where they can be seen and admired by everybody. Not the least advantage of such a gathering of them under one roof is that they are shown as in Nature, bowing, creeping, climbing, upright or pendent. Thus disposed, even the long-stemmed *Oncidiums*, that look so naked, and therefore are so unpopular, are found to possess a singular beauty as they trail over the Ferns and other surrounding

plants, sending up their branchlets of bloom at interval, from among the foliage on whose hospitality they are resting. The following contribute to the blaze of colour, the atmosphere of fragrance, and the marvels of form that surround me as I write in a comfortable temperature of 65° :—

| | |
|------------------------------------|-------------------------------------|
| <i>Vanda suavis Veitchii</i> | <i>Oncidium tigrinum</i> |
| " <i>tricolor insignis</i> | <i>Aerides Fieldingii</i> |
| " <i>ceruleus Boxalli</i> | " <i>suaveolens</i> |
| " <i>cristata</i> | <i>Cyrtorchilus maculosum</i> |
| <i>Saccolabium Blumei majus</i> | <i>Colax jugosus</i> |
| " <i>violaceum</i> | <i>Brasavola venusta</i> |
| " <i>amplacum</i> | <i>Cypripedium barbatum nigrum</i> |
| <i>Dendrobium Devonianum</i> | " <i>superbum</i> |
| " <i>crystalinum</i> | " <i>niveum</i> |
| " <i>Boxalli</i> | " <i>Parishii</i> |
| " <i>finbriatum oculatum</i> | " <i>Lewii</i> |
| " <i>thysiflorum</i> | " <i>longifolium</i> |
| " <i>densiflorum</i> | " <i>Roezii</i> |
| " <i>chrysotoxum</i> | " <i>Harrisonianum</i> |
| " <i>cupillipes</i> | <i>Uropedium Lindeni</i> |
| " <i>lituiflorum</i> | <i>Phalenopsis grandiflora</i> (one |
| <i>Odontoglossum crispum</i> | has double flowers—is |
| " <i>Peatorei</i> | it not a curiosity?) |
| " <i>Andersoni</i> | " <i>Ludemanniana</i> |
| " <i>citro-mum</i> | " <i>rosea</i> |
| " <i>roseum pendulum</i> | <i>Brassia Lanceana</i> |
| " <i>nebulosum</i> | <i>Laela purpurata</i> |
| " <i>maculatum</i> | <i>Chysis Limminghi</i> |
| " <i>Doniatum</i> | <i>Masdevallia Veitchii</i> |
| " <i>viriosum</i> | " <i>Lindeni</i> |
| " <i>vevillarium</i> | " <i>Harryana</i> |
| " <i>Hilli</i> | " <i>amabilis</i> |
| " <i>Cervantesii decurum</i> | " <i>Chimera</i> |
| " <i>triumphans</i> | " <i>ignea</i> |
| " <i>Karwinski</i> | " <i>Estradae</i> |
| " <i>stelligerum</i> | " <i>caudata</i> |
| <i>Lycaste Skinneri</i> | <i>Cyclopogon Parishii</i> |
| " <i>Deppii</i> | " <i>ocellata</i> |
| <i>Oncidium sarcodes</i> | <i>Maxillaria tenuifolia</i> |
| " <i>Marshallianum</i> | " <i>triloris</i> |
| " <i>sphacelatum</i> | <i>Phajus alba</i> |
| " <i>altissimum</i> | " <i>grandiflora</i> |
| " <i>Philippianum</i> | <i>Utricularia montana</i> (not an |
| " <i>superbiens</i> (well entitled | Orchid) |
| to the name) | <i>Epidendrum vitellinum majus</i> |
| " <i>pulverulentum</i> | " <i>odoratissimum</i> |
| " <i>divaricatum</i> | " <i>fragrans</i> |
| " <i>serratum</i> | " <i>aromaticum</i> |
| " <i>Barkeri</i> | <i>Calanthe veratrifolia</i> |
| " <i>ampliatum majus</i> | " <i>Sieboldii</i> |
| " <i>Weltoni</i> | <i>Cattleya Mossiae</i> (many, va- |
| " <i>occultatum</i> | rious) |
| " <i>Krameri</i> | " <i>Atalanta</i> (Trianze) |
| " <i>concolor</i> | " <i>Mendelii</i> |
| " <i>pubes</i> | <i>Cirrhopetalum species</i> |

Edward W. Cox, Mount Mount, Mill Hill, May 17.

Tricolor Pelargoniums.—The mania that some time since ruled concerning these rich-leaved plants has subsided, and they are now less widely grown. It was no doubt unfortunate for raisers of these things that Nature had so far circumscribed the range of colouring that few later kinds proved superior to Mrs. Pollock, and none were more reliable as a bedding kind. The production of these Tricolor varieties served to exhibit what vagaries skilful hybridists might play with Nature, and how far she permitted them to proceed. So far in that peculiar direction the Golden or the Silver Tricolor has proved the utmost extent of their tether, and beyond there is little hope of proceeding. The origin of these Tricolor kinds is an oft-told story, one of the most useful seed parents being a kind known years since as the Emperor of the French fertilised with pollen of some of the Silver Bicolor kinds, such as Flower of Spring. The cross served to reduce the chlorophyll or green colouring matter in the leaf of the seedling plant, and at the same time converted the black zone into one of red or vermillion, the green colour being mostly retained within the circle described by the zone and mostly obliterated at the margin of the leaf: thus was produced the Golden Tricolor Pelargonium. At the present time the most perfect examples of colouring in the leafage of all the best kinds may be seen at the Boston Park Nursery, Brentford, where Mr. Pestridge grows them by thousands for market, and succeeds in producing them in small plants coloured in the richest and most beautiful hues. In this way they excel all the large specimen plants of the various kinds, few of which are ever presentable at exhibitions. *A. D.*

Florvita, or the Life of Flowers.—The above is the name given to a new fertilising agent which has recently been introduced to the notice of the horticultural public, and is at present being advertised in your columns and elsewhere. An analytical report respecting it, by Dr. Voelcker, states that it contains an embodiment of all the more valuable fertilising constituents of cultivated plants in a highly concentrated condition. It is in the form of a powder, and is recommended to be used at the rate of a teaspoonful to a gallon of soft or rain water, so that it is very cheap and exceedingly convenient to use, and is also quite free from anything like a disagreeable appearance or smell. On the contrary it is sweet-scented, of a delicate or light pink colour, and has more the appearance of a condiment of some kind than of an article containing the properties of plant food or manure. But as I have not as yet seen any statement regarding its merits or otherwise, in your columns or elsewhere, by those who may have been induced to give the preparation a trial, I will, if you will kindly allow me to do so, state my experience as far as it

goes in connection with it. I must admit that its exceedingly delicate and elegant appearance did not inspire me with anything like sanguine expectations of its practical value as a fertiliser; but I determined, nevertheless, to give it a fair trial, considering that if it was found to be beneficial it would be preferable to liquid manure prepared from guano or other unsavoury fertilisers for the purpose of applying to plants contained in conservatories, or placed in sitting-rooms, &c. So with this object in view various sets of plants were selected, each individual plant of which had previously received in all respects the same treatment, such as soil, size of pots, period of potting, temperature, &c., and to one portion of the plants in each set the Florvita was applied as directed twice a week, while the other portion or moiety were supplied with ordinary rain-water. The result I must say exceeded my expectations, as the plants which had been favoured with the Florvita speedily showed a marked advance upon those which had not been so treated. The earliest Cucumbers here are generally grown in large pots placed over a hot-water tank while the plants are trained under the roof: one half of the pots were this season watered with the Florvita of the strength recommended, viz., one teaspoonful to a gallon of water, while the other half of the pots were supplied with ordinary water only. The plants which have been supplied with the Florvita are now living evidences of its efficacy, in their more abundant supply of fine fruit and in the healthy and luxuriant appearance of the foliage and plants altogether. I have not had an opportunity of trying the effect of this preparation on Vines fruiting in pots, but I am inclined to think that it would be of the greatest value in this respect, and it is possible that some of your readers who may have done so will communicate the result of their experience, which would no doubt be interesting. The manufacturers say in their advertisements that the preparation may with great advantage be applied to fruits, vegetables, and flowering plants of all kinds, however delicate they may be, with the exception of Ferns, but why this exception is made I cannot perceive, as I have applied it to such plants as the Adiantum farleyense and other species, and have obtained a marked improvement in the colour of the fronds, and in the healthy appearance of the plants. *P. Grieve, Culford, Bury St. Edmunds.*

Colours of Wallflowers.—Under the influence of recent cool and cloudy weather the colours seen in the yellow and crimson Wallflowers have been unusually brilliant—far, indeed, beyond what is usually seen in May. In the market gardens the selected plants left for seed are most rich and brilliant, whilst beds of the yellow kinds are exceedingly pure and effective. Some compensation is thus being given for past losses and failures. The dwarf Belvoir yellow kind is so effective as a bedding plant that for the time it seems to eclipse all other yellows by its gorgeousness. It is moreover dwarf and even in growth, and thus all the more acceptable as a bedding plant. *A. D.*

Bedding Violas.—We have pleasure in sending you a box of bedding Viola blooms, and as the plants have been outside since autumn it is a good proof of their hardiness. They have been very showy for some time, and have been highly appreciated, especially in such a late season as this, when even Daisies are only now beginning to flower.

| | |
|-----------------------------|---------------------------------|
| <i>Viola stricta azurea</i> | <i>Viola Sovereign</i> |
| " <i>lilacina</i> | " <i>Holyrood</i> |
| " <i>formosa</i> | " <i>Acme</i> |
| " <i>Brilliant</i> | " <i>Dicksons' White Bedder</i> |
| " <i>Tory</i> | " <i>Grievei</i> |
| " <i>picturata</i> | " <i>Snowdrop</i> |
| " <i>Canary</i> | " <i>Pilgr Park</i> |
| " <i>multiflora</i> | |

Dicksons & Co., 1, Waterloo Place, Edinburgh. [The varieties are all meritorious, and useful in lighting up the garden at this season. The variety of colour is considerable, the tints brilliant, and the fragrance very agreeable. *Eds.*]

Early Planted Potatoes.—The early planting of Potatoes is so very commonly represented as presenting the best panacea for the disease, as opposed to late planting, that I am anxious to learn how far early planted Potatoes have so far fared this year. I observed, in a communication made recently to a contemporary, Mr. McKinlay, who is a firm supporter of early planting, stated that he had got in his first sets early in March. As that is two months since, it would be interesting to learn in what stage of growth these are, and specially how they stand in relation to later planted ones. Up to the present time (May 12) we have weather that would render the existence of Potato growth above the soil impossible, unless artificially protected; but as this must necessarily be limited, and cannot be applied to general crops, it has nothing to do with the question as to whether, as a preventive of disease, early or late planting is best. I got in my earliest tubers during

the last week of April, and these having been well exposed to light and air had already made growth equivalent to another week in the soil. These are just now showing their tops through the soil, and need only a warm shower and more genial temperature to bring them all through speedily. Early planters say, "Plant early and deep." Why deep—but to escape the harm resulting from late frosts? This is folly, as it gives the tuber and plant more work to do before it can reach the atmosphere and develop foliage. I prefer to plant late and shallow, giving plenty of room between the rows and earthing-up twice or thrice as the haulm-growth progresses, and if I do not escape the deep sea of disease I at least avoid the demon of frost. *A. D.*

Begonia Sedeni.—I think this the most useful tuberous-rooted Begonia in commerce, the habit and quantity of rich magenta flowers which it produces making it a capital variety to grow for the decoration of rooms from July to October. When used for this purpose it will keep in good condition for a week. It also flowers very freely in 5-inch pots. My estimation of *B. Sedeni* over all others is arrived at by growing it, as well as the best-named varieties, in quantity and various sizes. *T. Coates, Cobham.*

The Whit-Monday Show at South Kensington.—The criticisms passed upon the previous Whit-Monday show by "Edina" may be exact, or they may not be, but there is one part of his comments that admits of no denial, and that relates to the method of catering for a huge number of poor persons on a public holiday. Before the Council determine to attract together some 20,000 people, they should consider how far they are prepared to supply those wants that are inseparable from holidays and sightseeing. To drive these people out into the neighbouring public-houses for their refreshment is cruel, and to leave them to the tender mercies of big refreshment contractors is hardly less so. If the Council have liberty of action in this matter—and they must be in a very false position indeed if they have not—why do they not apply to the Coffee Public Houses Company at Charing Cross, or to the Coffee Taverns Company, or to some other similar body, who would doubtless undertake to cater at a cheap rate for thousands, and will supply good and wholesome articles? Should the day prove cold and dull, those dreary wastes called arcades might well be utilised as tea and refreshment-rooms, and thus by satisfying the humble needs of whole families the general enjoyment of the day might be prolonged, whilst it may result that the delightful reminiscences of the show will not ere night be obliterated in soakings of beer. *A. D.*

— "Edina" writes, at p. 635:—"Parents and children could not find either milk, tea, coffee, bread, butter, nor the 'real genuine stunning.'" As a matter of fact tea and coffee were consumed in considerable quantities; milk was sold during the day at 1d. per glass, later on at 3d. per glass. The "real genuine stunning," as provided for our "Mutual Friend David," was on sale and in great demand in bottle at the tent and on draught at the large counter in the West Quadrant. *The Contractors.*



PROPERTIES AND QUALITY OF AURICULAS.—"J. S." writes very truly last week when he states that very few gardeners are acquainted with the properties of the Auricula, and such being the case they would be quite at sea as to the varieties to save seeds from, or what to retain when the seedlings flowered. The following are the properties aimed at by the old florists, and there is no reason to alter the standard in any way:—The pips should be large, flat, and round, with ground colour equal on every side of the eye, which should be quite circular as well as the edge. The tube a bright lemon-yellow, perfectly round, well filled with the anthers or thrum, the eye round and large, the body colour black or violet, the meal fine; the colour in green-edged flowers should be a whole one, not a shaded green; the stem strong and sufficiently long to bear the stem above the foliage—the truss to consist of not less than five fully expanded pips. We may, for convenience, divide the Auricula into five classes: the first class comprises the green-edged flowers—this includes all that have the outer margin quite green, or very sparingly dusted with specks of farina; inside this edge we have the body colour—black is most esteemed, but it is also of different shades of maroon, violet, and plum colour. The body (or ground colour) flashes into the outer

edge, and is never found in a compact ring as one sees it in the "model" Auricula. If the body colour strikes through to the edge of the petals this is a very serious defect, and the beauty of an otherwise fine flower is often marred by it. The inner edge of the body colour has a much better defined edge. Next is the paste, which should be circular, dense, and pure white. Many flowers fine in other respects have the defect of an angular paste; instances of this are to be found in Booth's Freedom and Campbell's Admiral Napier. Others are defective in the tube, which, instead of being yellow, is pale with not a trace of colour; of this Beeston's Apollo and Trail's Prince of Greens. The last-named has about the best green-edge and a black body colour, but the watery colourless tube "maist ruins a'."

Next in order comes the grey-edge, and this class contains the most perfect Auriculas yet raised. The points are the same as in the green-edges, except the edge itself, which should be thickly covered with farina, but not so thick as to appear white. George Lightbody (Headley) is perhaps the best Auricula in existence, and may be taken as the type of a flower evenly balanced in all its parts. There is a defect which cannot be overlooked, and that is a scollopy paste. As an example of a flower with this defect I may instance Silvia (Douglas), a new flower, fine in every other respect: the edge has that silvery frosted appearance so much esteemed in a grey. The white-edges come next, and are distinguished from the grey by the greater density of the meal on the petal edge. In some cases this is almost as white as the paste: John Simonite (Walker) is a flower possessing this property. A great fault in the whites, and one from which the greys are not exempt, is the ground-colour being dusted with the meal intended for the edge: Catherine (Summerscales) has this fault, sometimes to a grievous extent. Some are so much powdered on the ground that they ought not to be tolerated in a select collection. Self or self-edged flowers are in other respects the same as the others, except that the outer edge is all one colour. The centre must be white. In the fifth or last class the alpine are included. All the varieties in this class have the petals destitute of meal, and instead of the paste we have the centre yellow, cream-colour, or paper-white, surrounded by an edge of one colour, darkest nearest the centre, and shading off to a lighter colour towards the outer edge. The best alpine have gold centres and dark edges, such as maroon or crimson-shaded. Those with cream centres have the edges of mauve or light purple-shaded.

After reading the above those intending to raise seedlings will know what to avoid in the parents, and if these have a fault it should be worked out by crossing.

One reader wishes to know the names of two in each class to save seeds from. The following can be obtained, and are likely to produce good varieties:—Green-edges: Apollo (Ruston), Admiral Napier (Campbell). Grey-edges: John Waterston (Cunningham), George Lightbody (Headley). White-edges: Smiling Beauty (Heap), True Briton (Hepworth). Selfs: Pizarro (Campbell), Topsy (Kay). In alpine, good parents would be Diadem (Gorton), *John Leech (Turner), Beatrice (Turner), *Queen Victoria (Turner).

I hope all who are interested in the Auricula will begin to raise seedlings. It is a most interesting amusement, and the probability is that good flowers will result if proper pains are taken in crossing. *J. Douglas.*

Obituary.

DIED on the 13th inst., at Viewfield, his residence, near Arbroath, Robt. Miln, Esq., at the good old age of eighty-four. Mr. Miln was greatly devoted to horticulture, especially Orchid culture: of this family of plants he was an ardent admirer. His collection contained many well-known specimens; he exhibited before the Royal Horticultural Society some years ago a magnificent plant of *Phalenopsis Schilleriana*, for which we believe he got a high award. He exhibited this same plant last April at the spring show of the Royal Caledonian Horticultural Society in Edinburgh, and though not put up for competition it was considered such a noble specimen that the judges made it a special award. Mr. Miln said more than once to the writer of this notice of his death, that he attributed the long life and health he had enjoyed in great

measure to his hobby for plants—that without such a hobby men retiring from active business, often rusted out rapidly. To the last he was as keen on the acquisition of a new Orchid as he was a quarter of a century ago. He leaves a grand collection of Orchids behind him, which it is to be feared will be dispersed. Amongst his personal friends—and they were many—Mr. Miln was their ideal of all that was upright, genuine, and sincere, with a perfect hatred of all that was pretentious or hollow: they will not soon look upon his like again.

Reports of Societies.

Royal Botanic: May 21.—For its first summer show the Society was more fortunate than it has hitherto been this season as regards the weather, which remained fine throughout, though somewhat dull and cloudy. As usual the large marquee was remarkably effective as a floral tableau, though with a few bright and notable exceptions the plants exhibited were of a poor order of merit and scarcely worthy of comment. As a striking example of high cultural skill there was nothing in the show to compare with a splendid group of *Clematis* contributed by Messrs. George Jackman & Son, of Woking, every plant in which was as perfectly grown and flowered, as fresh and fine in form, as the keenest critic could desire, and completely eclipsing in brightness and brilliancy even the gorgeous Indian Azaleas. Next to the *Clematis* in point of merit we hardly know which to place first—a group of half-a-dozen fine-foliaged plants exhibited by Mr. C. Rann, gr. to J. Warren, Esq., Handcross Park, Sussex, or the same number of flowering plants shown by Mr. Chapman, gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, so much were both above the ordinary level of such subjects which now make their appearance at metropolitan shows. The two finest examples of flowering plants were to be found in Mr. Chapman's group, the specimens in question being those of *Tremandra ericifolia*, 3 feet through, in perfect health and superbly bloomed; and *Ixora Prince of Orange*, 4 feet through and grandly flowered. The most remarkable specimens amongst the fine-foliaged plants were Mr. Rann's *Cycas revoluta*, the largest and most perfectly developed specimen that has perhaps ever been exhibited; and by far the largest and most handsome example of *Dieffenbachia picta* that has ever come under our notice, the exhibitor of this noble plant being Mr. James Ford, gr. to J. G. Meegan, Esq., Windermere House, Norwood. Another striking feature in connection with the display, and one which forcibly illustrated the character of the season, was the total absence of show *Pelargoniums*, and of pot *Roses* too, with the exception of a group of twenty small plants sent by Mr. Turner.

With flowering stove and greenhouse plants Mr. Chapman took the lead, winning the 1st prizes in classes for six and ten respectively, with a good lot all round. The group of six included the two fine specimens above named, a large *Acrophyllum venustum*, a good *Dracophyllum gracile*, and a grand bush of *Erica depressa* quite 4 feet through, and in fine health. In the group of ten were another good *Ixora Prince of Orange*, a fair-sized *Darwinia tulipifera*, with an excellent display of large well-coloured blooms, and fair examples of *Statice profusa*, *Ixora coccinea*, *Azalea Mars*, and *Erica odorata*, &c. Messrs. Jackson & Son, of Kingston, took the highest prize in a class for twelve, with a nice fresh-looking lot of plants, which included an exceedingly good specimen of *Imantophyllum miniatum*, and a well-flowered bush of the white *Rhododendron Countess of Haddington*, &c. The same exhibitors were also 1st in the nurserymen's class for six; whilst in the corresponding class for amateurs, in which Mr. Chapman was 1st, as previously stated, Mr. James Child, gr. to Mrs. Torr, Garbrand Hall, Ewell, came in 2d, showing, amongst others, *Erica depressa* and *Azalea Iveryana* in very good condition. The 2d prize in the class for ten fell to Mr. Geo. Wheeler, whose most conspicuous specimen was one of the attractive orange-flowered *Aotus gracillima*.

Mr. Rann's half-dozen plants, which took the 1st prize in their class, included, besides the remarkable *Sago Palm* above alluded to, very large and very perfect specimens of *Zamia Lehmanni*, *Arecia sapida*, *Latania borbonica*, *Croton interruptus*, and *C. variegatus*. The 2d prize lot in the same class came from Mr. James Ford, and included, besides the *Dieffenbachia* before mentioned, very fresh and well grown examples of *Rhaphis flabelliformis*, *Latania borbonica*, *Cycas revoluta*, *Pandanus Veitchii*, and *Alocasia metallicæ*. In the nurserymen's class for six the 1st prize went to Mr. B. S. Williams, and the 2d to Messrs. Hooper & Co., Covent Garden; the first-named group consisting of good examples of the variegated *New Zealand Flax*, *Chamærops humilis*, *Pandanus Veitchii*, *Dasylirocn acrotrichum*, *Croton pictus*, and *C. Weissmanni*.

The Azaleas were not so good as usual, though

fairly numerous. Mr. Rattray, gr. to R. Thornton, Esq., The Hoo, Sydenham, was the largest exhibitor, and the prizes which fell to his lot were the 1st in the class for twelve; the 1st for six in 12-inch pots; and the 1st for six, amateurs. In the larger group, a plant of *Mons. Thibaut* was most conspicuous for its brilliant scarlet colour. Mr. Turner was a good 2d, with twelve small, but very brightly flowered plants; while Mr. B. S. Williams was 2d for six, and Mr. G. Wheeler 2d for the same number in the amateurs' class.

The Orchid bank has been somewhat reduced in size during the recess, and was well filled to-day. First amongst nurserymen came Mr. B. S. Williams with a very bright fresh lot of twelve, which included *Vanda suavis* with four spikes; *Oncidium sphacelatum*, *Lælia purpurata*, with fine spikes; a good *Cattleya Mossiæ*, *Cypripedium Swianianum*, with eighteen flowers; *Cattleya Mendelii*, with a good head of bloom; *Odontoglossum vexillarium*, with eleven spikes; *Masdevallia Lindenii*, with two dozen flowers; *Odontoglossum Pescatorei*, &c. The 2d prize went to Mr. H. James, Castle Nursery, Lower Norwood, for a very creditable group, in which were a good specimen of *Dendrobium nobile*, *Oncidium crispum grandiflorum*, *Cattleya Mendelii*, with eleven flowers; *Oncidium concolor*, and *Cattleya Mossiæ*; Messrs. T. Jackson & Son were 3d.

In the corresponding class for amateurs the highest prize went to Mr. James Douglas, gr. to F. Whitburn, Esq., Loxford Hall, who had a large and well flowered *Dendrobium nobile*, *Vanda suavis* var. *Veitchii*, with three strong spikes; *Masdevallia Harryana*, with eighteen good flowers; *Cattleya Warnerii*, with seven beautifully coloured blooms; a well branched spike of *Oncidium Marshallianum*, *Odontoglossum Roezlii*, *O. Roezlii albida*, *O. Phalænopsis*, and *O. vexillarium*, and *Masdevallia Veitchiana*. Mr. Heims, gr. to F. A. Philbrick, Esq., Q.C., came in 2d, with, amongst others, a good *Cattleya Skinneri*, with six spikes of richly-coloured blossoms; *Cattleya Mendelii*, with ten flowers; *Vanda cœrulescens* *Boxallii*, with four nice spikes; *Maxillaria Turneri*, a fine plant, with about two dozen of its handsome flowers; *Oncidium ampliatum majus*, &c.

The Fern classes were not well contested, and call for little notice. The 1st prize for six in the amateurs' class went to Mr. James Douglas, who showed well-grown but not large plants of *Dicksonia antarctica*, *Davallia polyantha*, *Adiantum concinnum*, and *A. cuneatum*; and Mr. B. S. Williams was awarded the 1st in the corresponding class for nurserymen for a group which included a large *Cibotium* and *Alsophila*, and good specimens of *Gleichenia Speluncæ*, *G. rupestris*, *Adiantum farleyense*, and *Davallia Mooreana*.

The class for miscellaneous subjects included large and very interesting collections of new or rare plants from Messrs. E. G. Henderson & Son, Mr. Bull, Mr. B. S. Williams, and Messrs. James Veitch & Sons; smaller groups from Messrs. John Laing & Co., Messrs. Hooper & Co., Messrs. Osborne & Sons, Mr. G. Wheeler, and Mr. R. Parker; and cut *Roses* of rare quality from Messrs. Paul & Son, Cheshunt; and Messrs. Wm. Paul & Son, Waltham Cross; and *Agaves*, *Cactuses*, &c., from Mr. Boller.

New plants were submitted as usual in considerable numbers, and Botanical Certificates were awarded as follows:—To Messrs. James Veitch & Sons, for the distinct and striking new *Cypripedium Lawrenceanum*, described by Professor Reichenbach at p. 748 of our last volume; for an unnamed species of *Cypripedium* received from Java, with rather pretty flowers, composed of a shaded chocolate lip, narrow shining brown petals, and sepals of bright green shading off at the edging into a paler tint; for *Dracæna Laingii*, a highly-coloured erect-growing form with the younger leaves of a dull straw-yellow colour, and the older ones green, rose, and brown; for *Doodia aspera multifida*, a crested form of this fine erect-growing Australian Fern; for *Erythrina marmorata*, a beautiful white, yellow, and green mottled-leaf plant; for *Nephrolepis pluma*, a very strong-growing species, with fronds which under good cultivation attain quite the length of 6 feet—a good basket Fern; for *Polypodium Kremeri*, a pretty, hardy, Japanese species; for *Ranunculus Lyallii*, described last week; for *Tillandsia zebrina major*, the flower-spike of which was quite a foot or more in length, with bright scarlet bracts and orange flowers; for *Todea plumosa*, an elegant little plant of garden origin. To Mr. William Bull, for *Cycas pluma*, for *Cycas siamensis*, for *Croton Dormannianus*, for *Croton Evansianus*, a dense variety of the *Disraeli* type, but not so distinctly lobed, with the old recruited leaves of a warm bronze colour veined with crimson, the younger ones green, with yellow venation; for *Oncidium tetrapetale*, for *Cattleya Skinneri alba*, for *Encypharctos Hildebrandtii*, for *Asparagus gracillimus*, for *Sarracenia latrosanguinea*, in the way of *S. Drummondii*, but mainly differing in the dark blood-red colour of the lids; for *Cyphokentia macrocarpa*, for *Catakidozamia Hopei*, for *Zamia obliqua*, for *Cera-*

zamia, Miqueliana, and for Spirea nivos, a hardy Japanese species, with pretty slender spikes of white flowers. To Messrs. E. G. Henderson & Sons, for Phædranassa chloracra vera, a bulbous plant, with long tubular-shaped flowers of the colour of sealing-wax, and tipped with green, produced in umbels on tall-growing stems; and for Pteris cretica gigantea. To Mr. B. S. Williams, for Croton Bur-toni, a long-leaved form, bright green, with well-marked golden variegation; for Cupania elegantis-sima, noticed last week; and for Asplenium horridum. To Mr. Heims, gr. to F. A. Philbrick, Esq., Q.C., for Cyripedium Lawrenceanum, noted above. To Mr. H. Boller, for Echinocactus myriostigma, for Mamillaria filifera, and for M. formosa. And to Messrs. Osborn & Sons for Caladium L'Albane, with almost transparent soft rose-coloured leaves, with well defined green venation.

Floral Certificates of Merit were awarded to Messrs. John Laing & Co., Stanstead Park, Forest Hill, for tuberous Begonia J. H. Laing, the finest flower in size, form, and colour (a very bright vermillion) that has yet been shown; Begonia Marie Bouchet, a very distinct light crimson double flower, with lacin-iated petals; and Begonia Comtesse H. de Choiseul, even more beautiful in form and delicate in colour than when shown last week at Kensington. To Mr. H. Hooper, Bath, for a fine fancy Pansy, named Champion, white ground with deep purple centre. To Messrs. James Veitch & Sons for Rhododendron Duchess of Teck, a remarkably pretty new hybrid of the same character as the variety shown under the name of Maiden's Blush last week, but with soft nankin-orange-coloured flowers; for Azalea pontica narcissiflora; for A. pontica Graf von Morau, like the last-named in form but pink instead of yellow in colour; for Azalea mollis Comte de Gomer, salmon-rose; for Azalea mollis Baron Constant Rebecque, yellow, with buff spots; and for Gloxinia Duchess of Connaught, a good addition to the section of dark crimson flowers with a white ring round the top of the flower. To Mr. William Bull for four striking new Coleuses, named respectively Starlight, Butterfly, Empress of Germany and Harlequin, the high colouring and mottley mark-ings of which are quite sensational.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, May 21, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRI- CAL DEDUC- TIONS FROM GLAISHER'S TABLES 6th Edition. | | WIND. | | RAINFALL. |
|----------------|---|---|-------------------------|---------|--------|------------------|---|------------|------------------------|-----------------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degree of Humidity. | Average Direction. | |
| May 15 | 29.80 | +0.06 | 48.1 | 41.0 | 7.1 | 43.0 | -0.8 | 39.8 | 82 | WNW | In 0.23 |
| 16 | 29.96 | +0.23 | 53.0 | 40.6 | 12.4 | 45.7 | -0.6 | 41.2 | 85 | NNW | 0.04 |
| 17 | 29.77 | +0.03 | 60.3 | 36.7 | 23.6 | 48.4 | -0.5 | 39.8 | 72 | WSW | 0.00 |
| 18 | 29.47 | -0.27 | 54.5 | 47.0 | 7.5 | 49.2 | -0.4 | 46.5 | 91 | S. | 0.10 |
| 19 | 29.69 | -0.04 | 63.9 | 41.3 | 19.6 | 52.3 | -1.3 | 46.3 | 80 | N.N.E. | 0.00 |
| 20 | 29.86 | +0.12 | 67.4 | 39.2 | 28.2 | 51.6 | -2.1 | 46.4 | 82 | N.N.E. | 0.00 |
| 21 | 29.97 | +0.23 | 68.0 | 45.0 | 23.0 | 54.3 | -0.4 | 46.2 | 74 | WSW | 0.00 |
| Mean | 29.79 | +0.05 | 59.3 | 42.0 | 17.3 | 49.2 | -0.9 | 43.5 | 81 | variable | sum 0.37 |

- May 15.—Overcast, dull, and wet throughout. Cold and windy.
— 16.—Dull and cloudy till evening, then fine. Cold. Little rain in morning.
— 17.—Fine, but cloudy till 8 P.M.; overcast and thin rain after.
— 18.—Overcast, and wet till noon, then fine and bright but cloudy. Clear at night.
— 19.—A fine bright day, partially cloudy till evening, then cloudless. Warmer.
— 20.—Fine till 1 P.M.; overcast till 8 P.M., fine after. Cloudless at night. Warmer.
— 21.—A fine bright day, cloudy till evening, then cloudless. Warmer.

LONDON: *Barometer*.—During the week ending Saturday, May 17, in the vicinity of London the reading of the barometer at the level of the sea decreased from 30.09 inches at the beginning of the week to 30.06 inches by the evening of the 11th, increased to 30.18 inches by the evening of the 12th, decreased to 29.79 inches by the afternoon of the 14th, increased to 30.16 inches by the evening of the 16th, and decreased to 29.85 inches by the end of the week. The mean reading for the week at sea level was 30.03 inches, being 0.10 inch below that of the preceding week, and 0.11 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 61° on the 12th, and 60° on the 17th, to 47° on the 11th, and 48° on the 15th; the mean value for the week was 55°. The lowest temperatures of the air observed by night varied from 36° on the 17th, and 37° on the 11th, to 46° on the 14th; the mean value for the week was 40°. The mean daily range of temperature in the week was 15°; the greatest range in the day being 23°, on the 17th, and the least, 7°, on the 15th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—11th, 41°.5, -9°.7; 12th, 50°.1, -1°; 13th, 48°.4, -2°.7; 14th, 50°.5, -0°.8; 15th, 43°.—8°.9; 16th, 45°.7, -6°.6; 17th, 48°.4, -4°.5. The mean temperature of the air for the week was 46°.8, being 4°.9 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 123° on the 14th, 121° on the 13th, and 113° on the 17th; on the 11th the reading did not rise above 54°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 30° on the 11th, 31° on the 13th, and 34° on the 17th; the mean of the seven lowest readings was 36°.

Wind.—The direction of the wind was S.W. and N.W., and its strength moderately strong.

The weather during the week was dull and cold, with frequent rain, and the sky cloudy.

Rain fell on five days during the week; the amount measured was 0.40 inch.

ENGLAND: *Temperature*.—During the week ending Saturday, May 17, the highest temperatures of the air observed by day were 68° at Sunderland, 67° at Cambridge, 66° at Bristol, and 65° at Leicester; the highest temperature of the air at Portsmouth was 57°, and at Wolverhampton and Bradford was 60°; the mean value from all places was 62°. The lowest temperatures of the air observed by night were 32° at Nottingham, 34° at Hull, 34° at Sheffield, and 35° at Wolverhampton; the lowest temperature of the air at Truro and Sunderland was 41°, and at Plymouth, 39°; the mean value from all stations was 37°. The extreme range of temperature in the week was the greatest at Nottingham, 30°, and the least at Portsmouth, 17°; the mean range of temperature from all places was 25°.

The mean of the seven high day temperatures was the highest at Cambridge, 59°, Bristol 59°, Leicester 58°, and Truro 57°; and the lowest at Sunderland, 53°, and Wolverhampton 54°; the general mean from all places was 56°. The mean of the seven low night temperatures was the lowest at Nottingham, 39°, Wolverhampton, Sheffield, Hull, and Bradford, all 40°, and Blackheath, 40°; and the highest at Truro, 45°, and Plymouth 44°; the mean from all stations was 41°. The mean daily range of temperature in the week was the greatest at Cambridge, 18°, and the least at Sunderland, 10°; the mean daily range from all places was 14°.

The mean temperature of the air for the week from all stations was 47°, being 8° lower than the value for the corresponding week in 1878. The mean temperature of the week was the highest at Truro, 49°, Bristol 49°, and Plymouth 48°; and the lowest at Wolverhampton, Hull, and Bradford, all about 45°.

Rain.—Rain fell on every day in the week at Nottingham, and on five days at most other places. The heaviest falls were 1.70 inch at Nottingham, 1.65 inch at Hull, and 1.48 inch at Leicester, and the least falls were 0.13 inch at Bradford, and 0.17 at Portsmouth; the average fall over the country was 0.73 inch.

The weather during the week was dull, cold, and showery, and the sky very cloudy.

Slight thunderstorms occurred at places.

SCOTLAND: *Temperature*.—During the week ending Saturday, May 17, the highest temperatures of the air observed by day varied from 63° at Dundee, and 61° at Edinburgh, to 56° at Aberdeen; the mean from all places was 59°. The lowest temperatures of the air observed by night varied from 31° at Perth, and 33° at Dundee, to 38° at Aberdeen; the mean value from all stations was 35°. The mean range of temperature in the week from all places was 24°.

The mean temperature of the air for the week from all stations was 47°, being 6° lower than the value for the corresponding week in 1878. The highest was 49° at Glasgow, and the lowest was 46° at Aberdeen.

Rain.—The amounts of rain varied from 0.80 inch at Greenock, and 0.61 inch at Glasgow, to 0.14 inch at Aberdeen, and 0.15 inch at Dundee; the average fall over the country was 0.38 inch.

DUBLIN: The highest temperature of the air was 65°, the lowest 30°, the extreme range 34°, the mean for the week 50°; and the fall of rain 0.73 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

HELLBORN POWDER. —In last Saturday's paper Mr. Harrison recommends dressing Gooseberry and Currant trees for caterpillars. Is this a safe remedy? Have any of your readers ever known of any casualties occurring from its use? S. [There is no doubt as to its dangerous qualities.]

STEDINERA COLOCALELLA AND S. DISCOLOR. —Mr. N. E. Brown, Royal Herbarium, Kew, would be very thankful if any one having either of these plants in flower would kindly forward him a flower-spike for examination, as no specimens exist in the Kew Herbarium.

Answers to Correspondents.

ASPARAGUS BEDS: J. Everett. The "good dressing of salt, enough to kill the Box edging growing at the end of the beds," most likely killed the Asparagus also. Your best plan will be to fork up the beds, mixing in some gritty soil, such as dry road sweepings and some thoroughly decayed manure, and sow the bed again immediately. You say the bed is well drained: see that it really is so.

BOOKS: G. N. Tabor. We do not know of any separate work on the subject. The best account, and that a very good one, we know of, will be found in vol. i. of McIntosh's *Book of the Garden*.

CALCEOLARIAS: Kilday & Son. Yours is a strain of very large and richly-coloured flowers, measuring nearly 2 inches across, and spotted like the pard—yellow grounds with crimson spots of various form and character, creamy white with crimson, bronze with crimson, crimson with maroon, and many indescribable tints. We add your note to the effect that your "showhouse of these plants is now in full bloom—it contains about 1000 plants, and is well worth of an inspection," for the benefit of such of our readers as may be interested in these flowers.

COCOA-NUT FIBRE: PARAFFIN. J. C., Crediton. There is no nutrition of any value in cocoa-nut fibre refuse, and therefore we should not mix it with loam, sand, and manure, to form a compost for soft-wooded plants, and most certainly not for Auriculas. You had better not try paraffin in any form, but resort to a safer mixture, say of Gishurst Compound, or tobacco-water, CUCKOO-PINT: H. H. You are quite right, this is the English name for Arum maculatum, and not Cardamine pratensis, the Cuckoo-flower or Lady's Smock. Fat Hen is the common name applied to Atriplex patula, and sometimes to Chenopodium Bonus; Henricus.

CUCUMBER DISEASE: W. H. Yes, undoubtedly. Could you send us a bit of the root and vine of the affected plant?

DOUBLE PRIMROSE: J. Carter & Co. We have not seen any variety like that you have sent, which is remarkable for its vigorous habit and its very large and exceeding double flowers, some of which measure 1½ inch across. There is a large-flowered double yellow in cultivation, but, as far as our memory serves, that is of a deeper colour; yours is of the true primrose or sulphur tint of the wild form. It is certainly a very fine variety, and we believe it is a novelty. The maroon-coloured Poianthus is an attractive border flower, nothing more.

ERRATUM.—At p. 634, for "Fusus castrarius" read F. contrarius.

GLOXINIAS: J. Clarke. A strain of good varieties for home decoration, but containing nothing novel or striking as compared with others already known.

INSECTS: B., Perthshire. Your friend's Roses have been gnawed by beetles belonging to one of the smaller species of the destructive weevil genus, Otiorhynchus (O. sulcatus). Lay white cloths at the roots of the trees and visit them by candle-light, shake the weevils on to the cloths, and either stamp on them or put them in boiling water. Why use petroleum or other troublesome remedies when simple ones are at hand? The soil should be burnt. I. O. W.

MOSS ROSE: James Bryon. The white Bath Moss Rose was a sport from the red; hence there is nothing surprising in its reverting to the original, though this is not a common occurrence.

MUSCATS AT BERKHAMSTEAD: J. H., Toronto, Canada. The Vines are, of course, grown under glass. The Messrs. Lane's address is Berkhamstead, Herts, England.

NAMES OF PLANTS: G. B. 1. Apparently a simple frond of Pleopeltis Billardieri; 2. Adiantum pedatum; 3. Athyrium Filix-femina, a variety of the thysanotum type; 4. Scolopendrium vulgare laceratum; 5. Athyrium Filix-femina, a variety of the Howardia type. The flower is Hemerocallis Kwanso variegata. Kalso. Tropæolum tricolor.—O. B. Amelanchier vulgaris.—I. Subseriber. Lathraea squamaria, a parasitic plant.—Amateur. 1. Arbutus procera; 2. Amelanchier Botryapium; 3. Pinus Jeffreyi; 4. Pinus Montezumæ; 5. Chamæcyparis spherioidea variegata; 6. Juniperus communis hibernica (Irish Juniper).—H. J. C. Saxifraga muscoides purpurea.—T. H. Calceolaria fuchsifolia.—J. A. 1 and 2 are varieties of Anygdales persica flore-pleno; 3. Acer platanoides.—H. A. B. Acer monspessulanum.—A. H. S. Ependrum aromaticum.—G. P. 1. Picea Pinsapo; 2. Sequoia gigantea; 3. Kerria japonica, fl.-pl.; 4, 8, and 10, send again when in flower; 5. Forsythia viridissima; 6. Daphne pontica.—H. M. Kettlewell. We cannot name your Crinum from flowers alone. They are difficult enough with ample material, but with a single flower we can do nothing.—E. Sandford. As-

clepias curassavica and Epidendrum ciliare.—*J. W. L.*
Amelanchier Botryapium.—*E. F.* Aloe verrucosa.
PEACH TREES GUMMING: *G. D.* The cause is probably to be sought in the unripened condition of the wood. Is the border properly drained? If not, the roots must be at fault.
POD WASHED UP ON THE YORKSHIRE COAST: *G. W.* A species of Cassia, but we cannot say which.
POLYANTHUS: *Wardhead.* Of no value as a florist's flower. It is defective in two or three points: for instance, the margin is not regular throughout, and does not cut through the centre of the petal, and the marginal colour is not the same as that of the centre.
ROSES: *New Subscriber.* We cannot, without better information, say what affects your Roses. If you refer to last summer, when you say the buds dropped from the stem, it might arise from excessive drought.
SHELL-SLUG: *P. B. C.* The slug you send is the only one in this country which has a shell. It is the Testa-



FIG. 97.—TESTACELLA HALIOTIDEA.

cella haliotidea. It is not an enemy to the gardener, as most of its race are, but a friend, inasmuch as it devours earthworms, and is not altogether free from a suspicion of cannibalism!

SPORTED FERNS: *G. S.* The specimens of *A. decorum* appear to be affected similarly to those of *A. farleyense* var. *alcicornis*; that is to say, they have sported into what is called the marginate type of variation, in which the segments are thickened in an irregular way at the margins, and the normal outline is thereby modified. The variations are generally constant enough, and there seems no good reason why they should not be so in these cases.

CATALOGUES RECEIVED:—*B. S. Williams* (Victoria and Paradise Nurseries, Upper Holloway, London, N.), New and General Plant Catalogue for 1879.—*Messrs. Cranston & Co.* (Broad Street, and King's Acre, Hereford), Spring Catalogue of New Roses, Bedding Plants, &c.—*Messrs. James Dickson & Sons* (Newton Nurseries, Chester), Catalogue of Bedding and Border Plants.—*Messrs. Stevens & Pinches* (48, Leicester Square, London), Descriptive List of the Acme Labels.—*Messrs. Robert Mack & Son* (Catterick Bridge, Yorkshire), List of Choice Dahlias.—*Louis Roëmpier* (à Saint-Max-lès-Nancy, France), Illustrated and Descriptive Catalogue of Novelties, &c.—*Messrs. Dick Radcliffe & Co.* (129, High Holborn, London, W.C.), Plant & General Catalogue of Horticultural Decorations, Garden Requisites, &c.

COMMUNICATIONS RECEIVED:—*H. N. E.* (with thanks)—*W. E.* (we will examine and report)—*J. T. B.* (with thanks).—*A. B. A. J. G. S. V. P. W. E. H. J. E. H. H. C. B. E. Pynaert* (a letter will follow).—*I. L. J. V. C. C. J. V. & S. D. R. & Co. J. S. W. B. H. W. C. J. E. C. K. F. S. T. B. J. I. J. J. M. C. Ebor. W. B. H. W. P. J. E. J. C.* (see p. 651).—*H. E. A. F. J. J. L. G. M. W. C. Z. Z. T. R. Sulphate. B. S. W.*

Markets.

COVENT GARDEN, May 22.

The large consignments of Grapes from the Channel Islands are seriously affecting the values of English fruit, a better class of goods reaching us than hitherto. Business remains the same, with very little alteration to quote. A few good Peaches and Figs have made an appearance. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Peaches, per dozen | 12 0-30 0 |
| Figs, per dozen | 10 0-15 0 | Pine-apples, per lb. | 2 0-4 0 |
| Grapes, per lb. | 4 0-10 0 | Strawberries, per lb. | 6 0-12 0 |
| Lemons, per 100 | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0-.. |
| Globe, doz. | 2 0-4 0 | Lettuces, Cabbage, | |
| Jerusalem, bush. | 6 0-.. | per doz. | 1 6-.. |
| Asparagus, Fr. sprue, | | Mint, green, bunch. | 0 4-.. |
| per bundle | 1 6-.. | Onions, per bushel. | 6 0-7 0 |
| Eng., per bundle | 0 6-0 0 | — young, per bun. | 0 4-0 6 |
| Fr. giant, p. bun. | 8 0-15 0 | Parsley, per lb. | 1 0-2 0 |
| Toulouse, bun. | 1 6-2 0 | Peas, per quart | 3 6-.. |
| Beans, French, p. 100 | 2 0-.. | Potatoes, new, per lb. | 0 6-0 9 |
| — broad, per lb. | 1 0-.. | Radishes, English, | |
| Beet, per doz. | 1 0-2 0 | long, per dozen | 0 9-.. |
| Cabbages, per doz. | 1 0-2 0 | — Engli-h. Turnips, | |
| Carrots, per bunch | 0 4-0 6 | per dozen | 1 6-.. |
| — New Fr. p. bun. | 2 0-.. | Rhubarb, doz. | 6 0-8 0 |
| Cauliflowers, per doz. | 2 0-5 0 | Shallots, per lb. | 0 6-.. |
| Celery, per bundle | 1 6-2 0 | Seakale, per punnet | 2 6-.. |
| Chilis, per 100 | 2 0-.. | Spinach, per bushel | 3 6-.. |
| Cucumbers, each | 0 9-1 6 | Tomatoes, per dozen | 2 6-3 0 |
| Endive, Batav. dozen | 1 6-.. | Turnips, p. 12 bunch | 3 0-6 0 |
| Garlic, per lb. | 0 6-.. | — New Fr., bunch | 1 0-1 6 |
| Herbs, per bunch | 0 2-0 4 | | |

POTATOS:—Old Potatoes getting scarce, and best samples advanced in price. Best, 16s. to 18s.; Champions, 10s. to 11s.; Rocks, 9s. to 10s. New stuff from Malta, 12s. to 14s.; Lisbons, 10s. to 12s.; Jersey Kidneys, 4d. to 5d. per lb.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|---------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Pansy, 12 bunches | 3 0-6 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Pelargoniums, 12 spr. | 0 9-1 6 |
| Arum Lilies, 12 blms. | 3 0-9 0 | — zonal, 12 sprays | 0 4-1 0 |
| Azaleas, 12 sprays | 4 0-1 0 | Primroses, single yellow, | 12 bunches |
| Bouvardias, per bun. | 1 0-4 0 | low, 12 bunches | 0 6-1 6 |
| Carnations, per dozen | 1 6-4 0 | doubles white, 12 | bunches |
| Cineraria, 12 bunches | 0 12-0 0 | — 1 6-3 0 | |
| Cowslips, 12 bunch. | 1 0-3 0 | Primula, double, per | bunch |
| Deutzia, 12 bunches | 4 0-12 0 | — 0 9-1 6 | |
| Eucharis, per doz. | 4 0-12 0 | Ranunculus, 12 bun. | 6 0-9 0 |
| Euphorbia, 12 sprays | 3 0-6 0 | Roses (indoor), doz. | 1 0-9 0 |
| Forget-me-not, 12 bls. | 3 0-9 0 | Stephanotis, 12 sprs. | 2 6-9 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Tropæolum, 12 bun. | 1 0-3 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberoses, per dozen | 3 0-6 0 |
| Lily of Val., 12 sprays | 0 6-2 0 | Tulips, 12 blooms | 0 6-1 0 |
| Mignonette, 12 bun. | 6 0-12 0 | Wallflowers, 12 bun. | 4 0-6 0 |
| Narcissus, 12 bunch. | 4 0-12 0 | | |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Foliage Plants, vari- | |
| ardia æthiop., doz. | 9 0-18 0 | ous, each | 2 0-10 6 |
| Azaleas, per dozen | 18 0-60 0 | Fuchsias, per dozen | 6 0-18 0 |
| Begonias, per doz. | 6 0-18 0 | Genista, per dozen | 6 0-24 0 |
| Bouvardias, per doz. | 18 0-24 0 | Mignonette, per doz. | 6 0-9 0 |
| Cinerarias, per doz. | 6 0-12 0 | Musk, per dozen | 4 0-9 0 |
| Coleus, per dozen | 4 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Cyperus, per dozen | 6 0-12 0 | Palms in variety, | |
| Dracæna terminalis | 30 0-60 0 | each | 2 6-21 0 |
| — viridis, per doz. | 18 0-24 0 | Pelargoniums, per | |
| Erica, per dozen | 9 0-30 0 | dozen | 12 0-24 0 |
| — ventricosa, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 4 0-12 0 |
| per dozen | 24 0-42 0 | Rhodanthes, per doz. | 6 0-12 0 |
| — Willmoreana, per | | Roses, per dozen | 12 0-42 0 |
| dozen | 9 0-24 0 | Saxifraga pyramid- | |
| Euonymus, var., doz. | 6 0-18 0 | alis, per dozen | 18 0-30 0 |
| Ferns, in var., p. doz. | 4 0-18 0 | Spiræa, per dozen | 6 0-24 0 |
| Ficus elastica, each | 2 6-15 0 | — palmata, per doz. | 18 0-48 0 |

SEEDS.

LONDON: May 21.—There is very little to report in connection with the trade for farm seeds, the season being now almost over. Some few orders, however, still continue to come to hand for English red, while some further sales of American have lately taken place, the latter of course being for holding over. The latest cable advices from America describe the Transatlantic markets as exceedingly firm, with very scanty stocks, while reports from many of the producing districts are unfavourable. In white and Alsike there is a trifle more doing. Trefoil continues to be the article in most request, and prices are still tending upwards. Italian and perennials are firm with limited sales. Mustard and Rape seed now sell more freely at unaltered rates. Blue Peas and Haricot Beans meet with an improved sale, as does also feeding Linseed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CATTLE.

At Copenhagen Fields on Monday trade in beasts was active, and the previous Monday's quotations were readily obtained; in a few instances the top figure was exceeded. The trade for sheep was brisk, at a considerable advance in price. Trade was bad for lambs; our top quotation was only realised for some very choice qualities. Calves sold about as of late. Quotations:—Beasts, 4s. to 4s. 6d., and 4s. 8d. to 5s. 2d.; calves, 5s. 6d. to 6s. 6d.; sheep, 5s. 2d. to 5s. 6d., and 5s. 8d. to 6s. 4d.; lambs, 7s. to 8s.; pigs, 3s. 8d. to 5s.—Trade was quiet on Thursday, and without feature. Both beasts and sheep met a slow sale, on former terms. Lambs were steady, but inactive, and calves sold at previous prices.

HAY.

Tuesday's Whitechapel report states that, with a moderate supply of fodder on offer, trade was rather quiet, and prices as follows:—Prime Clover, 10s. to 11s.; inferior, 8s. to 9s.; prime meadow hay, 7s. to 9s.; inferior, 4s. to 7s.; and straw, 3s. to 3s. 7d. per load.—On Thursday there was a large supply of hay and straw on sale. The trade was dull, and Tuesday's prices were with difficulty maintained.—Cumberland Market quotations:—Superior meadow hay, 9s. to 10s.; inferior, 7s. to 8s.; superior Clover, 10s. to 11s.; inferior, 8s. to 9s.; and straw, 3s. to 4s. per load.

POTATOS.

From the Borough and Spitalfields reports we learn that supplies have been upon a moderate scale, and trade for all sorts continues steady. New Lisbon Potatoes have changed hands at from £7 10s. to £9 10s.; flukes, 15s. to 18s.; rocks, 10s. to 12s.; Champions, 10s. to 12s.; Victorias, 12s. to 15s. per ton.—During last week 29,576 bags of Potatoes were received at London from Hamburg, 14,250 Stettin, 4484 cases 2673 packages and 2005 casks Malta, 3214 bags Bremen, 1098 Ghent, 1184 Antwerp, 342 bags 170 sacks Dunkirk, 550 boxes Lisbon, 200 bags Brussels, and 157 sacks Boulogne.

COALS.

The market quotations for the week are as follows:—West Hartley, 14s. 9d.; Walls End—Hetton, 20s. to 20s. 6d.; Hetton Lyons, 18s. 3d.; Lambton, 20s.; Wear, 18s. 9d.; Salvin's Hutton, 18s. 6d.; Tees, 20s.

Government Stock.—The closing prices for Consols on Monday were, for the account, 98½ to 98½; for delivery, 98½ to 98½; those of Tuesday were 98½ to 98½, and 98½ to 98½. On Wednesday the final quotations were, for delivery, 98½ to 98½; and for the account, 98½ to 98½. Thursday's closing prices were 98½ to 98½ for both delivery and account.

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For Root, Corn, and Grass Crops.

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COMPANY'S free Price List. Goods supplied five per cent cheaper than any other House.

COCOA-NUT FIBRE, 3d. per bushel, 25s. per truckload (loose).

ORCHID PEAT (fine brown fibrous), 35s. per ton, 17s. per half ton, 10s. per cwt., 5s. per sack.

AZALIA (for hard-wooded plants), 33s. per ton, 17s. per half ton, 9s. per cwt., 4s. 6d. per sack.

COARSE SAND (Bedfordshire), 25s. per ton, 1s. 6d. per bushel.

YELLOW LOAM, LEAF-MOULD, fresh SPHAGNUM MOSS, all MANURES, and everything for the Garden and Conservatory.

Special prices to the Trade. Goods free to rail or wharf.

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GARDEN REQUISITES.—COCOA-NUT

FIBRE REFUSE, as supplied to Her Majesty and most of the leading Nurserymen and Gardeners.

3d. per bushel; 100 for 20s.; truck (loose, 250 bush.), 30s. 4-bushel bags, 4d. each.

LIGHT BROWN FIBROUS PEAT, 5s. 6d. per sack; 5 sacks, 25s.; 12 for 45s., or 36s. per ton.

BLACK FIBROUS PEAT, 5s. per sack, 5 sacks 25s.; 12 for 40s., or 34s. per ton; sacks, 4d. each.

COARSE SILVER SAND, 1s. 9d. per bushel; 15s. per half ton, 26s. per ton; in 1 cwt. bags, 4d. each.

YELLOW FIBROUS LOAM, PEAT MOULD, and LEAF-MOULD, 12s. per bushel.

SPHAGNUM MOSS, 8s. 6d. per sack.

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Reduced Price:—In 4 bushel bags, bags included, at 1s., 20 bags £1, or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—*J. STEVENS AND CO.*, Greyhound Yard, and 134, High Street, Battersea, S.W.

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supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

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Testimonials from the leading Nurserymen.

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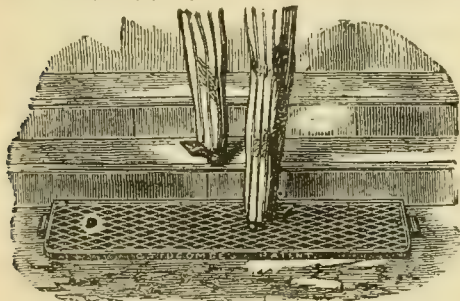
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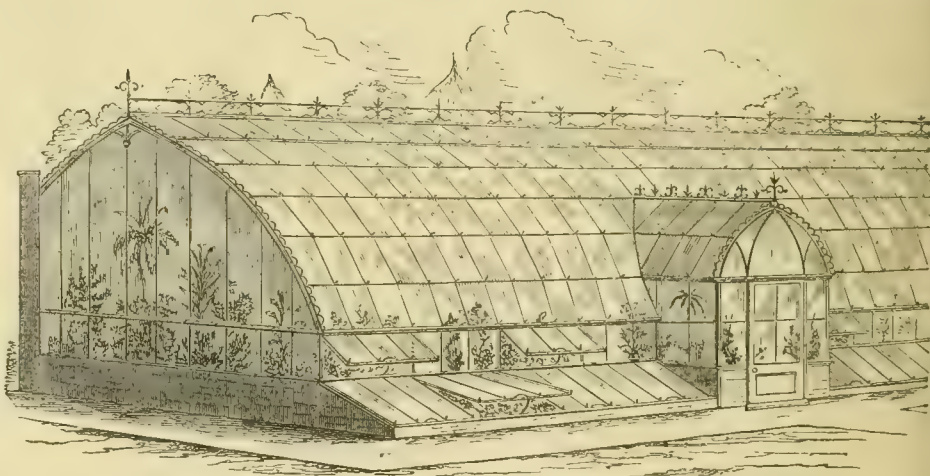
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An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites
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 after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis,
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 of the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the
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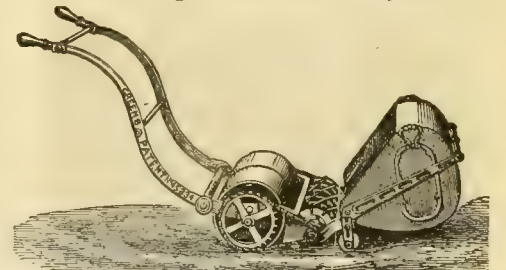
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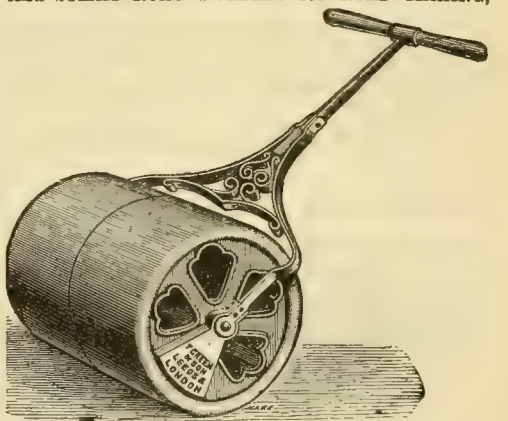
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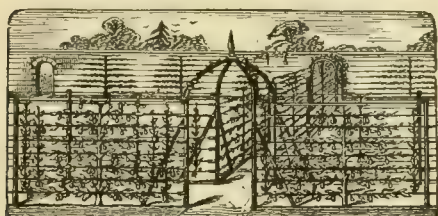
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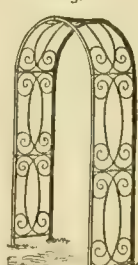
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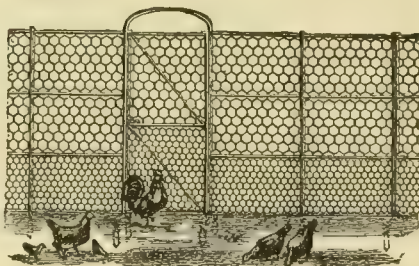
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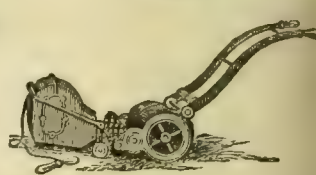


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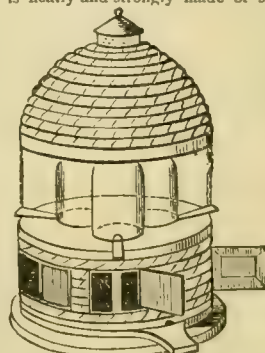
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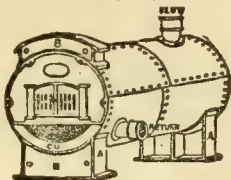
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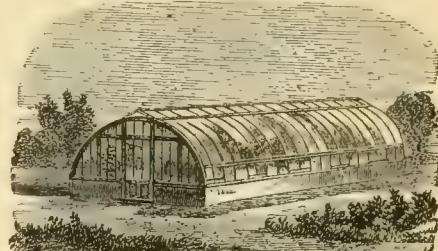
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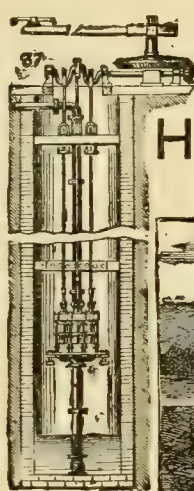
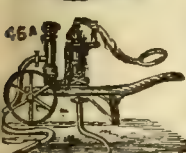
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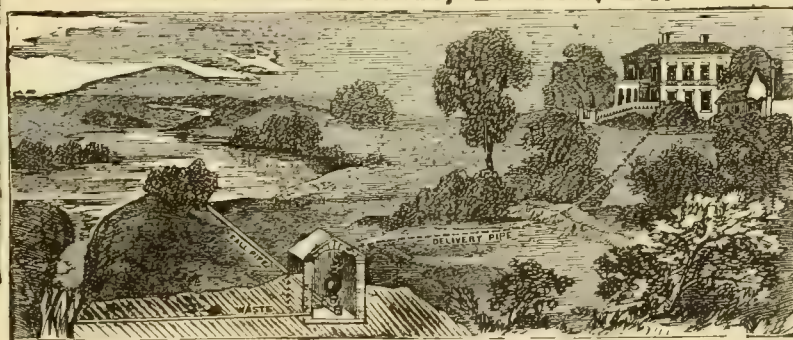
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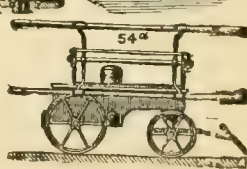
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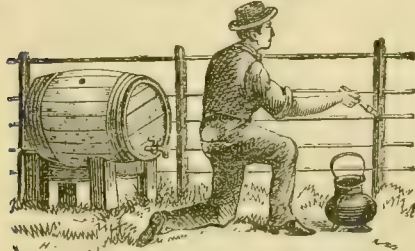
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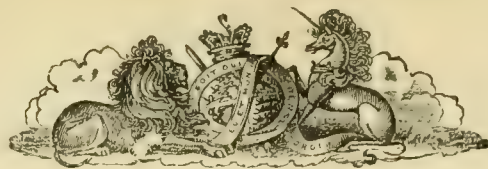
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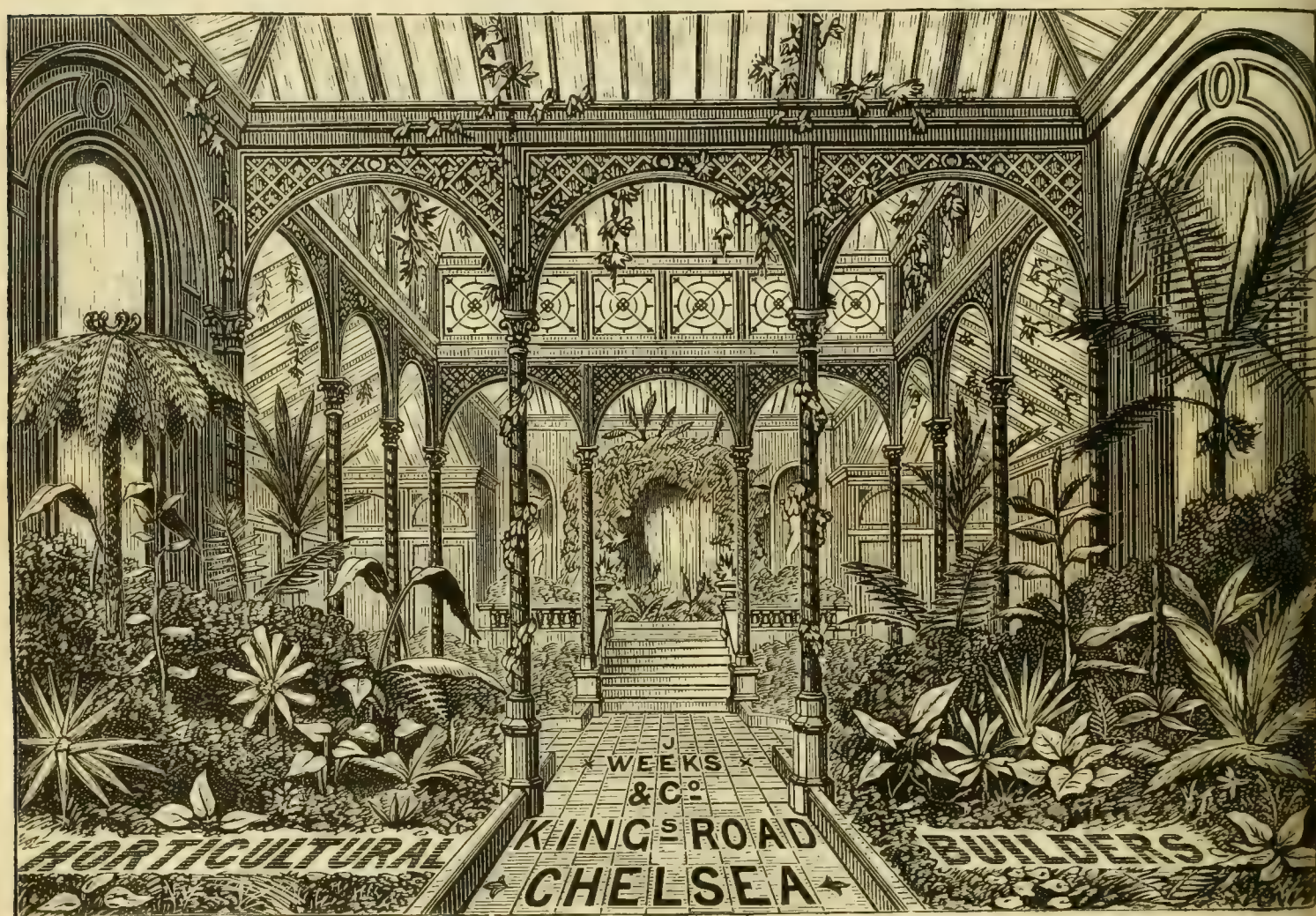
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No. 283.—VOL. XI. { NEW SERIES. }

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J. J. MARRIOTT, Highfield Nurseries, Matlock Bridge.

Vines—Vines—Vines.
J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

THE DESCRIPTIVE CATALOGUE
of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps.
CATALOGUES of ROSES and ORCHARD-HOUSE TREES post-free on application.
THOMAS RIVERS and SON, Sawbridgeworth, Herts.

FRUITING PLANTS
of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale.
THOMAS RIVERS and SON, Sawbridgeworth, Herts.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879.
RICHARD SMITH, Nurseryman, Worcester.

To the Trade.
ASPARAGUS, Giant, 1, 2, 3, and 4-year
JAMES BIRD, Nurseryman, Downham.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.
SANDER and CO., Seed Growers, St. Albans.

Gentlemen's Gardeners, Amateurs, and Others
GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

SALES BY AUCTION.

By Order of the Mortgagees.—Wood Green, N.
Within five minutes' walk of the Palace Gates and Wood Green
Railway Stations.
IMPORTANT TO FRUIT GROWERS, NURSERYMEN,
AND OTHERS.

MESSRS. PROTHEROE AND MORRIS
will SELL by AUCTION, at the Mart, Tokenhouse
Yard, E.C., on MONDAY, June 9, at 2 o'clock precisely, a
valuable FREEHOLD ESTATE, known as "The Vineries,"
Wood Green, Middlesex, having important frontages of
212 feet to the Nightingale and Truro Roads, by a total depth
of 316 feet, comprising a 6-roomed Cottage, with Coach-house
and Stabling, Brick-built Offices, and other Outbuildings; also
8 GREENHOUSES, containing 18,000 feet super of Glass,
fitted with all requisite appliances, and planted with nearly
500 established Vines and Peach Trees in fine bearing con-
dition, heated by 4500 feet of Hot-water Piping. Tithe free and
Land Tax redeemed. The Property is of the estimated rental
value of £150 per annum, and offers (apart from its attractions
as a going concern) an eligible opportunity to Builders and
Others for a profitable speculation in the development of a
building scheme.

Particulars, with Plans and Conditions of Sale, may be had
at the Mart, of F. PARKER, Esq., Solicitor, Greenwich, S.E.;
or of the Auctioneers, Valuers, and Estate Agents (of whom
orders to view may be obtained), at their Offices, 98, Grace-
church Street, E.C.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by
AUCTION, at his Great Rooms, 38, King Street,
Covent Garden, W.C., on WEDNESDAY, June 4, at half-past
12 o'clock precisely, a quantity of Established ORCHIDS,
comprising many rare and valuable sorts, Imported ORCHIDS
from Mexico, a collection of Established ORCHIDS, comprising
large specimens of old well-known varieties. A consignment of
SACCOLABIIUMS, PHALANOPSIS and DENDRO-
BIUMS, starting into growth, and various other Orchids;
2000 Bulbs of GLADIOLUS BRENCHELYENSIS, 2000
Double Italian TUBEROSES, Painted Wire GARDEN
ARCHES, &c.

On view morning of Sale, and Catalogues had.

Valuable Books, Furniture, Scientific Instruments,
ETC.

MR. J. C. STEVENS has received instruc-
tions from Lady Dorothy Nevill, to SELL by
AUCTION, at his Great Rooms, 38, King Street, Covent
Garden, W.C., on FRIDAY, June 6, at half-past 12 o'clock
precisely, a portion of the VALUABLE LIBRARY, removed
from Dangstein, comprising Curtis' *Botanical Magazine*,
Gould's *Birds of Great Britain*, *The Racing Calendar*, and
many other Natural History and Botanical Works, and a quan-
tity of good Furniture.

Also a VALUABLE LIBRARY, some SCIENTIFIC
INSTRUMENTS, and a quantity of good FURNITURE,
removed from Buckhurst Hill, the property of a gentleman
deceased; and a great variety of MISCELLANEOUS
ARTICLES.

On view morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by
AUCTION, at his Great Rooms, 38, King Street,
Covent Garden, W.C., on WEDNESDAY, June 11, at half-
past 12 o'clock precisely, a collection of Established ORCHIDS,
comprising fine plants of Vanda cœrulea, Dendrobium chryso-
toxiom, D. densiflorum, Cattleya lobata superba, Odontoglossum
citrosomum, O. grande, O. Wentworthianum, O.
niveum, and others; also ornamental new galvanised HANG-
ING BASKETS of choice Ferns, Crænas, Palms, and other
Plants, all of which are in good healthy condition; a small
collection of Choice ORCHIDS from the Continent, some fine
specimen plants of DISA GRANDIFLORA, &c.

On view the morning of Sale, and Catalogues had.

Rare Brazilian Orchids, &c.

MR. J. C. STEVENS has received instruc-
tions from Mr. R. Bullen, of Lewisham, to SELL by
AUCTION, at his Great Rooms, 38, King Street, Covent
Garden, W.C., on WEDNESDAY, June 11, at half-past 12
o'clock precisely, a splendid importation of the exceedingly
rare and beautiful ONCIDIUM DASYTYLE, just received
ex R.M.S. "Tamar," from Brazil. The Collector (Mr. H.
Blunt), describes it thus:—"I have just found the greatest
novelty I have seen in Orchids for years. The plant grows
amongst the moss-covered trees, on the coldest parts of the
mountains here. Flower thus—Lip all yellow, sepals and petals
pale yellow, spotted or blotched with a chocolate colour
approaching carmine. The column is a deep blue-black, very
prominent and just the shape of a bee, and seems as though a
black bee was resting in the centre of the flower. The plant is
very free-flowering, many of the bulbs having two flower-spikes
measuring from 13 to 24 inches in length, with numerous
branches, covered with its lovely flowers." The plants offered
are in splendid condition.

At the same time will be offered a fine importation, consisting
of Milonia Moreliana (very rare), M. cuneata and M. Clowesi,
Warcewiczella violacea, Oncidium crispum, O. grandiflorum,
O. curtum, O. Marshallianum and O. Forbesii, Sophronites
violacea and S. grandiflora, Cattleya marginata, C. amethysto-
glossa (supposed), C. velutina (very rare), C. bicolor, C.
amethystina, C. Leopoldii and C. candida, Lælia elegans, L.
purpurata and L. Dayana, Compæretia coccinea, and many
other choice varieties. These are all splendid plants and in the
best possible condition.

On view the morning of Sale, and Catalogues had.

Preliminary Announcement of a Most Important
SALE OF ORCHIDS.

MR. J. C. STEVENS begs to announce that
he has received instructions from O. O. Wrigley, Esq.,
Bridge Hall, Bury, Lancashire, to SELL by AUCTION, at
his Great Rooms, 38, King Street, Covent Garden, W.C., on
TUESDAY, June 17, and following days, at half-past 12 o'clock
precisely each day, his splendid and well-known COLLECTION
OF ESTABLISHED ORCHIDS, without the slightest
reserve, comprising many of the largest specimens in England.

Catalogues are preparing, and further particulars will appear
in future advertisement.

Rare Ferns, Orchids, &c.

MR. J. C. STEVENS has received instruc-
tions from A. Wills, Esq., of Esher, to SELL by
AUCTION, at his Great Rooms, 38, King Street, Covent
Garden, W.C., about the end of JUNE, magnificent Specimen
GLEICHENIAS, a choice collection of Filmy Ferns (some
quite new); a small collection of ORCHIDS in good condition,
HEATHS, and miscellaneous STOVE and GREENHOUSE
PLANTS.

For further particulars see future advertisements.

The Celebrated Collection of Plants at Dangstein.

MR. J. C. STEVENS has received instruc-
tions from Lady Dorothy Nevill to offer for SALE by
AUCTION, on the Premises, Dangstein, near Petersfield, on
TUESDAY, June 24, and following days, at half-past 12 o'clock
precisely each day, this magnificent COLLECTION OF
PLANTS, without the slightest reserve, comprising Camellias
and Azaleas, Palms, Crænas, Crotons, fine specimen
Gleichenias, a most beautiful collection of Filmy Ferns,
Trichomanes radicans in quantity, a grand plant of Trichomanes
reniforme, Hymenophyllum demissum, &c., Anæctochilus,
Peperomias, Darlingtonias, Sarracénias, Platynerium, &c.;
also a choice assortment of Orchids, consisting of large plants of
Masdevallia tovarensis, M. Veitchii, M. Harryana, Odonto-
glossum pulchellum, splendid plants; Cattleyas of sorts,
Dendrobies of sorts, extra fine plants of Stanhopeas of sorts,
Angræcum sesquipedale, Vandas, and many other rare and
valuable plants.

On view day prior and mornings of Sale. Catalogues had on
the Premises, and of Mr. J. C. STEVENS, Auctioneer and
Valuer, 38, King Street, Covent Garden, London, W.C.

Conveyances on the days of Sale will meet at Rogate Station
the train from Waterloo at 7 o'clock, arriving at Rogate
Station at 9.15; also 9.30 from Waterloo, arriving at Rogate
Station at 11.25; and meeting 5.11 and 7.29 trains back at
Rogate Station.

Highly Important Sale of Stove and Greenhouse
PLANTS, FERNS, &c., grown at Darnley. In conse-
quence of the Messrs. Fraser having resolved not to exhibit
or compete, they have instructed

MR. MASSON, AUCTIONEER,
to SELL, in the Music Hall Buildings, during the
SECOND WEEK in JUNE, their well-known Collection.

Catalogues and further particulars, with cards to view, may
be obtained from Messrs. FRASER; or the Auctioneer, 115,
Union Street, Aberdeen.

Woodberry Down.

Charming DETACHED FAMILY RESIDENCE, in the
Cottage style, occupying a position of unrivalled beauty,
standing in its own matured and picturesque Grounds of
Two Acres, with a south aspect, overlooking a silvery
expanse of water, with a well-timbered landscape in the
background, suggesting the Lake District rather than a truly
favoured spot within 25 minutes' drive of the Bank or the
West-end. For Sale with possession.

MR. F. STATHAM HOBSON has received
instructions from the owner, who is going abroad,
to SELL by AUCTION, at the Mart, Tokenhouse Yard,
Lothbury, on WEDNESDAY, June 11, at 2 o'clock precisely,
the singularly favoured Residential Property, comprising a
detached FAMILY RESIDENCE, known as Crasme,
Woodberry Down, standing in ornamental grounds of exquisite
beauty, extensive lawns and parterres laid on a deep silty loam,
in some places from 2 to 3 feet in thickness, with ample
drainage on all sides, and richly planted with fine specimens
of the Pyrus spectabilis, Clumps of choice Rhododendrons,
and a magnificent collection of Roses arranged in masses,
and containing several hundred trees of the best named
varieties in Hybrid Perpetual, Bourbon, Tea, and Noisette, all
in a high state of cultivation; with Shrubberies and shady
walks under well-grown timber running down to and along the
banks of the New River, with rustic retreats and the exclusive
right of excellent fishing. It is approached through an orna-
mental entrance porch, having outer and inner halls, library,
large dining-room, drawing-room, and conservatory, nine
principal and secondary bedchambers, dressing-rooms, bath-
room, stores, kitchen, offices, and cellars, with ample space
for the erection of stabling. The immediate neighbourhood
consists entirely of high-class detached residences of similar
character, and enjoys a proximity to the metropolis, combined
with the attractions of the country, to an extent not equalled by
any suburb of London; Stamford Hill Station is within fifteen
minutes, Finsbury Park and railway station on the Great
Northern Railway a similar distance. It is held from the
Ecclesiastical Commissioners for a term of nearly ninety years
unexpired.

May be viewed by orders only, to be obtained of the
Auctioneer. Particulars and plans had of Messrs. TAYLOR
AND JAQUET, Solicitors, 15, South Street, Finsbury Square,
E.C.; at the Mart; and at the Auction Offices, 20, Coleman
Street, Bank, E.C.

Nursery and Seed Business for Sale.

FOR IMMEDIATE DISPOSAL, a first-
class NURSERY and SEED BUSINESS, established
fifty years, and doing a large and increasing trade. The Nursery
is well situated for railway accommodation, extends to about
45 Acres, and is stocked with a well-selected variety of Forest,
Fruit, and Ornamental Trees and Shrubs. A large selection of
Roses. Probable value of stock, about £10,000.

Apply to "NURSERY X," E. Marlborough & Co., 51, Old
Bailey, London, E.C.

TO be LET, CRANSTON'S NURSERIES

(of the Firm of Cranston & Company), King's Acre,
Hereford. These celebrated Nurseries, so long and widely
known as the largest and finest Rose Gardens in the Kingdom,
have been established close upon a century, and occupy
upward of 100 Acres of Land, delightfully situated and laid out
with great taste and judgment. The soil, which is naturally
rich, has been improved and carefully fostered year by year
until it has become adapted in an extraordinary degree to the
culture of the choicest varieties of Nursery Stock; all modern
discoveries have been utilised, and no expense has been spared
in adapting every improvement tending to the extension and
economical working of the Business, the special branches of
which have attained an unrivalled position and a world-wide
renew. The GLASSHOUSES, WAREHOUSES, Fore-
man's COTTAGES, OFFICES, and BUILDINGS are very
extensive, and all of modern construction, most conveniently
arranged, and in every way efficient for carrying on a very
extensive Business. The DWELLING-HOUSE, situated in
the Nurseries, is large, and replete with every convenience.
As the Proprietor's object in letting is to retire from business,
arrangements can be made, if desired, with the incoming Tenant,
in taking to the Stock, for a considerable portion of the purchase
money to remain in the Business, satisfactory security being
given. For a Gentleman fond of Horticulture, or for one or two
enterprising Business Men, a more favourable opportunity for
entering into a thoroughly established and well-known Business
has rarely, if ever, been offered.

For particulars, plan of the grounds, and order to view,
apply to Messrs. PROTHEROE AND MORRIS, 98, Grace-
church Street, London, E.C.; Mr. JOHN SHAW, 29, Oxford
Street, Manchester; or to the Proprietor, Mr. JOHN
CRANSTON, King's Acre, Hereford.

St. Anne's-on-the-Sea, Lancashire.

TO BE LET, by Tender, for a term of years,
the NURSERY and PLEASURE GROUNDS. There
are 5 large Vineries, 38 feet by 25 feet each; and 2 Plant-
houses, about 100 feet long by 12 feet each; and various
Frames and Pits. About 3 acres of the Grounds are used for
the growth of Vegetables.

For further particulars and to view, apply to the SECRETARY
of the Gardens Company, St. Anne's-on-the-Sea, Lancashire.

MARKET GARDEN LAND—about

26 Acres, with possession, Enfield Highway, ploughed
for early planting, with 1 acre or more of Seed Beds, compris-
ing the choicest sorts Broccoli, Brussels Sprouts, Cabbage,
Savoy, &c. An additional 30 Acres can be had after Wheat
Crop is off. Apply to
WM. CLAYTON, Barnet, Herts.

**PROTHEROE AND MORRIS, HORTI-
CULTURAL, MARKET GARDEN and ESTATE AUCTIONEERS
and VALUERS**, 98, Gracechurch Street, City, E.C., and at Leyton-
stone, E. Monthly Horticultural Register had on application.

**MR. CHARLES BURLEY, HORTI-
CULTURAL AUCTIONEER and VALUER**, undertakes
SALES, in any part of the country, with strict economy.
Office: Brentwood, Essex.

STONE HORTICULTURAL SOCIETY.

GRAND EXHIBITION

IN THE

Beautiful Grounds of Darlaston Park, Stone,
On THURSDAY, August 7.

Band of the Grenadier Guards in attendance.

The All-England Class contains very liberal
Prizes for
PLANTS, CUT FLOWERS and FRUITS.

The following Prizes are offered for

12 Stove or Greenhouse Plants:—200s., 120s., 80s.

Schedules may be had on application to the Hon. Sec.

Mr. JAS. LEWIS, High Street, Stone.

BATH and WEST of ENGLAND SOCIETY

(Established 1777) and

SOUTHERN COUNTIES ASSOCIATION.

Patron—H.R.H. THE PRINCE OF WALES, K.G.

President—The Right Hon. the EARL OF MCGY.

EXETER MEETING, JUNE 2

3, 4, 5, and 6, 1879.

GREAT EXHIBITION OF LIVE
STOCK, POULTRY, MACHI-
NERY, IMPLEMENTS
WORKS OF ART and HORTI-
CULTURAL SPECIMENS;—
COMPETITION OF SHOEING-
SMITHS, &c.

JOSIAH GOODWIN, Sec.

4, Terrace Walk, Bath, May, 1879.

PARIS EXHIBITION, 1878.—
We have the honour to announce that
our Managing Partner, Mr. MARTIN J. SUTTON,
has been made a Knight of the Legion of Honour,
in special recognition of the peculiar merits of our
exhibits at the above exhibition. See *Times* Paris
Telegram, January 11, 1879.

In addition to the above special distinction, we may mention
that Five Medals, Gold and Silver, were awarded (three to our-
selves and two to our Paris Agent) for our Home Grown Seeds,
Grasses, Roots, &c.

SUTTON AND SONS, The Queen's Seedsmen, Reading,
London and Paris.

Iresine Brilliantissima.

F. AND A. SMITH offer the above New
IRESENE, which is far in advance of any other variety.
Strong Plants now ready, at 4s. per dozen.

The Nurseries, West Dulwich, S.E.

CENTAUREA RAGUSINA COMPACTA.

—Healthy Plants, in pots, of this superior form of
CENTAUREA, 3s. per dozen, 18s. per 100.

EAST LOTHIAN INTERMEDIATE STOCK for autumn
flowering—NEW CRIMSON, PURPLE, and WHITE,
strong seedlings, 1s. 3d. per dozen, 7s. 6d. per 100, free.

J. J. MARRIOTT, Highfield Nurseries, Matlock Bridge.

CHEAP BEDDING PLANTS, extra fine.—

CALCEOLARIAS, Golden Gem, from single pots, 10s.
per 100; 90s. per 1000; from Cutting pots, 5s. per 100.
VERBENAS, White and other varieties, 6s. per 100.
GERANIUMS, of sorts, 8s. per 100; from single pots, 12s.
SALVIA PATENS, 10s. per 100; HELIOTROPES, 6s. per
100; LOBELIAS, from single pots, 6s. per 100.

B. R. DAVIS, Yeovil Nurseries, Yeovil.

Bedding Plants—Bedding Plants.

JAS. HOLDEN AND SON can supply
strong healthy Plants in single pots, of scarlet and variegated
Geraniums, Calceolarias, Verbenas, Fuchsias, Helio-
tropes, Ageratum, Iresines, Coleus, Cupheas, Konigias, Tra-
pæolums, Senecios, Dahlias, Alonsoas, Gazanias, Chrysanthem-
ums, Perillas, single and double Petunias, Lobelias, &c.,
8 dozen for 20s., or 4 dozen for 10s. 6d., hamper and packing
included. Cash with order.

Crown Nurseries, Reading.

Now is the time to Sow

SMITH'S BALSAM.—Seed of the above can
be had from most Seedsmen throughout the world, in 1s.
and 2s. packets mixed, and in 2s. 6d. collections of nine colours;
also CINERARIA, PRIMULA, and CALCEOLARIA, in 1s.,
2s. 6d., and 5s. packets, or direct from
F. AND A. SMITH, The Nurseries, West Dulwich, S.E.

MESSRS. THOMAS CRIPPS AND SON, the Tunbridge Wells Nurseries, Kent, have pleasure in announcing the following three beautiful varieties of their seedling CLEMATIS are now ready for distribution:—
GRAND DUCHESS.—This is the largest variety we have ever seen. The Garden describes it as "a strong growing, large flowered, and very effective eight-sepalled variety; the flowers of which, in some instances, were as much as 10 inches in diameter, but often only 8 inches. The colour is white, slightly flushed with rose."
GUIDING STAR.—A fine hybrid, between lanuginosa and Jackmanni, described in *Gardeners' Chronicle* as being a fine flower of purplish hue, shaded with crimson, and with a longitudinal band of maroon down the centre of each petal.
LOUIS VAN HOUTTE.—A very handsome variety, and perhaps the most abundant bloomer of the lanuginosa section. Described in the *Gardeners' Chronicle* as "a strikingly showy variety, with bluish-purple flowers, consisting of six broad sepals of good substance."

The above have each received First-class Certificates at the Royal Horticultural Society, South Kensington.
 Price 10s. 6d. each. Usual Trade discount for the set.
 Coloured plates of either, 2s. 6d. each.

VERBENAS, VERBENAS, VERBENAS.
 —Fine, healthy, well-rooted Cuttings, perfectly free from disease, of White, Scarlet, Purple, and Pink, 6s. per 100, 50s. per 1000. 100 rooted Cuttings in twelve splendid varieties, First Prize Flowers, for 8s.

HELIOTROPE, strong, healthy, well-rooted cuttings, of light and dark named varieties, 6s. per 100.
IRENE LINDENI, HERBSTII and **ACUMINATA**, strong young plants, from stores, 5s. per 100.
FUCHSIAS, 100 plants in 12 splendid varieties, from store pots, for 8s. Terms cash.

H. BLANDFORD, The Dorset Nurseries, Blandford.

ILLUSTRATED CATALOGUE of FERNS.
 The above, comprising 80 pages of illustrations, synonyms, "Notes on Cultivation," &c., is the most complete Fern List in the Trade, and will be forwarded on application. Postage 2d.
 Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.
 W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

To the Trade.

MANGEL WURZEL and **TURNIP SEEDS.**

H. AND F. SHARPE will be pleased to give special quotations for their fine selected stocks of home-grown MANGEL WURZEL, and SWEDE and other TURNIP SEEDS of 1878 growth, and raised from transplanted Bolls.

Seed Growing Establishment, Wisbech.

THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.
 No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.
 No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.
 A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

Cheap Bedding Geraniums.

ALFRED FRYER offers the following good Bedders, at per dozen for Cash:—Golden Tricolors: Peter Grieve, 6s.; Prince of Wales, 6s.; Isle of Beauty, 4s.; Lady Cullum, 3s. 6d.; Mrs. Pollock, 2s. 6d.; Sophia Dumas, 2s. 6d.; Sir Robert Napier, 3s. 6d.; Silver Tricolors: Lass o' Gowrie, 3s. 6d.; Mrs. John Clutton, 2s. 6d.; Prince Silverwings, 2s. 6d.; Queen of Hearts, 3s.; Happy Thought, 4s. 6d.; Distinction, 2s. 6d.; or one of each for 5s. 6d. Post-free for 6d. per dozen extra. Hamper and packing 1s. per dozen, or 3s. 6d. per 100; half price for packing out of pots. For Priced LISTS apply to
 ALFRED FRYER, The Nurseries, Chatteris, Cambridge-shire.

TO FLORISTS and the TRADE.—
SPIRÆA JAPONICA, 9d. per dozen sprays.
PELAGONIUM, 9d. per dozen sprays.
GERANIUM, Scarlet, 4s. per dozen bunches.
GARDENIAS, 2s. per dozen.
ROSES, 3s. per dozen.
MAIDENHAIR FERN, 6s. per dozen bunches.
BOUARDIAS, Scarlet, 12s. per dozen bunches.
SPIRÆA JAPONICA, 48-pots, in bloom, 6s. per dozen.
PELAGONIUM, Duchess of Edinburgh and Reine Blanche, 9s. and 12s. per dozen.
 C. WILSON, The Nurseries, Summerhow, Kendal.

TEA ROSES for Bedding.—April and May are the best months for planting out Tea-scented Roses for summer and autumn flowering.

Strong Plants in pots, worked on seedling Brier, 12s., 15s. to 18s. per dozen.
 Tea Roses for greenhouses and conservatories, in 7 and 8-inch pots, now coming into bloom, 30s. per dozen.

List of sorts on application.
CLEMATIS JACKMANNI, for bedding, 9s. per dozen.
CLEMATIS, twenty to thirty leading varieties, 12s. to 18s. per dozen.
 List of sorts on application.
 CRANSTON AND CO., King's Acre Nurseries, Hereford.

TEA and NOISETTE ROSES in pots, for planting out during spring and summer, or for conservatory decoration all the year round; also new FRENCH and ENGLISH ROSES in pots. The above are a special feature in our Nurseries, and our stock is one of the largest, finest and healthiest in the country. Write for a Pot Rose LIST to
 EWING AND CO., The Royal Norfolk Nurseries, Eaton, near Norwich.

Lilies of the Valley—for the Trade.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, Holland, are now booking Orders for Lily of the Valley, clumps or spikes, for forcing, to be delivered in October or November next. As usually the stock, of superior quality, is unequal to the ordered quantity, early orders are desirable. E. H. K. & Son are well-known to supply a superior stock of these articles. Special prices are given by correspondence.

BEDDING CALCEOLARIAS, good stuff, twice transplanted, and well hardened.—Aurantia, Golden Gem, Princess Louisa, Bijou, Fimbriata, Beauty of Herts, and other fine sorts, 8s. per 100, 70s. per 1000. Sample dozen, 1s. 3d., carriage free.
 SAMUEL SHEPPERSON, Florist and Seedsman, Prospect House, Belper.

J. LYE will be pleased to send his Six New FUCHSIAS, five PELARGONIUMS, and LOBELIA BLUE BEARD, as advertised in the *Gardeners' Chronicle*, March 15 and 22, for 21s. Usual discount to the trade.
 J. LYE, The Amateur Fuchsia Grower, Clyffe Hall, Market Lavington, Wilts.

FORTY THOUSAND Dwarf, Tea-scented, and other ROSES, in pots, at 15s. to 18s. per dozen, or 45s. per 100.

Extra fine Tea-scented ROSES, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen. Address

WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CENTAUREA CANDIDISSIMA.—Good strong autumn-struck Plants, in large 60-pots, 30s. per 100.
COLEUS VERSCHAFELTII, 8s. per 100.
IRENE LINDENI, 6s. per 100.
HELIOTROPE, Light and Dark, 6s. per 100.

Package free for cash.

S. BIDE, Alma Nursery, Farnham, Surrey.



B. S. WILLIAMS' NEW AND CHOICE SEEDS For 1879, Post-free.

WILLIAMS' CYCLAMEN PERSICUM
GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per pkt.

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| Comtesse Gabrielle de Clermont-Tonnerre .. | .. | .. | .. | .. | .. | .. | .. | .. | 15 | 0 |
| Marguerite Bruant .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | 6 |

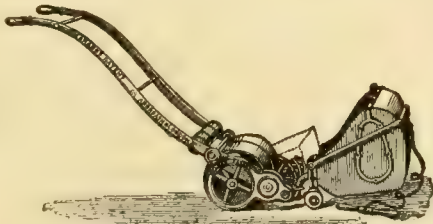
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ROYAL HORTICULTURAL SOCIETY.

GREAT SUMMER SHOW, MAY 27, 28, 29, 30.

AWARDS OF THE JUDGES.

CLASS 1.—12 STOVE or GREENHOUSE PLANTS, in flower, distinct. (Open.)
1st, Messrs. T. Jackson & Son, The Nurseries, Kingston-on-Thames, £15.
2d, Messrs. J. Peed & Sons, Roupell Park Nurseries, Norwood Road, S.E., £10.

CLASS 2.—8 STOVE or GREENHOUSE PLANTS, in flower, distinct. (Nurserymen.)
1st, Messrs. T. Jackson & Son, Kingston-on-Thames, £10.
2d, Messrs. J. Peed & Sons, Norwood, £7.

CLASS 3.—8 STOVE or GREENHOUSE PLANTS, in flower, distinct. (Amateurs.)
1st, Mrs. Torr, Garbrand Hall, Ewell (J. Child, Gr.), £10.
2d, D. Martineau, Esq., South Road, Clapham Park (J. Weston, Gr.), £7.

CLASS 4.—15 ORCHIDS, distinct. (Open.)
1st, F. Whitbourn, Esq., Loxford Hall, Ilford (J. Douglas, Gr.), £20.
2d, Mr. H. James, Castle Nursery, Lower Norwood, £15.
3d, Messrs. T. Jackson & Son, Kingston-on-Thames, £10.

CLASS 5.—10 ORCHIDS, distinct. (Amateur.)
1st, Mrs. Torr, Ewell (J. Child, Gr.), £10.
2d, F. Whitbourn, Esq., Ilford (J. Douglas, Gr.), £7.

CLASS 6.—10 ORCHIDS, distinct. (Nurserymen.)
1st, Mr. B. S. Williams, The Nurseries, Upper Holloway, N., £8.
2d, Mr. H. James, Lower Norwood, £6.

CLASS 7.—GROUP of ODONTOGLOSSUMS. (Open.)
1st, Mr. W. Bull, King's Road, Chelsea, S.W., £6.

CLASS 8.—12 NEW PLANTS introduced since the year 1876. (Open.)
1st, Mr. W. Bull, Chelsea, £8.
2d, Mr. J. Wills, South Kensington, S.W., £6.
3d, Mr. B. S. Williams, Upper Holloway, N., £4.

CLASS 9.—8 GREENHOUSE AZALEAS, distinct. (Nurserymen.)
1st, Mr. C. Turner, Royal Nursery, Slough, £10.
2d, Messrs. T. Jackson & Son, Kingston-on-Thames, £7.
3d, Mr. J. Wills, South Kensington, S.W., £5.

CLASS 10.—8 GREENHOUSE AZALEAS, distinct. (Amateurs.)
1st, Mrs. Torr, Ewell (J. Child, Gr.), £12.
2d, R. Thornton, Esq., The Hoo, Sydenham Hill, S. (A. Ratty, Gr.), £9.
3d, D. Martineau, Esq., Clapham Road, S.W. (J. Weston, Gr.), £7.

CLASS 11.—15 GREENHOUSE AZALEAS, in pots not exceeding 12 inches in diameter. (Open.)
1st, R. Thornton, Esq., Sydenham, S. (A. Ratty, Gr.), £8.
2d, Messrs. J. Ivery & Son, Dorking, £6.
3d, Mr. C. Turner, Slough, £4.

CLASS 12.—8 ERICAS, distinct. (Open.)
1st, Messrs. T. Jackson & Son, Kingston-on-Thames, £10.
3d, Messrs. B. Peed & Son, Norbury Nurseries, Lower Streatham, £7.

CLASS 13.—8 FINE-FOLIAGED PLANTS, (Amateurs.)
1st, J. Warren, Esq., Handcross Park, Sussex (C. Rann, Gr.), £10.
2d, Rev. Canon Bridges, Beddington House, Beddington (T. N. Penfold, Gr.), £7.
3d, J. G. Megeau, Esq., Windermere House, Upper Norwood (J. Ford, Gr.), £5.

CLASS 14.—Group of FINE-FOLIAGED PLANTS, arranged in a space not exceeding 300 square feet. (Open.)
1st, J. Warren, Esq., Handcross, Sussex (C. Rann, Gr.), £12.
2d, Messrs. Hooper & Co., Covent Garden, W.C., £8.

CLASS 15.—Group of MISCELLANEOUS PLANTS in bloom, arranged in a space not exceeding 300 square feet. (Open.)
1st, Mr. B. S. Williams, Upper Holloway, N., £12.

CLASS 16.—Group of MISCELLANEOUS PLANTS, arranged for effect, and occupying a space not exceeding 300 square feet. (Open.)
1st, Mr. J. Wills, South Kensington, W., £15.
2d, Messrs. J. Laing & Co., The Nurseries, Forest Hill, S.E., £10.
3d, Messrs. J. Peed & Sons, Norwood, £7.
Extra, Mr. J. Aldous, Florist, Gloucester Road, S.W., £10.

CLASS 17.—9 SHOW PELARGONIUMS, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, W. F. Watson, Esq., Redless, Isleworth (J. James, Gr.), £6.
2d, Mr. C. Turner, Slough, £6.

CLASS 18.—9 FANCY PELARGONIUMS, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, W. F. Watson, Esq., Isleworth (J. James, Gr.), £8.

CLASS 19.—Group of not less than 30 GLOXINIAs in pots. (Open.)
1st, Mr. John Wills, South Kensington, W., £6.
2d, C. Hart, Esq., Beaufort House, Lee (W. Reeves, Gr.), £4.

CLASS 20.—Group of not less than 20 TUBEROUS BEGONIAs, in pots. (Open.)
1st, Messrs. J. Laing & Co., Forest Hill, S.E., £5.
2d, Messrs. Hooper & Co., Covent Garden, W.C., £4.
3d, Messrs. T. Jackson & Son, Kingston-on-Thames, £2.

CLASS 21.—6 STOVE or GREENHOUSE FERNS, distinct. (Amateurs.)

1st, Mrs. Torr, Ewell (J. Child, Gr.), £8.
2d, J. Warren, Esq., Handcross, Sussex (C. Rann, Gr.), £6.
3d, F. Whitbourn, Esq., Ilford (J. Douglas, Gr.), £4.

CLASS 22.—6 STOVE or GREENHOUSE FERNS, distinct. (Nurserymen.)
1st, Mr. B. S. Williams, Upper Holloway, N., £6.

CLASS 23.—20 ROSES, distinct, in pots. (Open.)
1st, Messrs. Paul & Son, Cheshunt, £15.
2d, Mr. C. Turner, Slough, £10.
3d, Messrs. H. Lane & Son, Great Berkhamstead, £7.

CLASS 24.—9 ROSES, distinct, in pots. (Nurserymen.)
1st, Mr. C. Turner, Slough, £15.
2d, Messrs. Paul & Son, Cheshunt, £10.

CLASS 25.—6 ROSES, distinct, in pots. (Amateurs.)
1st, Miss Christy, Kingston-on-Thames (J. W. Moorman, Gr.), £6.
2d, Mr. J. Tranter, Henley-on-Thames, £4.
3d, W. F. Watson, Esq., Isleworth (J. James, Gr.), £2.

CLASS 27.—Group of not less than 30 RHODODENDRONS.
1st, Messrs. H. Lane & Son, Great Berkhamstead, £10.

CLASS 28.—Group of not less than 30 HARDY HERBACEOUS PLANTS, in pots, distinct. (Open.)
1st, Mr. Robert Parker, Tooting, £8.

CLASS 30.—Group of HARDY FLOWERS, cut blooms, arranged in separate bunches. (Open.)
1st, Mr. Robert Parker, Tooting, £2.
2d, Messrs. Hooper & Co., Covent Garden, W.C., £1.

CLASS 31.—Cut blooms of not less than 24 PANSIES, distinct. (Open.)
1st, Mr. H. Hooper, Vine Nursery, Widcomb Hill, Bath, £2.
2d, Mr. H. Catley, Claverton Buildings, Bath, £1.

CLASS 32.—2 PINE-APPLES. (Open.)
2d, The Duke of Richmond and Gordon, Goodwood (F. Rutland, Gr.), £1 10s.
3d, Mrs. Torr, Ewell (J. Child, Gr.), 15s.
1st, Withheld.

CLASS 33.—1 PINE-APPLE, "Queen." (Open.)
1st, The Duke of Richmond and Gordon, Goodwood (Mr. F. Rutland, Gr.), £1.
3d, Mrs. Torr, Ewell (J. Childs, Gr.), 10s.
2d, Withheld.

CLASS 34.—1 PINE-APPLE, "Smooth Cayenne." (Open.)
1st, Lord Carington, Wycombe Abbey, Bucks (G. T. Miles, Gr.), £1.

CLASS 35.—1 PINE-APPLE, any other variety. (Open.)
1st, The Duke of Richmond and Gordon, Goodwood (F. Rutland, Gr.), £1.

CLASS 36.—3 Bunches of BLACK HAMBURGH GRAPES. (Open.)
1st, Mrs. Tristram, Fowley, Liphook (P. Edwards, Gr.), £3.
2d, Marchioness of Camden, Bayham Abbey, Lamberhurst (W. Johnstone, Gr.), £2.
3d, D. McIntosh, Esq., Havering Road, Romford (W. Bones, Gr.), £1 10s.

CLASS 38.—3 Bunches of WHITE MUSCAT of ALEXANDRIA GRAPES. (Open.)
1st, C. Allhusen, Esq., Stoke Court, Slough (J. Maher, Gr.), £3.

CLASS 39.—3 Bunches of WHITE GRAPES, any other variety. (Open.)
1st, Col. Lloyd Lindsay, Wantage (J. Atkins, Gr.), £2.
2d, Mrs. Tristram, Liphook (P. Edwards, Gr.), £1 10s.

CLASS 40.—6 PEACHES, any one kind. (Open.)
1st, C. Allhusen, Esq., Slough (J. Maher, Gr.), £2.

CLASS 41.—6 NECTARINES, any one kind. (Open.)
1st, C. Allhusen, Esq., Slough (J. Maher, Gr.), £1 10s.
2d, Dr. Fuller, New Shoreham (J. Nash, Gr.), £1.

CLASS 42.—2 Dishes of CHERRIES, distinct. (Open.)
1st, Lord Carington, High Wycombe (G. T. Miles, Gr.), £2.

CLASS 43.—1 Dish of CHERRIES. (Open.)
1st, Lord Carington, High Wycombe (G. T. Miles, Gr.), £1.

CLASS 44.—3 Dishes of STRAWBERRIES, distinct. (Open.)
1st, The Marquis of Salisbury, Hatfield (J. Norman, Gr.), £2.
2d, T. Somers Cocks, Esq., Marlow (A. C. Bridgeman, Gr.), £1 10s.

CLASS 45.—1 Dish of STRAWBERRIES. (Open.)
1st, Messrs. Burnwell & Tibbels, The Grapenies, Woking, £1.
2d, The Marquis of Salisbury (J. Norman, Gr.), 15s.
3d, The Duke of Richmond and Gordon, Goodwood (F. Rutland, Gr.), 10s.

CLASS 46.—1 MELON. (Open.)
1st, Col. the Hon. C. R. D. Hay, Sunning Hill (C. Deavin, Gr.), £1.
2d, T. Taylor, Esq., Tetsworth, Oxon (J. Chilton, Gr.), 15s.
3d, Mr. G. Goldsmith, Tonbridge, 10s.

CLASS 47.—1 Dish TOMATOS. (Open.)
1st, R. B. W. Baker, Esq., Romford (W. Iggulden, Gr.), £1.
2d, Lord Carington, High Wycombe (G. T. Miles, Gr.), 15s.
3d, The Duke of Richmond and Gordon, Goodwood (F. Rutland, Gr.), 10s.

CLASS 48.—Collection of VEGETABLES, consisting of 10 kinds, to be shown on dishes provided by the Society.
1st, Lord Carington, High Wycombe (G. T. Miles, Gr.), £6.
2d, R. B. W. Baker, Esq., Romford (W. Iggulden, Gr.), £4.

SPECIAL PRIZES.

Prizes offered by Mr. W. Bull.

CLASS A.—12 NEW PLANTS, introduced and sent out for the first time since the commencement of 1876 by Mr. W. Bull. (Private Growers.)
1st, J. Warren, Esq., Handcross, Sussex (C. Rann, Gr.), a Silver Cup, value £15 15s.
2d, Rev. Canon Bridges, Beddington (T. N. Penfold, Gr.), a Silver Cup, value £10 10s.
3d, Sir Wilfred Lawson, Bart., M.P., Brayton, Carlisle (J. Hammond, Gr.), a Silver Cup, value £6 6s.

CLASS B.—12 NEW PLANTS, introduced and sent out for the first time since the commencement of 1876 by Mr. W. Bull. (Nurserymen.)
1st, Mr. B. S. Williams, Upper Holloway, N., a Silver Cup, value £15 15s.
2d, Mr. J. Wills, South Kensington, S.W., a Silver Cup, value £10 10s.

Prizes offered by Messrs. Sutton & Sons.

CLASS F.—For COLLECTIONS.—Three sorts of Melons and three sorts of Cucumbers, and specimen of Melon and one brace of Cucumbers, to include Sutton's "Earl of Beaconsfield" Melon and Sutton's "Duke of Connaught" Cucumber.
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2d, Colonel Loyd Lindsay, Wantage (J. Atkins, Gr.), Silver Medal and £2 2s.

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Mr. B. S. Williams, Upper Holloway, N., for Group of Plants, Silver Banksian Medal.
Messrs. J. Ivery & Son, Dorking, for Collection of Azaleas, Silver Banksian Medal.
Messrs. Paul & Son, Cheshunt, N., for Collection of Roses, Silver-gilt Flora.
Messrs. G. Jackman & Son, Woking, for Groups of Specimen Clematises and Window Boxes with Clematises, Gold Banksian Medal.
Messrs. H. Lane & Son, Great Berkhamstead, for Collection of Roses, Silver-gilt Flora.
Messrs. Roddy & Co., High Holborn, W.C., for Rockery, with plants arranged for effect, Silver Banksian Medal.
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Messrs. William Paul & Son, Waltham Cross, N., for Roses, 8 boxes, cut blooms, Silver Banksian Medal.
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Lord Ebury, Rickmansworth (J. C. Mundell, Gr.), for 18 varieties of Apples, Bronze Knight.
Mrs. K. B. Cussons, Southport, for Collection of Skeletonised Leaves, Silver Flora.
Mrs. M. Hodgkins, 35, Hyde Grove, Manchester, for Collection of Skeletonised Leaves, Silver Flora.

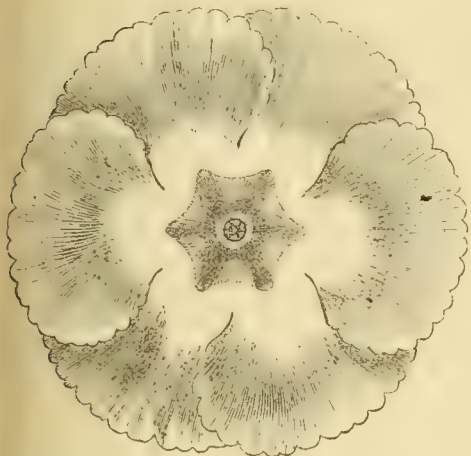
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Messrs. J. H. Critchley, Grosvenor Works, Cheltenham, for Patent Heat Regulators, Silver Banksian Medal.
Messrs. John Crowley & Co., Sharnfield, for Invincible Mowing Machines (Edward's patent), Commended.
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Mr. J. Matthews, Royal Pottery, Weston-super-Mare, for Terra Cotta Vases and Flower Pots, Commended.
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"Your Calceolarias were really beautiful, and took first prize at Gosport Show."—Mr. N. WATERS, *Gr. to Sir E. Commerell*.

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"Our Cinerarias this year were the admiration of every one."—Mr. E. LEWIS, *Gr. to J. H. Cadman, Esq.*

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Drooping Flowering .. 5s. and 2s. 6d. per packet.
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"Gloxinias from your seed, raised last spring, just coming into flower, are perfectly marvellous. The flowers are 3 to $3\frac{1}{2}$ inches in diameter, and the colour of the bloom is quite equal to your plates."

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"The preparation is readily soluble in water, and perfectly free from all disagreeable smell, and it may be regarded as the concentrated essence of the most valuable manures, deprived of all the disagreeable smelling and useless products of partial decomposition which generally accompany ordinary manures.

"The facility with which it can be applied, and the small quantity required to produce a visible effect upon flowers, render it an elegant and efficacious substitute for liquid manure, guano-water, &c., for use in Greenhouses and in the Flower Garden."

DIRECTIONS FOR USE.

One teaspoonful of the Florvita to be added to each gallon of water used. The plants should be watered with it three times a week or more.

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SATURDAY, MAY 31, 1879.

A TROPICAL FRUIT.

THE forests and gardens of the Eastern tropics are remarkably rich in native and naturalised kinds of edible fruits, and the forests especially may be considered as the home of the Mangosteen, Durian, Tarippe or Trap-fruit, Langsat, Rambutan, and Jintawran, all excellent, indeed unapproachable in their way, but if one would enjoy them a journey to the East is unfortunately necessary. They are somewhat like our own luscious Jargonelle Pears or Green Gage Plums, and must in a sense be "eaten off the tree." The Mango, one of the finest and most variable of Eastern fruits, has been successfully cultivated in the West Indian Islands, St. Michaels, and Madeira, and has fruited out-of-doors at Lisbon, but those we have named above have hitherto resisted culture outside their own restricted habitats, if we except the solitary instance in which the Mangosteen fruited in one of the hothouses at Sion House some years ago, and the trees introduced to the island of Ceylon, which have succeeded fairly well. Another extremely useful and variable fruit, the Banana, is quite commonly ripened in our gardens, and with the Pine-apple these may be accounted the only tropical fruits which lend themselves to anything approaching a regular system of successful culture in our hothouses at home. Our ordinary cultivated fruits are naturally found in temperate or inter-tropical countries—Europe or the cooler parts of Asia principally; and of all those cultivated in the open air of Southern Europe, such as the Vine, Fig, and Orange, the latter is the only one which can be induced to prosper in the tropical lowlands of the far East, where its evergreen character enables it to hold its own while its deciduous neighbours seem to fail through over-excitement, the loss of their customary winter's sleep.

On the other hand the Pine-apple of South America, the Mango of India, and the delicious little Chinese or Mandarin Orange, here luxuriate in the open air, the Mango yielding two crops in twelve months while fruit of the others may be obtained all the year round. In some favoured districts in Malaya the forests almost become orchards on a large scale, so plentifully are they stocked with Durian, Balloona, Mambangan, varieties of Tampoe, Lueing, and other native fruits, in addition to those already named; and in many places the Pine-apple is so abundantly naturalised as an escape from cultivation that one might almost be led to imagine it indigenous did we not know that, together with the white Guava, the Papaw, and Cashew-nut—a trio forming the "weeds" among tropical fruits—it is a native of the western tropics. So abundant are the crops in some seasons that one cannot help regretting their perishable nature, by reason of which their shipment to Europe in a fresh state is prevented; and as to their preservation in the form of candied confections or "jam" no one seems to have taken up the matter. Fancy a conserve of snowy Mango-steen pulp, preserved Mangos, candied Rambutan, or Banana marmalade. The late Dr. Lindley once said, in his usual incisive way, that "most tropical fruits were edible," but that "very few were worth eating;" but then the probability is he had never tasted a Mango or a Mangosteen, a Tarippe fruit, or the deliciously rich Apricot-like pulp which surrounds

the seeds of the caoutchouc-yielding Willughbeias, and certainly not a Durian.

The regal Durian (*Durio zibethinus*), like the finest of Nectarines or melting Pears, must be eaten fresh and just at one particular point of ripeness, and then it is, as many think, a fruit fit for a king. So highly is this vegetable-custard valued that as much as a dollar each is not unfrequently paid for fine specimens of the first fruits of the Durian crop brought into the Eastern markets. It is a universal favourite both with Malays and Chinese, but the opinions of Europeans vary as to the merits of this "delectable epitome of all that is perfect in fruit food." It is a paradox, "the best of fruits with the worst of characters," and, as the Malays say, you may enjoy the Durian, but you should never speak of it outside your own dwelling. Its odour—one scarcely feels justified in using the word "perfume"—is so potent, so vague, but withal so insinuating, that it can scarcely be tolerated inside the house. Indeed Nature here seems to have gone a little aside to disgust us with a fruit which is perhaps of all others the most fascinating to the palate when once one has "broken the ice," as represented by the foul odour at first presented to that most critical of all organs of sense, the nose. As a matter of course it is never brought to table in the usual way, and yet the chances are that whoever is lucky enough to taste a good fruit of it to begin with soon develops into a surreptitious Durian eater; just as a jungle tiger becomes a "man-eater" after its first taste of human blood.

There is scarcely any limit to Durian eating if you once begin it, it grows on one like opium smoking, or other acquired tastes; but on the other hand, the very suggestion of eating such an "unchaste fruit" is to many as intolerable as the thoughts alone of supping off cheese and spring onions, washed down with "stout and mild," followed by a whiff from a short "dudeen" by way of dessert, and yet, while these incongruities are consumed at home with enjoyment, one must not be too hard on those abroad who relish the fragrant Durian. About the middle or end of July Durian fruit are very common in Singapore, and their spiny skins lie about the streets in all directions. As you pass along you become aware of a peculiar odour all around you—an odour like that of a putrid sewer when half suppressed by holding a perfumed handkerchief to the nose—a blending of a good deal that is nasty with a *soupeon* of something rather sweet and nice. On opening a fruit for yourself, however, you find that the perfume, like that of the Musk plant, ceases to be evident after you have once had a fair whiff at it at close quarters. The flavour of the straw-coloured, custard-like pulp which surrounds the four or five rows of large chestnut-like seeds is perfectly unique: to taste it, as Wallace tells us, is "a new sensation worth a journey to the East to experience;" but much depends on a good fruit being obtained when perfectly, not over ripe. You then find the pulp sweet, rich, and satisfying; it is indeed a new sensation, but no two persons can agree as to the flavour—no two descriptions of it are alike. Its subtle action upon the palate—and perhaps this best explains the unceasing popularity it enjoys—is like the music of a well-played violin on the ear, rich, soothing, sweet, piquant. The flavour of Durian is satisfying, but it never cloy; the richness seems counteracted by a delicate acidity, the want of grape-like juiciness is supplied by the moist creamy softness of the pulp as it melts away ice-like on your tongue.

It is said that the best of whiskey is that made by blending several good kinds together, and Nature seems to have blended four or five good flavours together when she made the Durian. "A *macédoine* of fruits," says a

modern author, "when well made and judiciously flavoured, is a delicious sweetmeat. The Grape, the Peach, the Apricot, and the Pine meet in welcome harmony; the Pear, the Apple, and the Cherry add their friendly companionship, and all these opposing elements of flavour are blended with a soft and soothing syrup." In a word, the Durian is a natural *macédoine*—one of Dame Nature's "made dishes"—and if it be possible for you to imagine the flavour of a combination of corn flour and rotten cheese, Nectarines, crushed Filberts, a dash of Pine-apple, a spoonful of old dry sherry, thick cream, Apricot-pulp, and a *soupeon* of Garlic, all reduced to the consistency of a rich custard, you have a glimmering idea of the Durian, but, as before pointed out, the odour is almost unmentionable—perfectly indescribable.

The fruit itself is in size as large as a Cadiz Melon, and the leathery skin is protected by sharp broad-based spines very similar to those of a Horse Chestnut. The name Durian, in fact, is derived from these—the word *duri* in Malay meaning a spine or thorn. There are many varieties in the Bornean woods, some but little larger than Horse Chestnut fruits, and having only two seeds, others larger but with stiff orange-red pulp, not at all nice to eat, however hungry you may be; and even the large kinds, with creamy pulp and many seeds, vary very much in flavour. The trees are monarchs of the forest, as a rule varying from 70 to 150 or even more in height, with tall straight boles and spreading tops, and the foliage is oblong acuminate, dark green above, paler and covered with rufous stellate hairs or scales below. The fruits of the finer varieties fall when ripe, and accidents sometimes happen.

I saw a native who had the flesh torn from his shoulder by a blow from one of these armed fruits, and saw several narrow escapes, but personally I gave the trees a wide berth at fruiting time. Some varieties, especially the "durianburong," or wild-bird Durians, do not shed the fruits, which hang on the branches until the valves open, when the seeds fall to the ground, or are eaten by hornbills and other large fruit-eating birds and monkeys. I saw some magnificent specimens of Durian trees in the Bornean forests north of the capital, and also in other Malayan islands, where the forests had been cleared for cultivation, and these trees left standing for the sake of their produce. Their clusters of large white flowers are produced about April, and form a great attraction to an enormous species of semi-diurnal bat, a kind which is said to be one of the greatest pests of Eastern fruit-groves. It is from cultivated trees that the finest of fruits are obtained; and, without exception, the best fruits I either saw or tasted were from a tree in the grounds of Government House, Labuan. It does well in Sumatra, Java, Celebes, and the Spice Islands, and even as far north as Mindanao. Forests of it exist on the Malay peninsula, and very fine fruit is brought to Singapore from Siam about July or August. On the coast of the Bay of Bengal it grows as far north as Tenasserim, in lat. 14° N., but it does not succeed well in India, and cannot be grown in the West Indies. In Sumatra groves of this tree exist near the Palembang River, and in the primeval forests there are specimens fully 150 feet in height, the fruits being in perfection about September and October; but two crops are produced each year, and throughout the Archipelago one finds its seasons of ripening to be very various.

There are many different varieties, doubtless the result of promiscuous seeding, or, perchance, cross-fertilisation, and one variety actually produces flowers and fruit on its exposed roots, *F. W. B.*

New Garden Plants.

PESCATOREA GAIRIANA, *n. sp.**

There is scarcely a group of Orchids that has offered such a quantity of surprises as *Pescatoreas* and *Bolleas*. The traveller is lucky to detect one, provided he condescends to invade the woods, or to obtain one by the *peons*, should he prefer to smoke at home, and to send the brown fellows into the woods. Their orders are given to collect, and all similar kinds are brought, and believed to be the same. We have here a glorious flower, surpassing the majority of its affinity, excepting the grand *P. Klabochorum*, which has not yet flowered in Europe, but which may flower soon with Messrs. Veitch, who obtained the stock. Our plant has deep violet sepals and petals. The anterior halves of them are darkest black-purple inside, which makes a grand effect. The lip callus covers half that organ, and shows 15–17 keels, which stand radiating. The anterior part of the lip has obscure longitudinal keels, and numerous warts between. It is reflexed on the limb, and is thus nearly hood-shaped. The lip is rather rose-coloured. The column is darkest violet above, whitish-yellow with a few purple spots at the base, where it has some velvet. The plant was bought at the great rooms of Mr. Stevens in September, 1876, as *Bollea cœlestis*, by Mr. Gair, to whom it is dedicated with pleasure, this gentleman being a zealous Orchid grower, and excelling in the culture of these plants, having also sent (by Messrs. Veitch) some time ago a beautiful variety of the exceedingly rare *P. Backhousiana*. *H. G. Rehb. f.*

PESCATOREA KLABOCHORUM.†

This is a most remarkable species, quite distinct from *P. coronaria* in the shape of the callus, and by the minute side auriculæ, and from *P. Gairiana* by its hairy and styliform processes, as well as by the shorter petals. It appears to have the largest flowers of all the company. I never in my life saw a softened flower grow to such extent before my eyes as this, and now I have a careful sketch at hand with measurements of the soft flower, and the once much smaller flower in a dry state. It is one of the best discoveries of the most recent Orchid victim, our good late Franz Klaboch, who wished that it should bear his brother's and his name at once. Messrs. Veitch possess the original sketch, and I am informed by those gentlemen that it has petals and sepals white with chocolate tips. Messrs. Veitch have the unique plants. *H. G. Rehb. f.*

LIPARIS TRICALLOSA, *n. sp.*‡

This is a *Liparis* a foot high when in flower. The bulb is elongate and compresso-tetragonous. There are four plaited cuneate oblong-acute soft leaves, a little wavy, 0.1–0.03 m. The pedicelled ovaries are 0.025 long, sepals the linear, greenish-yellow, 0.018–0.003 m. Petals filiform, yellow or purple. The lip is very large for the genus, 0.02:0.15 m., with a very short stalk, then rather orbicular or hastate semi-oblong acute, toothletted, yellowish-green, later port-wine colour, with dark veins and two very dark blackish-purple calli on the very base. The column has an angular process on each of side the stigmatic hollow. It is near *Liparis odontoflora*, one of Dr. (now Sir Joseph) Hooker's discoveries in the hot valleys of Sikkim Himalaya. Our plant was introduced from Borneo by Mr. Bull, and flowered in April last. By its large lip it makes one think of *Liparis lilifolia*. It was discovered and sent dried before by Mr. Burbidge. *H. G. Rehb. f.*

* *Pescatorea (Asperlingus) Gairiana*, *n. sp.*—Grandiflora: sepalis oblongo-ligulatis obtuse acutis; tepalis subaequalibus; antice magis dilatatis; labelli ungue gracili; lamina trifida; lacinis lateralibus erectis apice postice acutis; lacinia antice subtriangula rhombea marginibus revolutis. callo maximo inter lacinias laterales; lacinias 15–17 radiatis; lacinia antica rugosa papulis multis parvulis; columna basin versus coarctata; sacculus basi antice utrinque angularis; antice velutina.—*Zygopetalum Gairianum*. Sepala et tepala violacea; intus dimidio superiori multo obscuriora. Labellum subcarneo-purpureum. Columna superne obscure purpure-violacea; inferne flava maculis purpureis.—Ex hort. Gairiana mediantibus, cl. Veitch accepta. *H. G. Rehb. f.*

† *Pescatorea Klabochorum*.—(*Asperlingus*). Grandiflora: sepalis oblongis obtusis; tepalis magis cuneatis brevioribus. labelli auriculis lateralibus parvis; lamina antica ovata, submarginata (limbo revoluta). callo basae; lacinias 10, papulis radiatis processibusque styliformibus filiformibusque plurimis circumjectis; columna basi utrinque angulata.—*Zygopetalum Klabochorum*. *H. G. Rehb. f.*

‡ *Liparis tricallosa*, *n. sp.*—Aff. *L. odontostomati*: bulbo oblongo obtusangulo tetragono subcompresso tetraphyllo; foliis molibus oblongis acutatis; pedunculo longe exserto angulato laxo racemoso; bracteis triangularibus minutissimis ovaria pedicellata vix vigesima parte æquantibus; sepalis linearibus acutis; tepalis filiformibus; labello a basi cuneato hastato semiovato acuto limbo serrulato, callis obtusis atropurpureis in ima basi, interjecto callo sub columna; columna arcuato angulo producto utrinque juxta foveam. Ex Borneo imp. cl. Bull. Detecta et sicca missa fuit a dom. Burbidge. *H. G. Rehb. f.*

FRITILLARIA BURNETI.

MESSRS. BACKHOUSE & SON send us a very interesting new Fritillary—*Fritillaria Burneti* (fig. 98)—which Mr. Baker places as a variety of *F. delphinensis* in a section which contains also our native *F. Meleagris*, and which is marked by the presence of a linear or lanceolate pit above the base of the perianth segments. The stems grow about 6 inches or 8 inches high, green, bare of leaves below, and above provided with about half-a-dozen linear-lanceolate leaves, of which the lowest is 3 inches, and the uppermost 2 inches long, slightly glaucous. The flower is solitary, nodding, about 2 inches long, bell-shaped, the perianth segments carinate outside in the lower



FIG. 98.—FRITILLARIA BURNETI.

half, oblong, veiny, and with a sunken linear green furrow within. The column is a deep lurid brownish-red, closely tessellated with white, especially on the inside, the outside appearing somewhat purplish from the presence of a thin glaucous bloom. The yellow stamens are about half the length of the perianth. It is a very pretty dwarf-growing spring bulb, quite worthy a place in the bulb border.

SAXIFRAGA HIERACIFOLIA.—This plant, which may now be seen in bloom on the rockwork at Kew, is very remarkable among Saxifrages, and in any case a striking plant. The leaves are in tufts, each 3—5 inches long, oblong in shape; from the centre of the tuft rises the villous cylindrical flower-stalk, 18—24 inches in height, and bearing at the summit a dense panicle of greenish-yellow flowers.

THE ROYAL ACADEMY.

ALTHOUGH the exhibition of the Royal Academy this year contains many pictures of the first class, yet we are inclined to estimate it as somewhat under the average. No doubt this estimate is partly regulated by the splendid collection of selected pictures in the neighbouring Grosvenor Gallery, and partly by the marked absence of any high-class works of floral or horticultural interest—the Misses Mutrie, for instance, being quite unrepresented. Of figure subjects there are many excellent examples, but these being somewhat unconnected with the *Gardeners' Chronicle* we can only give them a brief notice. Every visitor to the Royal Academy, will, however, pause before the

not over-elaborated but exact and true, and whether we examine the architecture, the perspective, the ornament, the dresses, or the abundant flowers, all are alike perfect, nothing is careless or unstudied: notice the truthfully portrayed old Vine stems, the stone dial, the fountain, the Artichokes, Poppies and Sunflowers—every object shows knowledge and study and an infinite amount of painstaking. 162, "Oranges," Eleanor S. Wood: Oranges partly peeled—no doubt well done and natural enough—but the subject palls from its tiresome iteration; half-peeled Oranges have been too often painted. 170, "An Indian Jar," Alfred Parsons: the Roses in this "jar" are wretched lifeless things. 172, "Among the Lotus Pools: a July Morning in Japan," Frank Dillon: it is hardly possible to conceive the flowers to be correct in this picture, but as we have never been to the Japanese Lotus pools we cannot positively say the flowers are incorrectly drawn. 198, "The Proposal of the Jews, &c.," S. A. Hart, R.A.: the most melancholy production in the exhibition. 208, "The Youth of St. John the Baptist," J. R. Herbert, R.A., though a well painted picture, is a poor illustration of St. John. It is refreshing to see that Mr. Herbert correctly gives us a batch of locust insects in this picture instead of the erroneous locust-pods (*Ceratomia Siliqua*). 215, "The Sixth Voyage of Sinbad the Sailor," Albert Goodwin: a most impressive and excellent picture, after the well-known manner of this artist; an excellent illustration of the sixth voyage of Sinbad, as is the Valley of Diamonds by the same artist in this exhibition. 211, "Flowers, Oranges, and Japanese Objects," Annie Ayrton: the objects are very well done, because the originals are stationary things and do not change, but the flowers are poor, because the originals are transitory and require a special effort to seize their ever-changing characters.

238, "Down to the River," L. Alma Tadema, A.: this is another carefully studied picture by this admirable artist. The perspective of the bridge is delightfully correct, each individual stone of the bridge is as correct as if designed by some engineer who had specially studied bridges; the stain of high-water mark on the piers, the marble in the foreground, the figures and weeds on the bridge down to the woman with the red head of hair in the foreground, are alike excellent; there is a little suggestion of ugliness in this picture which is very piquant. Many beautiful objects and sweet sounds are the more beautiful and the more sweet from a slight suggestion of ugliness or discord. Beethoven in many of his works seems to arrest or recal the strict attention of the listener by a few strange and no doubt designedly discordant notes. Turn now from Tadema's work to the adjoining picture, "Hamlet and Ophelia," C. W. Cope, R.A., an interior—such an interior as any one acquainted with buildings must know could never and did never exist, unless put up by some London "Jerry" builder; the steps, doors, fireplace, windows, are all misplaced, the small Norman arches by the steps are surmounted by an incongruous perpendicular coping, the masonry is wrong, and the little semi-circular arches would have been formed by our Norman forefathers out of a single stone, or at most three, as a man with Norman brains could not build them with six as here painted; besides, the wall at the back must be plaster, as the stones of archway are not continuous. 245, "Ripening Sunbeams," Vicat Cole, A.: one of Vicat Cole's truly magnificent landscapes. 287, "Hard Hit," W. Q. Orchardson, R.A.: this is a picture which, from its many good qualities of drawing and painting, will attract the attention of every visitor: observe that one old rascal has taken off his wig to cool his wicked brains. 351, "Pomona Festival," L. Alma Tadema: A curious picture of dancing figures in a blossoming orchard, the dancers are making the dust rise, and falling petals are in the air; the fat man in mid-air is a grotesque figure, and he will no doubt "come down a cropper." The Hyacinths in the flower-beds strike us as being too modern and flower-show like for classic times. The Pine-apple Nursery was, in this instance, we fear, too near Tadema's house at St. John's Wood.

350, "Flowers," J. Davis: a poorly painted picture of Pelargoniums and grasses; the latter are unnatural, and the former are painted as if they possessed four petals only. 403, "The Return of the Victors," Sir John Gilbert, R.A. This is an extraordinary dashing Rubens-like picture of Edwardian horse soldiers in plate armour, with fat bacchante boys and girls dancing about and distributing flowers over the

truly fine work, 63, "The Return of a Penitent," Luke Fildes, A. Undoubtedly this is one of the finest works in the exhibition: conceived, drawn and painted in the most masterly manner, the picture is truly pathetic, and recalls exactly the same feelings of tender pity for the penitent that one feels for the despair of Goethe's (not Gounod's) Margaret. 85, "Roses from the Vicarage," E. G. H. Lucas, is a well painted picture: but 90, "Artichokes and Gladioli," W. J. Muckley, is very much better. 116, "Calming Down," Henry Moore, is a finely studied picture, in strong contrast with similar subjects from the brush of Whistler. 136, "Spring Flowers," Adeline Frier: the white Peony appears to be well executed, but the picture is badly hung for inspection.

165, "A Hearty Welcome," L. Alma Tadema, A.: a sight of this single picture would well repay a long journey to the Academy; the canvas is full of detail,

ground from metal dishes. No one can deny the power and dash of Sir John Gilbert; but he is as allegorical and impossible as Rubens himself. 487, "In manus tuas, Domine," Briton Riviere, A. An excellent picture (with Riviere's strongly marked idiosyncrasy) of an armed horseman nearing a demon-haunted cavern. The horse objects to the cave, so do the dogs. At the bottom of this picture there is a regular crop of toadstools; but it is truly melancholy to observe what a small amount of pains has been expended upon these ornaments of our woodlands. Some Boleti, of the order Viscipellis, are undoubtedly there; so is *Agaricus sublateralis* with *Peziza coccinea*, which grows in the spring, and, strange to say, *Peziza radiculata*, which grows in the autumn. Artists really seem to think fungi of no account, and that anything will do to represent the noble genus *Agaricus*. In the National Gallery at Edinburgh there are two magnificent pictures by Sir Noel Paton, illustrative of Oberon and Titania and fairy-life in general. In these pictures Sir Noel has painted some woody *Polyporei* (peculiar to tree stumps), as growing on the ground. We know the species well—although it is a rare one—*Polyporus Rostkovii*, Fr.—that's what it is. 623, 624, "Spring Flowers"—"Daffodils"—J. B. Mitchell, both very poorly executed. 625, "Christmas Roses," G. C. Hindley. This, though low in tone, is a well executed picture, but the strap-like leaves belong to some other plant than the Christmas Rose. 627, "In the Time of Constantine," L. Alma Tadema: another picture remarkable for its admirable detail and perspective. 689, "Christmas Roses and Arbutus," W. J. Muckley: an excellent picture. 824, "Chrysanthemums," Constance B. Philip: a terrible picture of these charming autumn plants—enough to make a *Chrysanthemum* grower's hair turn white in a single night. 854, "Yellow Roses," by the same artist: this picture, though at the top of the room, strikes us as being very unsatisfactory. 859, "Adam," Henry Holiday: this, although the title is short, is a difficult subject. Mr. Holiday gives us a nude Adonis, digging in a garden with a wooden spade, the wooden blade being of the shield-like shape frequent in Wales and elsewhere. As this horticultural instrument is uncommonly well made, Adam probably has tools of steel in his shed round the corner. 1053, "Rievaulx Abbey," in the Valley of Rye. We pause for a moment at this picture, to wonder why any one with such a defective knowledge of architecture, perspective, landscape, and painting, could venture on such a work.

We have in our notice this year quite passed over many flower-subjects, because they were, in our estimation, of no interest or value as Art works; the same with the Primroses, little Camellias, Apples, robin red-breasts, and bird's eggs; we have had too many of them, and for the life of us we cannot tell whether they are or are not the identical pictures we have seen year after year at the Royal Academy for the last twenty years.

PORTHGWIDDEN, CORNWALL.

THIS beautiful place, the residence of the Rev. Canon Phillpotts, is so situated as to command a view of the celebrated Falmouth harbour and the River Fal. On entering the conservatory the first thing to attract my attention was a fine plant of *Rhododendron Edgworthii*; the next *R. Gibsoni*, with a profusion of large scented flowers. On the opposite side is a fine *Dicksonia squarrosa*, with its large, well-developed fronds, under which I stood to admire some fine Azaleas, many of them large specimens, perfect pillars of flower; and some good plants of *Calceolaria*, *Cineraria*, *Mignonette*, *Ornithogalum narbonne*, *Cycas revoluta*, &c.

From the terrace we look down on a very nicely planted Italian flower garden gay with *Myosotis*, *Daisies*, *Saponaria*, *Alyssum*, &c. Below the flower garden is another terrace, in front of which is a fine specimen of *Escallonia macrantha*, 66 feet in circumference. At the end of this turf terrace is the arboretum. Here are some fine *Rhododendrons* full of bloom—one I noticed 60 feet in circumference; also an immense *Pinus insignis*, in perfect health; two plants of *Embothrium coccineum*, about 15 feet high, with large bunches of orange-scarlet flowers (these alone are worth a journey of miles to see); *Berberis trifoliata*, *Colletia cruciata*, several *Myrsines*, quite healthy, and not hurt by the late severe frosts. The Camellia-house contains some fine plants, bushy and well grown. I had the pleasure of seeing them in bloom on a former visit,

and never do I remember seeing such a display. On the back wall are two *Maréchal Niel* Roses, with hundreds of flowers, many of them perfect in form and of great size, the effect well repaying the liberal treatment they had received. We next pass in front of a waterfall splashing over the rocks and into a natural basin, to the rockery, which covers about three-quarters of an acre, well designed, the Ferns, by which it is clothed, throwing up their thousands of fronds. Among them I noticed a fine *Dicksonia antarctica*, and was surprised to find (although the old fronds were all killed by the late frosts) it was breaking very strong. At the lower end of the rockery there is a large pond, the whole surface covered with *Aponogeton distachyon*, which, with its thousands of white flowers, presented a beautiful appearance, the air perfumed with its beautiful scent. On the banks and down to the water's edge are fine masses of *Richardia æthiopica*. I note with regret the frost has so injured what was a fine specimen of *Araucaria excelsa* that I doubt if it will recover. Here are also some fine *Magnolias*, a large plant of *M. conspicua*, in full bloom; *M. grandiflora*, 30 feet high, forming a tree of considerable magnitude.

We now come to the plant-houses. The first is filled with strong healthy *Fuchsias* and *Liliums* in great variety. In the shady corner of this house I noticed some nice plants of *Todea superba* and *T. pellucida*.

The Orchid-house is very gay. The following are now in bloom:—*Aerides crispum*, *A. odoratum*, *A. Fieldingii* (Fox-brush), five fine spikes; *Brassia Wrayii*, *Cattleya Skinneri*, *Calanthe veratrifolia*, with twenty-three spikes; *Cypripedium Lowii*, *C. barbatum*, fifty spikes; *C. caudatum*, *C. hirsutissimum*, *C. niveum*, *C. Pearcei*, *C. villosum*, *Dendrobium moschatum*, with its beautiful yellow flower, very strong; *D. nobile*, *D. japonicum*, *Lælia superbiens*, *L. majalis*, *Lycaste Skinneri*, *Odontoglossum Alexandræ*, four fine spikes; *O. biconiense*, *O. cordatum*, *O. nebulosum*, *O. Pescatorei*, *O. Roezlii*, *O. vexillarium*, *Phajus grandiflora*, *Phalaenopsis amabilis*, *P. Schilleriana*, *Saccolabium retusum*, *Vanda tricolor insignis*, *V. tricolor suavis*.

In the next house we find a fine lot of plants, clean and well grown, so arranged as to show the smallest plants to perfection. Here are some excellent plants of *Anthurium*, *Caladium*, *Croton*, Ferns, Orchids, *Allamandas*, *Tydas*, *Pandanus*, *Eucharis*, *Francisceas*, *Dracenas*, *Bougainvillea spectabilis*, full of bloom), *Alocasias*, two fine *Adiantum farleyense*, 5 feet to 6 feet through; and many others too numerous to mention here.

In the fruit-houses the Black Hamburgh Vines are in fine condition, with a heavy crop of fruit. In the Muscat-house I never saw a better show of fruit so even and well set, and such large bunches. In the orchard-houses is a first-rate show of Peaches, Nectarines, Apricots, Plums, Cherries, &c., every tree well loaded with fine fruit.

The kitchen garden is clean and well cropped, the walls are covered with some fine trees, specially the Peaches, well feathered to the ground, full of fruit. Great credit is due to Mr. Hogbin, the gardener in charge of this fine establishment. H. C. B.

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

(Continued from p. 559.)

- Maxillaria Lyoni*, Lindl., Bot. Reg. 1845; Misc. 26. Mexico.
M. Macleanii, Batem., Bot. Reg. 1840; Misc. 155. Guatemala.
M. melagraris, Lindl., Bot. Reg. 1844; Misc. 9. Mexico.
M. nictu, Rehb. f., Beitr. Orch. Centr. Am., p. 104.
M. nasalis, Rehb. f., in Saund. Refug. Bot. ii., t. 103. Costa Rica, New Granada.
M. nigrescens, Lindl., Gen. and Sp. Orch., p. 20.
M. rubrofusca, Kl. Central America, Columbia.
M. obscura, Lind. et Rehb. f., Beitr. Orch. Centr. Am., p. 31; Saund. Refug. Bot. ii., t. 78.
M. cucullata, Hook., Bot. Mag., t. 3945. Mexico, New Granada.
M. pumila, Hook., Bot. Mag., t. 3613. Mexico, Guiana.
M. puncto-striata, Rehb. f., Linnæa, xli., p. 28. Mexico, Costa Rica.
M. Reichenheimiana, Rehb. f., Gard. Chron. 1871, p. 1678. Costa Rica.
M. rhombica, Lindl., Bot. Reg. 1840, sub t. 12.
M. haemotoglossa, Rich. et Gal. Mexico to Costa Rica.
M. rugens, Rehb. f., Walp. Ann. vi., p. 142. Mexico.
M. rutescens, Lindl., Bot. Reg., t. 1848. *M. acutifolia*, Lindl. *M. articulata*, Kl. Costa Rica, Venezuela, West Indies.
M. stachyobium, Rehb. f., Bot. Zeit. 1852, p. 673. Veragua, Nicaragua.
M. sulpharina, Lem., Fl. de Serres, iv., 330b. Guatemala.
M. tenuifolia, Lindl., Bot. Reg., sub t. 1936 and 1839, t. 8. Mexico, Costa Rica.
M. vaginalis, Rehb. f., Beitr. Orch. Centr. Am., p. 77. Costa Rica.

- M. variabilis*, Batem., Bot. Reg., sub t. 1986. *M. Henchmanni*, Hook., Bot. Mag., t. 3614. *M. angustifolia*, Hook., Ic., t. 348. *M. revoluta*, Kl. Mexico, Guatemala.
MICRACLYLLUM, Rehb. f., Xenia, i., p. 12. Limited to the following species:—
M. gamma, Rehb. f., Gard. Chron. 1869, p. 988; *Xenia*, iii., p. 13, t. 209. Mexico.
M. trinasutum, Rehb. f., Xenia, i., p. 12, t. 6. Guatemala.
M. Wendlandi, Rehb. f., Beitr. Orch. Centr. Am., p. 73. Guatemala.
MESOSPINDIUM, Rehb. f., Bot. Zeit. 1852. A genus of about six species, ranging from Central America to Peru.
M. Warszewiczii, Rehb. f., Xenia, i., p. 36, t. 16. Central America.
MICROSTYLIS, Nutt., Gen. Amer. ii., p. 196; Lindl., Gen. and Sp., p. 18. About thirty species (?), inhabiting the tropics and the temperate zone of the northern hemisphere, two or three in South America. Species most numerous in Asia and Central America.
M. brachystachys, Rehb. f., Linnæa, xxii., p. 834. Mexico.
M. cochleariaefolia, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 18. Mexico.
M. cordata, Rehb. f., Walp. Ann. vi., p. 207. *Dienia cordata*, Lindl. Mexico.
M. crispata, Rehb. f., Walp. Ann. vi., p. 207. *Dienia crispata*, Lindl. Mexico.
M. crispifolia, Rehb. f., Beitr. Orch. Centr. Am., p. 100. Costa Rica.
M. ("Dienia densiflora nobis," id est Galeotti, in Hb. Lindl.) Mexico, 8000 feet.
M. fastigiata, Rehb. f., Linnæa, xxii., p. 834. *Malaxis majanthemifolia*, Rich. et Gal., not of Schl. Mexico.
M. Ehrenbergii, Rehb. f., Linnæa, xxii., p. 834. Mexico.
M. hastilabia, Rehb. f., Beitr. Orch. Centr. Am., p. 101. Costa Rica.
M. ichtiorrhyncha, Rehb. f., Beitr. Orch. Centr. Am., p. 99. *M. cochleariaefolia*, Rehb. f. *Malaxis ichtiorrhyncha*, Rich. et Gal. Mexico.
M. lagotis, Rehb. f., Beitr. Orch. Centr. Am., p. 101. Costa Rica, 9000 feet.
M. majanthemifolia, Linnæa, xix., p. 369. *Malaxis majanthemifolia*, Schl., not of Rich. et Gal. Mexico, 8000 feet.
M. macrostachya, Lindl. ex Rehb. f., Walp. Ann., vi., p. 207. *Dienia calycina*, Lindl., Gen. and Sp. Orch., p. 23. Mexico, Costa Rica, 8000–9000 feet.
M. Myurus, Rehb. f., *Dienia Myurus*, Lindl., Gen. and Sp. Orch., p. 23. Mexico.
M. Parthoni, Rehb. f., Walp. Ann. vi., p. 206. *Malaxis Parthoni*, Morr. *Microstylis*, Lindl., Kl. and Otto, Ic., t. 5. Nicaragua, Costa Rica.
M. similima, Rehb. f., Beitr. Orch. Centr. Am., p. 101. Costa Rica.
M. tipuloides, Lindl., Ann. Nat. Hist. 1845, p. 256. Costa Rica, Peru.
M. umbellulata, Lindl., Gen. and Sp. Orch., p. 19. Mexico, Cuba.
MORMODES, Lindl., Nat. Syst. Bot. ed. ii., p. 446. About fifteen species, ranging from Mexico to Peru.
M. aromaticum, Lindl., Bot. Reg. 1841, Misc. 162, 1843, t. 56; Gard. Chron. 1843, 844. Mexico.
M. atropurpureum, Lindl., Bot. Reg., t. 1861. Central America.
M. buccinator, Lindl., Bot. Reg. 1840, Misc. 9. *M. lentiginosa*, Hook., Bot. Mag., t. 4455. *M. Wagerianum*, *M. flavidum*, *M. vitellinum*, and *M. leucophilum*, Kl. Mexico, Venezuela.
M. colossus, Rehb. f., Bot. Zeit. 1852, p. 636; Bot. Mag., t. 5840. *M. macranthum*, Lindl. Costa Rica, 7000 feet.
M. fractiflexum, Rehb. f., Gard. Chron. 1872, p. 141. Costa Rica.
M. Hookeri, Lem., Jard. Fleur. i., p. 116; ii., t. 118. *M. atropurpureum*, Hook., Bot. Mag., t. 4577, not of Lindl. *M. barbatum*, Lindl. Panama.
M. lineatum, Batem., Bot. Reg. 1842, t. 43. *M. Warszewiczii*, Kl. Guatemala, Peru.
M. luxatum, Lindl., Bot. Reg. 1842, Misc. 66, 1844, t. 33; Gard. Chron. 1842, 591; and 1843, 575. Mexico.
M. pardinum, Batem., Orch. Mex. and Guat., t. 14. *Cyrtoclosia maculata*, Kl. Mexico.—Var. *unicolor*, Hook. Bot. Mag., t. 3879. Mexico.
M. Skinneri, Rehb. f., Gard. Chron. 1869, p. 50. Guatemala.
M. uncia, Rehb. f., Gard. Chron. 1869, p. 892. *M. Greenii*, Hook., Bot. Mag., t. 5802. Mexico.
M. Wendlandi, Rehb. f., Walp. Ann. vi., p. 581; Beitr. Orch. Centr. Am., t. 7. Costa Rica.

(To be continued.)

PARUS INTERMEDIA HOSTII.—To those who are familiar with the White Beam, *Pyrus Aria*, the present will, when in leaf only, not appear very different, but when in bloom the dense corymbs of rosy-pink and white flowers give it a remarkably pretty appearance. It is just one of those trees which a gentleman seeing in an arboretum or botanic garden would be sure to want to plant in his own grounds, and yet it is very little known. It may be seen in the rosaceous bed near the Temperate-house at Kew. We can hardly say too much in its favour as an ornamental flowering tree.

TOMATO PRESERVING IN AMERICA.

To the already enormous quantities of fruits preserved in tins in America for shipment to this and other countries may now be added the Tomato, and it is said that in one factory alone in Connecticut as many as 1000 bushels of Tomatos are used in one day. The farmers or owners of gardens seem to have undertaken the cultivation of the plant on a very large scale, and have pledged themselves to produce a certain quantity to be supplied to the packing companies. The first season's sowing of the plant was regarded quite as an experiment, many of the farmers doubting whether the contract price of 30 cents per bushel would be remunerative. The result of this experiment in cultivation proved quite satisfactory, the packing company not only taking all the fruits grown in the neighbourhood, but large quantities were also brought from New Jersey by steamer and rail. The yield on good land well cultivated has reached 400 bushels per acre, which pays fairly for a rather bulky crop. The company supply crates for the transmission of the fruits to the factory. These crates hold 1 bushel each, are open at the top, and furnished with projecting posts at the corners, so that they can be packed one crate on the top of another without damaging the fruit.

The first operation in the canning process is to scald the fruits, so as to loosen the skin. This scalding is done in a tank 6 feet long, 3 feet wide, and 2 feet deep. The water with which it is filled is kept near boiling point by steam. A sieve of iron wire fits into the top of the tank, and receives 2 bushels of Tomatos for a charge. A jet of steam is turned into the water, and the Tomatos remain in half a minute, when they are raised by the sieve, which turns on a hinge, and are dropped into two boxes at the lower end of the tank. The scalding tank is attended by two men, and a boy distributes the fruit among the peelers within. A large number of women and girls are employed in this department. They are arranged at the sides of troughs sufficiently elevated for convenience in working; each woman has a pail and a box for the deposit of the skins and refuse; each Tomato is peeled and cleaned of all decay and green around the stem. The price paid for this work is 3½ cents per pail, and the day's work ranges, according to the skill and activity of the workwoman, from thirty to forty pails each. The pails are carried by boys to the steamer, which is upon an elevated platform, and discharges into the hopper for packing. The overseer of the steamer carefully examines each pailful as it is spread out for any neglect among the peelers, and removes the unripe portion, if any is found. She also gives a check for each pailful, which the boy returns to the operative, and these checks are the certificates of the amount of labour performed. The Tomatos fall from the steamer into a hopper, and then into the stuffer, which is a cylinder worked by a treadle. The cans, which are quart and gallon sizes, are passed on to the packer by a trough, which is kept constantly full. The cans are filled through a hole in the top of each; measuring from 1 inch to 1½ inch in diameter; this hole is placed over the end of the stuffer, and with a slight pressure of the foot upon the treadle the can is filled, and nearly all the air and water is at the same time excluded. As some of the cans may be rather too full, while others are not quite full enough, they have to be finally regulated, which is done by girls. For the purpose of soldering a boy fits the tin caps over the holes, the cans are placed in a tray, and these are delivered to a band of boys for final soldering: this is done at a machine, known as "Gulden's capping machine," which is described as being exceedingly ingenious and saving a great deal of labour. The following is a description of the operation:—"The can to be capped is put upon the platform of the machine. The soldering iron, a semicircular piece of iron, adjusted to the size of the cap, is immediately lowered upon the edge of the cap, which the workman turns with one hand, while he holds the strip of solder in the other, a stream of gas made from naphtha is thrown from the burner upon the soldering iron, which melts the solder and seals the can as fast as it can be turned upon the platform. Two cans are sealed every minute, when everything is ready. A boy will seal from 700 to 1000 cans in a day, and the pay is 7 cents per 100." After soldering the cans are placed in large cooking tanks and the contents cooked by steam for two hours; they are afterwards

cooled and vent given to the air generated within by piercing the can with a pin, which is immediately sealed up again.

The cans are then removed outside the building to complete the cooling, this is followed by a careful examination of every can, so that there may not be the smallest defect in the soldering, the occurrence of which would soon cause the contents to become utterly spoilt. If found secure the cans are cleaned and labelled and lastly packed in stout Pine-wood boxes, to be sent to their final destination.

From the skins and other rejected parts of the fruits large quantities of catsup is made. The whole mass is passed through a mill which separates the pulp from the skins. This pulp is pumped into a reservoir, and when a sufficient quantity has accumulated it is drawn off into a tank and cooked for three hours, after which it is run into barrels and allowed to ferment for one week. The pulp settles at the bottom free from impurities, the water is poured off and the barrel again filled with the Tomato pulp. "It is then returned to the cooking tank and heated, the spices are added, and the catsup is barrelled and sent to market, where it is bottled and labelled and sent to the retailers."

From the foregoing it will be seen to what importance the Tomato has in a short time risen. J.

LEAFING OF TREES AT SEAHAM.

| Name. | 1869. | 1879. | Remarks. |
|-------------------------|----------|--------|--------------------------------|
| Alder | April 26 | .. | Not yet in leaf: May 24 |
| Ash | May 10 | .. | Ditto |
| Barberry | April 24 | May 22 | |
| Beech | May 3 | .. 23 | |
| Birch | April 26 | .. 24 | |
| Blackthorn | .. 24 | .. | Not yet in leaf: May 26 |
| Bramble | .. 25 | .. 17 | |
| Elder | .. 2 | .. 18 | |
| Elm | .. 24 | .. 18 | Some trees are not yet in leaf |
| Flowering Currant | .. 30 | .. 20 | |
| Hawthorn | May 16 | .. 16 | Some are not in leaf |
| Hazel | April 24 | .. 20 | |
| Laburnum | .. 22 | .. 22 | |
| Larch | Mar. 10 | .. 2 | |
| Lilac | April 10 | .. 22 | |
| Lime | .. 10 | .. | Not yet in leaf |
| Mountain Ash | .. 16 | .. | Ditto |
| Oak | May 12 | .. | Ditto |
| Poplar (Balsam) | Mar. 16 | .. 12 | |
| Rose | April 20 | .. 18 | |
| Sallow | .. 16 | .. 24 | |
| Sycamore | .. 23 | .. 16 | |

May 26, 1879. —It will be seen by the above that this year the leafing of trees is about one month later than 1869, or even later than I ever observed for the last twenty years. During that period I never found the Ash leafing before the Oak, as some observers have seen. There is every prospect of fine foliage and a good show of blossom. R. H. D., Seaham.

A CHAPTER IN THE EARLY HISTORY OF FLORICULTURE IN ENGLAND.

A SHORT time ago, when looking up the history of the introduction of Orchids into this country, I had occasion to consult John Martyn's *Historia Plantarum Rariorum*, and I was so struck with the quality of the plates, and interested in the subjects, that I determined to look again into that book. Now I have looked into it again, I think some particulars respecting it may be acceptable to those interested in the history of gardening, and who have the opportunity of seeing the work itself.

The author, John Martyn, was born in London, 1699, and early in life evinced a great inclination to the study of natural history, particularly of botany. Eventually he became a teacher of botany both in London and at Cambridge, and in 1733 he was unanimously elected Professor of Botany in the University of Cambridge. He held the professorship until 1761, and died at Chelsea in 1768. His first work—a catalogue of officinal plants, arranged according to Ray's system—was published in 1726; this was succeeded by numerous others embracing a variety of subjects; but this notice must be confined to the *Historia Plantarum Rariorum*. As Pulteney remarks in his *Sketches of the Progress of Botany*, "This was the most sumptuous and magnificent work of the kind that had ever been attempted in England." Indeed Rand, in a notice of the first part

in the *Philosophical Transactions* for 1728, says this curious invention (copper-plate engraving) was never more aptly applied, though this seems to be the first time it has been used in botany. There is no doubt that it was the first of note, but it was soon followed by Catesby's *Natural History of Carolina, &c.*, 1731-43, and by the more purely horticultural Philip Miller's beautiful folio, *Figures of Plants*, which was a more successful publication, the number of plates amounting to 300. Martyn's work was intended to contain coloured illustrations of new and interesting plants, with descriptions and notes on their native countries, uses, culture, &c. It was issued in parts of ten plates, but owing to the great expense attending its production only five parts appeared. The figures consist mainly of the first plants introduced from the West Indies and Mexico, and from the Cape of Good Hope. They were drawn by Van Huysum, Sartorius, and Houstoun; the last-named introduced most of the West Indian and Mexican species the work contains, and they bear his generic names, the majority of which were afterwards adopted by Linnaeus. Kirkall was the engraver of the plates, which were done in mezzo-tinto, and, Pulteney states, "printed in proper colours." Rand, whom we have already quoted, says "painted in natural colours;" but it is possible that the green was imprinted. Pulteney gives the date of publication from 1728 to 1732, though the last part probably did not appear before 1736, as the dates of introduction of some of the subjects are 1734 and 1735. In spite of their imperfect colouring, some of the plates are very beautiful, as the drawing is excellent. Pritzel, in his *Thesaurus Literaturæ Botanicae* thus describes it:—"Icones plantarum ex horto Chelseano et Cantabrigiensi, ab Huysum pictæ et a Kirkall aeri incisæ, elegantissimæ certæ sunt, pleræque novæ, ita ut splendidissimo operi præter Catesbæum simile ætas non habere," &c. A German edition of it was published at Nürnberg in 1752. The book is a large folio, a fault it has in common with many other works of the same period. Among the South African plants are *Pelargonium inquinans*, one of the parents of the scarlet class; *P. papilionaceum*, and *P. columbinum*; like all the rest, of course, under pre-Linnean names. The plate of the first is by Van Huysum, and is one of the best in the work. In the text it is stated that this plant was introduced into England about the year 1718 (1714 according to Aiton), and that at that date, 1728, it was the most beautiful, and one of the commonest Cape *Pelargoniums* in cultivation. The plate bears the arms of Dr. William Sherrard. *Mesembryanthemum felinum* and *Aloe disticha* are other South African plants; but the Mexican and West Indian region is the most fully represented. There are four species of *Passiflora*, namely, *P. serratifolia*, *P. cuprea*, *P. holosericea*, and *P. vespertilio*. Among other noteworthy plants from this region are *Gronovia scandens*, *Turnera ulmifolia*, *Milliera quinqueflora*, *Maranta arundinacea*, *Gynandropsis pentaphylla*, *Pancratium caribæum*, *Martynia annua*, *Phyllanthus Niruri*, *Mirabilis dichotoma*, *Cassia barbadensis*, &c. The *Martynia* is a fine plate by Sartorius. Linnaeus, in the first edition of his *Species Plantarum*, quotes it under his *M. annua*. In De Candolle's *Prodromus*, Linnaeus' *M. annua* is partly referred to *M. proboscidea* and partly to *Craniolaria annua*, both very different plants to that figured by Martyn, which I believe is the one commonly known in gardens as *M. fragrans*.

Another element is the North American. This is represented by *Cassia marilandica*, *Phlox carolina*, *Aster grandiflorus*, *Solidago marilandica*, *S. altissima*, *Frunella caroliniana*, *Bletia verecunda*, &c. Finally, there is one plate of fungi and one of Algae. W. B. Hemsley.

CAMELLIAS AND CAMELLIA CULTURE.

(Concluded from p. 657.)

36. *Innocenza*.—Flowers pure white, large, full, flat, imbricated; petals pointed; foliage and habit good.

37. *Jardin d'Hiver*.—Flowers blood-crimson, large, full, flattish; petals somewhat pointed, even and regular; growth very free, foliage and habit fine.

38. *Jeffersoni*.—Flowers fine red, with a band of white down the centre of each petal, large, full; petals roundish, imbricated, and perfectly arranged; foliage and habit good.

39. *Jenny Lind*.—Flowers white, sometimes slightly tinted with lake, of medium size, full, cupped; petals round, even, and regular; foliage and habit good.

40. *Jubilee*.—Flowers flesh-colour, strewed with fine rosy dots, and occasionally flaked with rose, large, full, and flattish; petals somewhat pointed, even, and regular; foliage and habit good.

41. *La Reine*.—Flowers sometimes white sometimes blush, edged with white; a most beautiful flower in either state.

42. L'Avenir.—Flowers delicate rosy-pink, slightly striped with white, large, full, flattish; petals pointed, imbricated, even, regular; colours very beautiful.

43. Lily Hume's Blush.—Flowers blush, lovely and distinct in colour, of medium size, full; petals pointed, imbricated, and perfectly arranged; form fine.

44. Lavina Maggi.—Flowers pure white, flaked and spotted with carnation, large, full, cupped; petals pointed, even and regular; foliage and habit good: a striking and effective variety.

45. L. Mispetata.—Flowers rosy-red, sometimes striped with white, of medium size, full; petals round; foliage and habit good.

46. L'Insubria.—Flowers deep clear red, faintly striped with white, large, full, flat, imbricated; petals rounded; foliage and habit good.

47. Lucrezia Gazzarini.—Flowers fine rose, banded with white, large, full, flat, imbricated; petals round; foliage and habit fine.

48. Madame A. Verschaffelt.—Flowers white, shaded with blush, flaked and spotted with red; petals very numerous, and closely and elegantly arranged: a beautiful variety.

49. Madame Cachet.—Flowers pure white, slightly striped with rose, imbricated, large and fine.

50. Madame de Strekaloff.—Flowers beautiful, pale peach colour, sometimes striped with white, large, flat; petals round, imbricated, even and fairly regular; foliage and habit good.

51. Madame Lebois.—Flowers crimson, of medium size, full, flattish; petals somewhat pointed, very evenly and regularly arranged; splendid form; foliage and habit good.

52. Madina.—Flowers dark red, with band of white down the centre of each petal, of medium size, full, flat; petals rounded.

53. Mignificient.—Flowers fine pale rose, sometimes dashed with white, large, full, cupped; petals round, imbricated.

54. Manara.—Flowers dark blackish-crimson, with white stripe on the outer petals, medium size, full, cupped; petals somewhat pointed, foliage and habit fine: a grand variety.

55. Marie Morren.—Flowers delicate rose, distinctly blotched with white: good.

56. Mathotiana.—Flowers dark lurid crimson, large, full, cupped; petals pointed, very even and regular.

57. Mathotiana alba.—Flowers white, large, full, cupped, and fine.

58. Montironi.—Flowers white, sometimes slightly flaked with rose, or strongly suffused with rose, of medium size, full, cupped; foliage and habit good: distinct and beautiful.

59. Monsieur d'Offay.—Flowers delicate rosy-pink, sometimes white, tinged and slightly striped with pink, of medium size, full, flat, even and regular, imbricated; foliage and habit good.

60. Mrs. Annie Maria Hovey.—Flowers usually salmon-pink, but sporting into white blush and carmine, these colours often variously and beautifully combined in one flower on the same plant: a beautiful and most desirable variety.

61. Mrs. Cope.—Flowers blush flaked and dashed with carmine, of medium size, full, cupped; petals rounded, even and regular; habit good.

62. Mrs. Abby Wilder.—Flowers white, occasionally faintly shaded with flesh-colour and striped with lake, of medium size, full, imbricated, perfect in form; foliage and habit good.

63. Ninfia Egeria.—Flowers white, large, full, flat, imbricated; petals round, foliage fine dark green; habit compact: free and good.

64. Nymphaeflora.—Flowers dark blood-crimson veined and shaded with purple, of medium size, full; petals round, imbricated evenly and regularly placed; foliage and habit good: very distinct.

65. Pisani.—Flowers pure white, large, full, cupped; petals good and evenly arranged: fine.

66. Prima Donna.—Flowers beautiful blush: distinct and fine.

67. Princess Bacchiochi.—Flowers deep crimson, sometimes striped with white, medium size, full, flat, imbricated; petals round.

68. Princess Charlotte.—Flowers white, sometimes splashed with pink, of medium size, full, cupped; petals round, even and regular; foliage and habit good.

69. Princess Frederick William.—Flowers blush, flaked with crimson, large, full, flat; foliage and habit good.

70. Princessa Aldabrandini.—Flowers flesh-colour veined with pink, shading to white at the circumference, of medium size, full, cupped; petals rounded; foliage and habit good.

71. Rafia.—Flowers very dark rich crimson, sometimes faintly striped with white, of medium size, full, flat, imbricated; petals somewhat pointed; foliage and habit good.

72. Reine des Beautés.—Flowers pale flesh-colour, occasionally tinged or striped with rose, of medium size, full, flattish; petals round; foliage and habit fine.

73. Reine des Fleurs.—Flowers fine dark red, large, full; the petals thinly edged with white, pointed, perfectly arranged; habit good and free.

74. Rose la Reine.—Flowers rosy-cerise, occasionally striped with white and veined with crimson, medium size, full; petals round, imbricated, even and regular; foliage and habit good.

75. Rubens.—Flowers rosy-red, striped, and sometimes blotched with white, large, full, flattish; petals pointed, foliage and habit good: a splendid flower.

76. Sarah Frost.—Flowers deep rosy-pink, sometimes rayed with white, large, full, flattish; petals round, even, and regular; habit good.

77. Souvenir d'Emile Defresne.—Flowers rosy-scarlet, with broad white band running down the centre of each petal, large, full, flattish; petals pointed, evenly arranged; foliage good.

78. Storyi.—Flowers fine deep pink veined with rose, sometimes faintly striped with white; large, full, flat, imbricated; petals rounded; foliage and habit fine.

79. Targioni.—Flowers pale flesh-colour, occasionally flaked with rose, large, full, cupped; petals round; foliage and habit fine.

80. Triomphe de Liège.—Flowers deep bright rose, sometimes slightly striped with white, of medium size, full, cupped; petals somewhat pointed; foliage and habit good.

81. Ubertina.—Flowers dark fiery crimson, large, full; petals pointed, imbricated, and regularly placed.

82. Ugo Foscolo.—Flowers dull purplish-red, faintly striped with white, medium size, full, imbricated; habit good, distinct.

83. Valtavaredo.—Flowers clear light rose, of medium size, full, cupped; petals round; foliage and habit fine.

84. Vicomte de Meulant.—Flowers rosy flesh-colour, dotted and flaked with rose, of medium size, full, cupped; petals round; foliage and habit good; colours delicate and pleasing.

85. Vicomte de Nieuport.—Flowers bright rose, large, full, imbricated; petals smooth and fine; habit and foliage good.

86. Victor Haquin.—Flowers deep fulgent rose, large, full, cupped; petals rounded; foliage and habit good.

2. Free-flowering Varieties, which produce the finest effect when viewed "en masse."

1. Alba simplex (the single white).—Flowers white, single, with a group of large golden stamens in the centre; petals large and thick; foliage large and fine; habit good.

2. Aulica.—Flowers flesh-colour, suffused and veined with pink, large, moderately full; petals pointed, imbricated; foliage and habit good.

3. Bealii.—Flowers scarlet-crimson, semi-double, large, cupped; petals rounded; foliage and habit good.

4. Bealii rosea.—Flowers rose colour, semi-double, of medium size, cupped; petals round, smooth, and regular.

5. Chandlerii.—Flowers dark blood-crimson, occasionally blotched with white; Anemone-flowered; foliage very dark and fine: free, and of fine effect.

6. Conspicua.—Flowers bright rose, semi-double; petals large, round, and thick; foliage fine; habit good: one of the showiest.

7. Corallina.—Flowers deep lurid crimson, with tubular petals; large and semi-double foliage, and habit fine: free, and very effective.

8. Elatior.—Flowers purplish-rose, veined occasionally, dashed with white, large, full, flattish; petals round; habit good: very free and showy.

9. Elegans.—Flowers rosy-pink, large, flat, rather loose; Anemone-flowered; foliage and habit fine: very free, handsome, and showy.

10. Donckelaarii.—Flowers crimson, usually flaked with white, semi-double, of medium size; tubular petals; round foliage: small, very showy.

11. La Puce.—Flowers rosy-pink, often dashed irregularly with white, large, semi-double; petals large and pointed, somewhat crumpled and crowded in the centre of the flower; foliage toothed: pleasing, showy, and distinct.

12. Tricolor.—Flowers flesh-colour, shaded and flaked with crimson and white, semi-double; foliage and habit fine: very showy and free.

3. Large-growing Varieties, suited only for the Conservatory.

1. Countess of Derby.—Flowers pale peach, sometimes white, broadly flaked with rose, large and full; petals large and of great substance; foliage fine; habit straggling.

2. Marchioness of Exeter.—Flowers fulgent rose, very large and full, cupped; petals round, even, and regular; foliage and habit good: a free and noble variety.

3. Reticulata.—Flowers rosy-red, semi-double, very large, and somewhat loose; grand, and very showy; habit straggling.

4. Vandesia carnea.—Flowers rose-colour, Anemone-flowered, large and full; foliage and habit good: distinct and pleasing.

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NORTH AMERICAN PITCHER PLANTS AT GLASNEVIN.

It such of our readers as are not unfamiliar with the aspect of these strange forms of vegetable life, the Sarracénias, or North American Pitcher-plants, will picture to themselves a shelf freighted with a double line, numbering nearly 100 specimens, and comprising every known species and variety, all in high health, and all, or nearly all, in flower, they may form some faint idea of the marvellously interesting botanical sight to be seen just now in one of the plant-houses at Glasnevin. Here one sees the comparatively familiar and well-known *S. purpurea*, with its spreading tuft of inflated pitchers and dark purple flowers, contrasting with the light primrose tint of those of *S. flava*; there the towering scapes of *S. Drummondii*, and its variety *S. D. alba*, looking down on an intermediate form in which the pale cheeks (petals) of *S. flava* are, as it were, faintly crimsoned with a dash of blood, artificially infused from a kindred source, and so on through the entire series.

The most interesting, however, of the series are the two remarkable hybrids raised at Glasnevin by Dr. Moore, and which even an unpractised eye would readily single out from their fellows. The first of these—and, as we apprehend, the first hybrid Sarracenia raised—was the result of a cross between *S. flava* and *S. Drummondii*; partaking in a very remarkable manner of the aspect and proportions of both parents, it is in all respects superior to either. This, if we remember rightly, flowered for the first time somewhere about 1874. The more recent acquisition with which Glasnevin and the delicate manipulation of its *chef* is to be credited, and which is the immediate object of this notice, has for its parents *S. flava* and *S. rubra*, the former being the female or seed-bearing parent, the latter the male or polliniferous parent. Here, too, as in the foregoing, the participation of the characters of the parents is very striking and interesting, whether we regard the size and form of the pitchers, the length of the scape, or the size and colour of the flowers. Dr. Moore is to be congratulated on his success in dealing with these plants, and we look forward with confidence to his effecting, one day or other, an alliance between the Californian *Darlingtonia* and some of these American cousins of that strange production. By the way, it may not be out of place to remark here that the large tuft of *Sarracenia purpurea* which has been growing out for some years in the bit of artificial bog near the sheet of water, has pulled through the rigours of the late arctic winter without a feather being taken out of it. Alternately exposed, submerged, and embedded in ice, it has proved itself to be one of the hardiest of hardy plants. *The Irish Farmers' Gazette*.

HOBBIES IN HORTICULTURE.

As general information on horticultural subjects gains ground our ancient hobbies disappear, and we gradually lose sight of many a brilliant pet that had a run and adorned our parterres in years gone by. Without going deeply into the subject, or bewailing the inevitable, I would just name one or two of our spring flowers that have been shelved in my time, the newcomers that have supplanted them not being equal to the good old bedders and bloomers of former times.

I allude in the first instance to the culture of beds of *Ranunculus*. About the time of Waterloo nurserymen grew beds of them for sale, and customers who had been charmed to see their blaze of beauty bought them, because nothing better was to be had at that early season, and we gloried in our beds of *Ranunculus* and *Anemones*, for in those days we had no fear of their intruding upon the time for bedding-out, as that era had not dawned upon our horizon, and Loudon's manuscripts, vast and voluminous, had not seen the light. I maintain that these forerunners not only paved the way for bedding stuff, but lighted it onward by a blaze that has not thus far been surpassed.

In the same natural order as the *Ranunculus* we have their big brothers the *Pæonies*; these have come to the front in my time, and right boldly have they taken their stand, woody and herbaceous, with their marvellous hybrids, which have enriched our gardens by their great beauty and variety of colour, not a few being sweet-scented, in contrast to those whose odour is their weakest point.

We welcome flowers in spring and early summer,

because it is the time for flowers, just as autumn is the time for fruit; and until the Rose comes forth in all its sweetness and beauty we have little to admire among hardy herbaceous plants beyond the bulbs—usually a short-lived class, for the fine weather and hot sunshine only send them the earlier to seed, but no amount of sunshine will ever lengthen the leg of a Ranunculus, or draw a herbaceous Peony higher than a cloth-yard ellwand. They are, therefore, easily accommodated and quite manageable in small gardens, and in actual flower gardens, especially in the southern counties, and where well sheltered, these two genera will hold their own against all comers. Lobelias were pets and stood starters in the greenhouse, Salvias were pets, Schizanthuses were petted, Humeas too, and many others had their day,

ARNEBIA ECHIOIDES.

WE had occasion to speak of this plant some time since, when noticing hardy spring-flowering Boraginæ at Kew; but the receipt of even finer specimens than we then saw induces us to allude to the plant again, and to commend it to our readers as one of the best hardy spring flowers suitable for the rockery or the front rows of the herbaceous border. The general appearance of the plant is sufficiently indicated in the illustration (fig. 99), but it may be remarked that the flowers are bright primrose-yellow, and marked with a purplish spot in the sinuses between the lobes of the corolla. These spots are, however, evanescent, and this fact led to a little diversity of statement on the part of Editor and artist respectively;

of ever-increasing knowledge: thus LINNÆUS called the plant *Lycopsis echioides*, LEHMANN *L. setosa*. FISCHER and MEYER referred it to *Lithospermum setosum*, STEVEN to *Arpyanthus echioides*, BOISSIER first to *Munbya echioides* and subsequently to *Macrotomia echioides*. For our part we prefer to retain ALPH. DE CANDOLLE's name of *Arnebia echioides*, the name by which the plant is best known in gardens and that, moreover, which is retained in the standard work, BENTHAM and HOOKER's *Genera Plantarum*. The plant is a native of the mountains of Pontus, Armenia, Central Caucasus, and Northern Persia. The best recent description of the plant may be found in BOISSIER's *Flora Orientalis*, vol. iv. (1875), p. 211, under *Macrotomia*. It is also figured in the *Bot. Mag.*, t. 4409. What the significance of the fading spots may be we do not know, but suggest it as a matter for enquiry on the part of those who have the requisite leisure.

Notices of Books.

On Artificial Manures, their Chemical Selection, and Scientific Application to Agriculture. By M. Georges Ville. Translated and edited by W. Crookes, F.R.S. (Longmans & Co.)

Visitors to the Paris Exhibition last year will perhaps remember the display within the building of specimens of various crops grown by a series of chemical manures, and also the garden beds planted with Wheat and Potatoes arranged in the ground outside, in both of which the effect of the different manures was very conspicuous. The manures of these crops were arranged by M. Ville to show the various requirements of different crops; Wheat, for example, being especially benefited by a supply of nitrogen, and Potatoes by a supply of potash.

In the book before us the ideas of M. Ville on the proper application of artificial manures are given at large. He very properly maintains that the fertility of land cannot be increased by merely returning to the soil in farmyard manure a portion of the constituents of plant food which the crop has removed; an increase in fertility can only be obtained by supplementing the farmyard manure with artificial supplies of nitrogen, phosphates, and potash. He recommends the farmer to ascertain by small experiments with a series of artificial manures what description of plant food his land is most deficient in. The experiments should be made, not on one crop only, but with each class of crop which it is intended to cultivate. Such experiments with crops and manures are, in fact, the only way of ascertaining the actual deficiency of the soil in relation to the crop it is intended to grow. The book is illustrated by numerous woodcuts, showing the character of the Wheat, Potatoes, and Vines grown in pots, or on the experimental field at Vincennes, by various combinations of manure.

M. Ville recommends as a "normal" manure one supplying nitrogen, phosphates, potash, and lime. The nitrogen is employed in the form of sulphate of ammonium, or as nitrate of sodium or potassium; the potash is supplied as nitrate or chloride of potassium; the phosphoric acid in the form of superphosphate, and the lime as gypsum.

Each class of crop has, however, special necessities, so that one or more of these ingredients may be increased or left out, according to the crop and soil for which the manure is intended. Wheat, Hemp, Colza, and Beetroot are classed by M. Ville as crops specially demanding nitrogen; Maize, Sugar-cane, Millet, and Turnips as crops particularly requiring phosphates; and Potatoes, Vines, and leguminous crops as demanding a special supply of potash. In some cases M. Ville has apparently generalised too hastily from a few experiments. The characters of plants as to their nutrition are known to be very similar among members of the same natural order, the probability is therefore strongly in favour of Maize, Sugar-cane and Millet coming under the same classification as Wheat.

M. Ville also endeavours to distinguish between the forms of nitrogen suitable for different crops, and states that Wheat and Colza are specially benefited by ammonia, and Beetroot by nitrates, while leguminous crops feed entirely on the free nitrogen of the air. Seeing that ammonia is rapidly converted into nitric acid after mixing with the soil, the distinction which he draws between ammonia and nitric acid is



FIG. 99.—ARNEBIA ECHIOIDES (NAT. SIZE: POLLEN MAGNIFIED).

their wants were well understood, and they were kindly treated. *Tropæolum tricolor* was one of the most elegant pet plants of the olden time, for it carried little else but flowers, and carried them over an immense length of wire trelliswork, and all from a corm not much larger than a pigeon's egg, and with a stem of the size of a stocking needle, through which all the sap had to flow. Again, I would ask, where are all our Carnation growers gone to? These with their large pots to layer their plants in were quite out of the way of ordinary practice, but it was their way, as it had been their fathers' in the days gone by, and however much practice might differ in layering and propagating Pinks and Carnations, when the flowers were exhibited all grumblers were put to silence, for of all the flowers cultivated in our gardens there are few indeed, if any, that can show more colour or give out more sweet scent than this homely tribe of Carnations, Picotees, and Pinks. Alex. Forsyth.

Editor noted the spots when gathering the specimen to be sent to the artist, as also on those forwarded by Rev. H. N. ELLACOMBE, but when the drawing was completed no spots were observable in it. Hence followed remonstrance on the part of the Editor—protest on that of the artist: the one enquired where the spots were, the other protested there were none. Now "Brutus is an honourable man—so are they both honourable men," it is to be hoped, and thus the matter rested till Mr. ELWES, one day showing the plant at the Scientific Committee, all unconscious of the contrariety of opinion existing between him of the pencil and him of the pen, gave the clue to the mystery, by stating that he had observed that the spots, which are very obvious when the flower first opens, and for a short time afterwards, gradually disappear and fade away; and this statement we have since verified. This is not the only difference of opinion that has arisen over this plant in consequence

clearly without foundation. The different effect of ammonium salts, and nitrate of sodium or potassium, is probably due to the one liberating an acid in the soil and the other an alkali. When sulphate of ammonium nitrifies in the soil the products are sulphuric and nitric acids, which combine with the bases present in the soil. When, on the other hand, nitrate of sodium is employed as manure, the plant consumes the nitric acid, and the base is set free to combine with the acids of the soil or plant.

Another idea set forth in the book, is that it will soon be possible to prepare manures for developing certain characteristics of the plant. It is true, as the author says, that ammonium salts will produce a crop of Beetroot containing more sugar than if the crop had been manured with a nitrate; but the extent to which this action can be carried is very limited.

M. Ville stands alone among agricultural chemists in the belief that plants can assimilate the free nitrogen of the air. He gravely tells as an "indisputable" fact, that a crop of Wheat growing on 1 acre of land will annually acquire 52 lb., a crop of Peas 61 lb., a crop of Colza or Beetroot 114 lb., and a crop of Lucerne 264 lb. of nitrogen from the air. The process of reasoning by which these figures are obtained is quite fallacious. The nitrogen found in the crop is, in certain cases, in excess of that supplied by the manure to the extent shown by the above figures, therefore it is concluded that the balance of nitrogen has come from the atmosphere. May not the nitrogen, with far greater probability, have come from the soil? Till M. Ville has shown that the soil has suffered no loss of nitrogen during the growth of the crop, he has no right to conclude that the nitrogen found in the crop has come from the atmosphere.

The mode in which the nitrogen of the air is assimilated by plants is described in detail. After sunset the absorption of oxygen by the leaves, which has hitherto been very slight, becomes considerable; the starch granules are dissolved, pass into the circulation, and meeting with nitrogen convert it into ammonia and nitric acid. On the return of light the dissolved starch, ammonia, and nitric acid, unite to form protein compounds. Shall we call this romance or science? The whole subject of the assimilation of free nitrogen by plants has been investigated by Boussingault, and by Lawes, Gilbert, and Pugh, but with only negative results.

The chemistry of the soil is quite ignored by M. Ville. Its power of absorbing ammonia from the air; its property of retaining phosphoric acid and potash, so that these rarely appear in the drainage water; its rapid nitrification of ammonia, which when once transformed into nitrates is easily washed out by rain—all these most important facts, bearing on the chemistry of manuring, are left unnoticed in his book.

There are many misstatements and contradictions in the book; the figures especially are in many cases untrustworthy, perhaps, in part, from some mistake in converting French weights and measures into English. The general ideas respecting artificial manures are in the main correct; we cannot, however, call them new—they are, in fact, merely echoes of the results obtained long ago by Messrs. Lawes and Gilbert at Rothamsted. In conclusion, it may interest our readers to learn the treatment which M. Ville recommends for Vines.

The manure for Vines is composed of superphosphate, 528 lb.; gypsum, 352 lb.; and saltpetre, 440 lb.; these quantities are sufficient for 1 acre. M. Ville directs this manure to be dug in in autumn. We venture to think that where the roots of the Vine are in an outside border it would be better to apply the saltpetre in early spring, as the nitric acid might else be washed out by winter rains. The superphosphate and saltpetre should not be kept mixed together, else loss of nitric acid will take place. Grapes are well known to contain a large quantity of the acid tartrate of potassium; M. Ville finds that a manure supplying an abundance of potash has often a great effect in increasing the produce.

The concluding chapter of the book, on the cultivation of Beetroot for sugar, is of considerable interest.

Foreign Correspondence.

MORTOLA, NEAR MENTONE: May 24.—It may interest some of your readers to know how gardens fare here, after what must be called, for this southern latitude, a severe winter. In my communication on January 1, I alluded to the frost and snow seen in the middle of December; during the spring there has been a marked absence of the settled weather and sunshine that we usually enjoy; the rainfall has reached about 40 inches in seven months, and storms have been of

frequent occurrence. Even this month snow has been twice visible on the Mentone range, and the temperature has sometimes been as low as 45° at night.

Succulents in low-lying situations have suffered from the excessive moisture, but scarcely anything else; and you will see by the enclosed list that a goodly number of plants are now in flower. The season at Mentone is over; hotels, pensions, and villas are shut up till October, and the town presents a decidedly dull appearance; visitors will not be persuaded that May is the most beautiful month of the twelve, and that it is worth while waiting to see the velvety green of the hillsides and the fire-flies illuminating the gardens at night. *Thomas Hanbury.*

List of Plants in Flower in the Open Air on May 20, 1879, in the Garden of the Palazzo Orsini, La Mortola, near Mentone:—

| | |
|----------------------------|-----------------------------------|
| Abutilon, many vars | In lig sfera coronillæfolia |
| Acacia cyanophylla | " decora |
| " glauca | Iris, many vars. |
| " longissima | Ixia, many vars. |
| " odoratissima | Jasminum grandiflorum |
| " pinifolia | Kalanchoë crenata |
| " saligna | Kennedyia rotundifolia |
| Agathaea cœlestis | Lantana Cammara |
| Antonia capensis | Laurus Camphora |
| Aloe echinata | Lavandula denudata |
| " cilialis | " multifida |
| " Hanburyana | " pinnata |
| " tuberculata | " Stœchas |
| " plicatilis | Lavatera californica |
| " virens | Libonia floribunda |
| Anemone coronaria | Linum grandiflorum |
| Antholyza, many vars. | Lonicera brachypoda |
| Anthyllis barba-jovis | " etrusca |
| Anturhinum, many vars. | " Ledebourii |
| Argyranthemum frutescens | Lycium afrum |
| Arum italicum | Medicago arborea |
| Aster argophyllus | Melaleuca imbricata |
| " muricatus | Melanthus major |
| Asteriscus mauritanicus | " minor |
| Bignonia æquinoctialis | Mesembryanthemum edule |
| Bougainvillea Warscewiczii | " falciforme |
| Buddleia globosa | " floridum |
| " madagascariensis | " fulgens |
| Calla æthiopica | " glaucum |
| Callistemon robustum | " spectabile |
| Candollea cuneiformis | Moricandia arvensis |
| Catha edulis | Myoporum serratum |
| Cestrum vespertinum | " tuberculatum |
| Chamærops Fortunei | Myosotis azurea |
| " humilis tomentosa | Nicotiana glauca |
| Cheiranthus incana | Nierembergia frutescens |
| " mutabilis | Ornithogalum arabicum |
| Chrysanthemum flavum | Osteospermum moniliferum |
| " fruticulaceum | Othoona carnosa |
| " fruticosum | Oxalis valdiviana |
| Cineraria alchemilloides | Passiflora cœrulea |
| Cistus albidus | Pelargonium, many vars. |
| " ladaniferus | Petunia, many vars. |
| " monspeliensis | Phlomis acetabulosa |
| Citrus, many vars. | Photinia Læzii |
| Clematis, many vars. | Pittosporum crassifolia |
| Convolvulus altheoides | " Mai |
| " argenteus | " Tobira |
| " aureus superbus | Plagiura grandiflora |
| " floridus | Polygala Dalmatiana |
| " mauritanicus | " grandiflora |
| Conyza glutinosa | " Pourtalesii |
| Chorozema ilicifolia | " virgata |
| Cotyledon clavifolium | Pomaderris apetala |
| " macranthum | " candicans |
| Crataegus Azarolus | Prunus lusitanica |
| " Pyracantha | Pteronia incana |
| Cytisus filipes | Punica Granatum |
| " ætensis | Ranunculus asiaticus |
| " ramosissimus | Rhaphiolepis indica |
| Diosma ericoides | Rhodocistus Bertholetianus |
| Diplappappus filifolius | Rosa anemonæfolia |
| Disemina coccinea | " berberidifolia |
| Disocactus cylifolius | " hybrida, many vars. |
| Dracena indivisa | " Regeliana |
| Drimys Winteri | Royena lucida |
| Eccremocarpus scaber | Russelia juncea |
| Echium arborescens | Salvia coccinea |
| " candicans | " Heeriana |
| " simplex | " sematrata |
| Eleagnus parviflora | Senecio longioliolus |
| Erica, many vars. | " macroglossus |
| Erodium, many vars. | " præcox |
| Escallonia macrantha | Silene sp. |
| Eucalyptus globulosum (?) | Solanum betaceum |
| " globulus | " jasmynoides |
| " sp. | " laciniatum |
| Euonymus fimbriatus | " robustum |
| Eupatorium grandiflorum | " verbascifolium |
| Euphorbia clandestina | Soliva heterophylla |
| " oxyptera | Spartmannia africana |
| " splendens | Spartium junceum |
| Euryops virginicus | Sphaeralcea umbellata |
| Fabiana imbricata | Spirea Reevesiana |
| Ferdinandia emineis | Statice Bonducelli |
| Ferula glauca | " incana |
| Fremontia californica | " micranthum |
| Garuleum pinnatifidum | Styrax officinalis |
| Gasteria angulata | Tacsonia ignea |
| " globosa | " mollissima |
| " latipunctata | Tecoma capensis |
| " lingua | Teucrium fruticosum |
| " verucosa | Thomasia solanacea |
| Gazania Pavonia | Tropæolum brachyceras |
| Genista ephedroides | " pentaphylla |
| " horrida | " tricolorum |
| " linifolia | Vallea pseudo cistus |
| Geranium, many vars. | Verbena sp. |
| Gnidia simplex | Viola tricolor |
| Grevillea Manglesii | Visnea Mocanera (mucronatum) |
| Habrothamnus fœtus | Vittadenia triloba, i.e. Erigeron |
| Halleria lucida | Westringia grandiflora |
| Heliotropium peruvianum | Wigandia caracasana |
| Hermannia denticulata | " Vigerii |
| Huonemania sumatrensis | Xanthoxylon alatum |
| Hypericum canariense | Yucca angustifolia |
| Iberis gibraltaria | " gloriosa |
| " semperflorens | " Treculeana |

Florists' Flowers.

AURICULAS.—Some growers place their plants out-of-doors in a shady place: I do not advise this treatment. They should now be behind a north wall in frames, the lights to be removed at all times except during rain—we even run and place the lights over the plants for protection from a gentle shower. Continue to repot the plants as previously advised. Should green-fly appear it must be removed with a camel-hair brush.

CARNATIONS AND PICOTEES.—Tie the flower-stems to the sticks as they advance in growth. Attend well to the watering of the pots; do not apply water until it is really required, and then give enough to thoroughly moisten the soil. In hot dry weather syringe the plants overhead with clear rain-water. Aphides will probably be found clustering round the flower-buds; they may be destroyed by just dusting the place with tobacco-powder when the leaves are dry. Keep the surface soil clear of weeds, and the plants of decayed leaves. Plants in beds may have the surface of the soil dressed with a compost of equal parts of rotten manure and good turfy loam.

CHRYSANTHEMUMS.—Attend to training down the stems of specimen plants. Probably aphids will be found clustering round the points of the young growths. Destroy them by dusting with tobacco-powder. The plants will now be growing vigorously, and ultimate success depends upon the care bestowed upon them now. Begin to pot the plants into their flowering pots about the end of the month.

DAHLIAS.—Owing to unfavourable weather, the plants may not have been put out last month; as soon as possible it ought to be done now. See that the plants have been well watered previously. No plant is likely to do well if it is thoroughly dry when planted out of the pot in which it has been growing, nor will it succeed if the roots have been allowed to become matted round the sides of the pot. These, to some persons, may not seem of much consequence—mere minor details; but it is owing to attention to minute details that successful results are attained. If the plants have been well trained by previous exposure to the weather, they will not suffer much from winds or sunshine after planting out.

GLADIOLI.—It is very desirable to keep the surface of the ground well stirred, whether weeds appear or not; and when dry weather sets in give the beds a good watering, and immediately after doing so mulch the surface with well-decayed manure; this, of course, arrests evaporation, and is also an excellent stimulant to the plants, as future waterings wash the nutriment from it down to the roots. By the end of the month the flower-stems of the early planted and early flowering sorts will appear, and stout sticks should at once be placed to them.

HOLLYHOCKS.—Hoe the ground, water it and mulch afterwards, as recommended above for Gladioli. With the hot weather red-spider may be expected to attack the leaves, but it can be kept under by syringing, or the leaves may be hand-washed with soapy water if the pest has spread much over the plants. Tie the stems to the sticks as they advance in growth.

PANSIES AND PINKS.—Plants in pots of the former will now be over, and if cuttings are not required they may be destroyed; plants in beds will still continue to bloom freely. If the beds are mulched and well watered the plants may have a rest by picking off all the flowers and pegging down the shoots. Pinks will be in full beauty from the middle to the end of the month, and a suitable day should be chosen to take off and insert the pipings.

PENTSTEMONS, PHLOXES, PYRETHRUMS, &c.—The directions given last month apply to this. Water freely, and attend to tying the flower-stems to sticks as they require it. The Pyrethrums will be in full beauty; Pentstemons will also be opening, and some of the early Phloxes. It is now the pleasant time of the year for the florist; he is now reaping the fruits of his labours in the enjoyment of the varied beauty of his pests.

TULIPS.—"Decay's effacing fingers" sets in rapidly with the hot weather, and the petals drop off as the flowers sway in the gentle breeze; by the end of the month the leaves become quite yellow, and in early districts the bulbs may be lifted out of the ground. It is not desirable that they should remain in the ground an hour after the leaves decay. *J. Douglas.*

Garden Operations.

FLOWER GARDEN, ETC.

The time has now arrived when our minds may be in some measure relieved from the anxiety experienced during this inclement spring, in the preparation of the different varieties of bedding plants by gradually transferring them to their final quarters, commencing with those kinds which are most thoroughly hardened off. A certain degree of untidiness is always attendant upon these operations, so that it is always advisable to throw a little extra strength into this department for a week or two, the more so as there is a considerable amount of preparation to be gone through before the beds are ready to receive their summer occupants. As all spring-flowering plants such as Arabis, Alyssum, Aubrietia, Pansies, Violas, Daisies, Myosotis, and the like, must be carefully removed and transferred to the reserve garden to be retained for propagating and other purposes by-and-bye, but *Myosotis dissitiflora* should have the stalks cut off to within 1 inch of the roots, which should then be laid in closely in drills with the tops just peeping out; they will be no further trouble, and in the autumn will break up into any number of nicely-rooted plants. When all these varieties are removed, planted, watered, and made safe for future purposes, then, but not before, the preparation of the beds may be proceeded with by trenching up and if necessary removing a portion of the exhausted soil and applying a good dressing of compost; one composed of loam, leaf-mould, and rotten stable manure, in equal proportions, is very suitable for most bedding plants, but strong growing sub-tropicals and the like, whose attraction consists principally in an abundant development of fine foliage, should have a very liberal supply of rotten manure alone, taking care to trench up the soil very deeply and incorporating it well with the manure, and if very dry to give a good soaking of water some time before planting. Indeed it is a good practice when preparing beds of all sorts in dry seasons to water the beds well during the process, as it counteracts the necessity for a great amount of surface watering after planting, which, although frequently necessary, is often injurious, through the caking of the surface rendering it impervious to the influence of the atmosphere. When writing of the spring-flowering plants to be removed I omitted to mention the bulbs, such as Hyacinths, Tulips, Narcissus, Crocus and Scilla; these should all be taken up very carefully, so as not to bruise either roots or foliage, and be laid in by the heels in a mixture of leaf-mould and sand on a warm sunny border. If not already done, no time should be lost in planting in the prepared beds the strongest rooted runners of the different varieties of Violets, which will require frequent watering in dry weather, or they will be attacked by that pernicious pest, the red-spider. See that those which were put in at the beginning of the month for potting and other purposes do not want for a supply of water during dry weather. The late favourable weather has given a great impulse to the growth of plants generally, and a considerable amount of extra exertion will be required in order to keep pace with the many duties which will become imperative in this department, as, in addition to the bedding-out, which of itself is a great work, the grass is pushing on as if to make up for lost time, and both mowing-machines and scythes must be kept constantly at work, as also must the edging-shears round the borders, the more so as at this season many parts of the garden should be highly attractive with Rhododendrons, Azaleas, and other flowering shrubs, and consequently a high degree of neatness and finish is absolutely necessary to their thorough enjoyment. The borders of mixed herbaceous plants likewise are daily increasing in growth and consequent interest, and will require a considerable amount of attention to keep all straggling growths within reasonable bounds, by fastening them neatly and loosely to short stakes, which should be kept out of sight as much as possible. All this implies much treading about on the borders, and the opportunity should be embraced to plant out Dahlias and other strong growing plants required to form a background; the whole of the soil should then be carefully and deeply stirred, so as to leave it in a proper condition to receive the many kinds of annual, perennial, and other plants necessary to the complete furnishing. The foliage of many of the bulbous varieties will be going off and unsightly, and should be removed; but take care to renew any marking pegs which require it, as a guide to the planter in occupying the space with annuals, which only should be used in planting over spaces where bulbs are at rest. One of the most striking border flowers this season has been the double-flowered *Caltha palustris*; it should be liberally used in cool borders, and flourishes also as an aquatic on the margins of water. Another sowing of Brompton and other Stocks, and the different varieties of Wallflowers, will be found very useful in the autumn. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

At last we are having something more like spring weather than anything we have recently experienced, and its genial and beneficial effects are visible at once upon all vegetation and particularly upon wall trees, which have now apparently made a fair start to grow, and will, we may hope, escape any further visitation of wintry weather. Covering of any kind is not of much use to the fruit crops after they become fairly protected by their own foliage, and had better be removed at once as soon as it can be dispensed with. Let all nets and canvas be taken down in a dry state if possible, but should the weather prevent this they should be dried by artificial means and afterwards be repaired if requisite, previous to being wrapped up, labelled, and stowed away where they will be found when wanted for the same purpose next year. Persevere with the destruction of all insect pests, and follow up any dressing of tobacco-water, &c., with a good washing with clean water as soon as practicable. Strawberry beds should now be mulched with litter or clean straw, the latter is preferable for several reasons, not the least of which is, that it is sure to be free from slugs and their eggs. Lawn grass has often been condemned, and justly so, for nothing could be worse adapted to the purpose of protecting the soft fruit of the Strawberry, as it induces rot and mouldiness if the season is at all moist, and is just the sort of home that slugs delight in. A few bundles a little thicker than the wrist, made of besom refuse tied up somewhat loosely, will be found useful during the ripening period for placing under extra large fruits, as these often fail to ripen evenly in consequence of their weight bringing one side of the berry into close contact with the surface of the bed. *F. Harrison, Knowsley.*

FRUIT HOUSES.

PEACHES AND NECTARINES.—For giving a few dishes of Peaches in May Rivers' Early Beatrice, Early Louise, and Early York may be worth growing in pots, but for training on a trellis in the Peach-house Early Grosse Mignonne, Hales' Early, the best of the American varieties, and the Abec Peaches and Lord Napier Nectarine, are decidedly the best for leading up to such old-established favourites as Royal George and Noblesse, the points in their favour being size, colour, and quality. To have Peaches in the best condition for eating they should have full exposure to sun and light—with plenty of air by day and a little through the night, and they should be taken from the trees as soon as they begin to soften, and before there is any danger of their falling. When this stage has been reached but very little artificial heat will be required, except in wet dull weather, when just sufficient fire-heat may be given to keep the air dry and moving in the house. Some growers place nets under the trees for catching the falling fruit, but they lead to more loss than profit, as they interfere with the daily examination of the most forward fruit, independently of the fact that a Peach gathered before it is ripe will keep longer in good condition in a cool room than if left to drop into a net. Before Peaches begin to ripen the borders should be watered, if necessary, and well covered with soft, sweet hay, which acts as a non-conductor, while it enables the cultivator to move freely under the trees, and so place himself in the most convenient position for taking off the fruit. Many fine Peaches get injured by the slightest pressure from the naked fingers of the person who gathers, or places them on the dish; but this may be prevented if he will take a pad of wadding in the left hand, gently grasp the fruit, and sever it from the tree with a pair of finely-pointed Grape scissors. It should then be transferred to a square of soft tissue paper, by the corners of which it should afterwards be moved to a shallow box well padded with wadding. The daily routine of management is, or ought to be, familiar to every apprentice who reads his *Gardeners' Chronicle*, but the apparently trifling matter to which I have confined this paper has been neglected. It is, however, highly important, as finish forms a strong point in favour of the exhibitor, the producer for market, or last, but not least, the grower for private use. *W. Coleman.*

MELONS.—Let the earthing-up of the hillocks in successional houses, pits, and frames, be attended to as they require it, and see that the plants suffer not for want of, or from too much, water at the roots; and let those plants which are swelling off their fruits have a liberal application of tepid liquid-manure, not too strong, immediately after they have had clear water applied to their roots, which should always pioneer the thicker fluid. See that the atmospheric moisture of the various houses, pits, and frames, is in accordance with that stage of growth at which the occupants of each structure may have arrived, and that the general routine of treatment as recommended in previous *Calendars* is duly attended to. *H. W. Ward, Longford Castle.*

CUCUMBERS.—There is not much, and certainly nothing fresh, to be said in this department just now, further than remarking in passing that the regular course of treatment will have to be proceeded with in the usual way, adapting the same to weather and

other circumstances existing at the time. A minimum of firing, with a corresponding decrease of atmospheric moisture, will suffice to maintain a moderately high growing temperature of 65° or 70°. This decrease of fire-heat is not caused through the weather having become much warmer than it had been a month back, but, as your practical readers are well aware, in consequence of the days having become much longer, with occasional days and gleams of sunshine which have been, and should be, entrapped by shutting up the houses, &c., early—say half-past 3 o'clock on bright days, thereby economising fuel, and replacing, to a great extent, artificial by solar heat. *H. W. Ward, Longford Castle.*

PLANT HOUSES.

PLANT STOVE.—Now that the sun has at last found its way through the dull leaden clouds, stove plants will make rapid progress, and in order to assist all that are forming young growth, it will be necessary to keep the atmosphere in a constantly moist state, that the air may be continually surcharged as it passes in and out of the house. If this is not done plants soon assume a starved, distressed appearance, and suffer almost or quite as much as they do if allowed to become dry at the roots. The reverse of a moist, genial atmosphere, is not only productive of slow and unsatisfactory growth, but it is one of the principal causes of the breeding and spread of insects, especially red-spider and thrips. Nothing upsets these pests more than a free use of the syringe, which may now with advantage be plied once or twice daily according to the state of the weather. By driving the water with some force things may be made very uncomfortable for mealy-bug, for if the filmy webs of these are broken or disturbed whole colonies of young ones are destroyed, and those of more mature age knocked from their positions and kept on the move. Left unmolested, they increase at a marvellous rate, and take up much time in dealing with them by hand-washing, a process, now that the foliage of plants is so soft and tender, that is highly dangerous, unless carried out with very great care. The leaves of the *Stephanotis*, which is one of the worst subjects for mealy-bug, will stand, and are greatly benefited by applications of water driven at them, and where trained to wires near the roof, so as to be easily got at, may generally be kept tolerably clean in that way, especially if now and then the plants are moved from under, and a little paraffin is added to the water before giving the bath. To have Allamandas and other climbers of that class look natural and easy by the time they get into bloom, it is important that what training and tying they require be done at once, that their leaves and the points of their shoots may be able to right themselves a bit, as without this much of their beauty is spoiled. In regulating the various growths, attention in the first instance should be directed to furnishing the lower part of the plant by bringing into position the branches best situated for laying in there, as with this portion provided for there is no difficulty with that upwards or in so arranging that the flowers may be uniformly distributed over the whole surface. In doing this, however, the great thing is to avoid as much as possible all stiffness and formality beyond what is absolutely necessary to bring any particular specimen to something like the desired shape. The most natural and pleasing of all is the pyramidal, to which the generality of plants readily submit. At this time of year stoves generally get crowded much beyond their capacity for accommodation, and in order to relieve them as much as possible it is a good plan to have pits prepared to receive a portion of the stock, as there are many of the winter-flowering subjects now under course of preparation that do much better in such structures during the summer months than anywhere else. If sufficient depth can be secured to admit of a foot or two of a mixture of leaves and tan in which to plunge the pots, not so much for the sake of bottom-heat as to prevent an undue desiccation of the roots, the situation will be perfect for all such subjects as *Thyracanthus rutilans*, *Plumbago rosea*, *Sericographis Ghiesbreghtii*, *Euphorbia jacquiniæflora*, *Justicia flavicomis*, small *Gardenias*, and many more of that class, as there they are well under hand and may be treated according to their several requirements, in a way they they could not be when mixed up with others. Take the *Bouvardia* for instance, than which there is not a more useful plant grown, and I venture to say that they are never seen in anything like the perfection kept in pots in a stove as when planted out on a dung or tan bed in a frame to themselves. So treated, instead of being miffy slow doers they grow with great freedom, and by the autumn make close little bushes that yield a profusion of bloom. To have them in this desirable state they must have immediate attention, and, if old plants are kept, they must be shortened back and partly shaken out and planted in a mixture consisting principally of sifted leaf-mould, rotten dung of a mild nature, and some fibry loam with a little sand, in which, if kept duly watered, syringed, and shut up early in the afternoon, their progress will be rapid. *J. Sheppard.*

THE Gardeners' Chronicle.

SATURDAY, MAY 31, 1879.

APPOINTMENTS FOR THE ENSUING WEEK.

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| MONDAY, | June 2 | Popular Flower Show, at the Royal Horticultural Society's Gardens, South Kensington. |
| TUESDAY, | June 3 | Bath and West of England Society's Meeting (four days). |
| WEDNESDAY, | June 4 | Sale of Orchids, Bulbs, &c., at Stevens' Rooms. |
| THURSDAY, | June 5 | Linnean Society's Meeting, at 8 P.M. Devon and Exeter Horticultural Society's Show (two days). West of England Pansy Show, at Exeter. |

THE show of the Royal Horticultural Society which opened on Tuesday last, and which was continued until Friday, was remarkable in many respects. Not only was it one, generally speaking, of the very best and most select as to plants of any that have been held at South Kensington, but it was specially noteworthy for the pot Roses shown by Messrs. TURNER and PAUL. Often as we have had to chronicle the competitions between these two favoured champions of Flora—and always in terms of eulogy—it is certain that never at any time have such Roses been exhibited before. Last year they seemed to have attained the limits of perfection and size, but this year they were even finer. A course of flower-show visiting has made us somewhat callous, and perhaps sometimes unduly inappreciative; but we own to a feeling of astonishment at the wonderful perfection which the skill of our great Rose growers has attained to. We shall not repeat here details which more appropriately find place in another column, but we cannot help comparing the Céline Forestiers and the Charles Lawsons, with their 300 or more blooms; the Anna Alexieff, and other giants shown on the occasion, with the hundred plants in 48-pots, shown at Chiswick some thirty-five years ago by Mr. JOHN E. LANE, of Berkhamstead, and which excited so great a sensation in those days that they had a place of honour to themselves, and Dr. LINDLEY called special attention to them. No doubt they were good well grown specimens. Messrs. LANE have always been famous cultivators, but what were they by the side of these glorious bushes, shown at Kensington the other day. While one van, probably, sufficed to transport the whole of Mr. LANE'S collection to Chiswick, about two dozen pair-horsed vans were required to convey the comparatively few plants shown on this occasion from Cheshunt and Slough. It is really difficult to restrain one's pen in writing of these wonderful specimens of skill and culture, but we are checked by the remembrance of the fulsome nonsense which some writers think it right to indulge in directly they begin to write about Roses.

Leaving the details of this well arranged show to be descanted on in another column, we proceed to note another distinctive feature, and one of great importance and significance. We allude to the lighting of the tents and of the conservatory by the electric light. The entrance vestibule and the conservatory were lighted by Messrs. SIEMENS BROTHERS, the apparatus being worked by one engine, that belonging to the Society. In this case the "lead" or connecting wire was about a quarter of a mile in length. The large tent was lit with three lamps by the British Electric Light Company, with the aid of an OTTO gas engine lent for the occasion. The long tent (500 feet) was illuminated partly by the Electric Light Company, by means of elegantly designed standards supporting opal globes, and partly by the Société Générale d'Electricité with the JABLOCHOFF candle. There was considerable variation in brilliancy, colour, and steadiness of light. On the whole, the light supplied by the Electric Light Company with WILDE'S apparatus

was more brilliant, purer, and more steady than the others. The JABLOCHOFF light had a pale violet tinge, and was not quite so steady as the one last mentioned, while the SIEMENS' light, and especially that in the large tent, showed too great a tendency to flicker.

Setting apart these minor variations, there can be no doubt whatever that the electric light for flower-show purposes is a great success, the colours of the flowers, especially the paler ones, as of such Roses as Céline Forestier and Marie Van Houtte, being admirably brought out. Yellows, as that of Doronicum, were as bright as in broad daylight; the lilac tints of Mr. JACKMAN'S beautiful bank of Clematis were in no wise affected, the scarlet of the Anthurium Scherzerianum was unchanged. The foliage of the Palms and Tree Ferns was rendered somewhat hard and steely, but on the whole wonderfully little difference existed in the colour of objects exposed to the ray, while the dark shadows cast only heightened the effect and intensified the impression. In spite of sundry minor shortcomings then, there is no doubt as to the great success of this experiment, and we heartily congratulate the Society and Mr. JENNINGS, the Assistant-Secretary, on this important innovation, which, moreover, has special significance in relation to the question of forcing, to which we have already alluded and to which we shall take another opportunity of referring.

Another innovation, and a very successful one, was the presence in the evening of the members of the Quekett Microscopical Club. These gentlemen, with many lady associates, managed to fill one of the arcades with a series of microscopes and a selection of microscopic objects of great beauty and interest, most of which had been specially selected to interest the botanist and horticulturist. The thanks of the visitors were abundantly earned by the courageous "Queketts," who, despite of pitiless rain and chill arcades, contributed in no slight degree to the pleasures of the evening. Thanks and commendations indeed are fairly due all round, except to the clerk of the weather. Great efforts and laudable were made by the officials to make the show a success, and the unpropitious weather, though it damped, was very far indeed from quenching their ardour.

Lastly, we may add, by way of comment on the strictures recently made on the executive of the Society for fixing their great show in the Derby week, that the entrance money paid at the doors on Wednesday (Derby day) amounted to the largest sum that has been received on any day at a shilling for several years. This, indeed, is the common experience in London.

As in duty bound, we have on all suitable occasions urged the desirability of raisers of florists' flowers proceeding systematically *secundum artem*, instead of in a haphazard manner. Much labour is wasted, much dissatisfaction results, opportunities are thrown away, simply because raisers do not take the trouble to organise their proceedings in a systematic manner. Considering the centuries that florists have been at work at Tulips, at Roses, at Auriculas, and the like, it is by no means creditable to them that they have learnt so little and accomplished so little—we speak, of course, relatively. While generation after generation of florists have been engaged with Auriculas and Polyanthus, it was left for Mr. DARWIN in the course of a few years to unravel the mysteries of "pin-eyes" and "thrum-eyes," and to show the florist how he might spare himself no end of labour and fruitless effort by a little common observation and well directed experiment. And so with Roses: in spite of the volumes and volumes that have been written about Roses, how little is known of the best means of securing good results by careful and

well directed cross-breeding. It is really humiliating to compare the endless labour and the complacent self-glorification of some rosarians with the little they have accomplished in the way of really novel varieties.

Mr. BENNETT, of Stapleford, near Salisbury, has had common-sense enough to proceed on scientific, not happy-go-lucky principles, and the result is that within a very short time he has produced Roses which are of unusual merit for their general qualities, and especially for their continuous blooming properties. And what has Mr. BENNETT done? Why, simply, carefully and judiciously crossed his varieties. Of course he is not the first in this field, but it is nevertheless singular that so very little has been done in this direction. M. JEAN SISLEY, we hear, has been in vain endeavouring to get French growers to follow up this fruitful track, and he it was apparently who stimulated the zeal of Mr. BENNETT. It is not necessary to go into detail, but we may say in brief that Mr. BENNETT has relied chiefly on two Tea Roses, alba rosea and President, as the seed parents of his new hybrids, and that he has pollinated these Tea Roses with the pollen of various hybrid perpetuals with the object of producing yellow and white Hybrid Perpetuals and crimson and high-coloured Teas. Mr. BENNETT claims to have produced the first yellow Hybrid Perpetual, raised from Victor Verdier ♀ and Isabella Sprunt ♂, and the first crimson Tea Rose, Duke of Connaught, from President ♀ and Louis Van Houtte ♂.

Mr. BENNETT'S experiments have been made with all due precaution to prevent pollination by insect agency or otherwise. He has, as all our best raisers have had, a definite object in view, and worked systematically towards its attainment. Mr. BENNETT has been pursuing his object for commercial, not scientific, ends; but he has found, as most people do, that if he would succeed he must adopt scientific method and scientific procedures. Several of the new varieties which Mr. BENNETT has raised are, we believe, to be sent out this season, and that they will make their mark when they come into general cultivation we have no doubt whatever, inasmuch as one result of crossing the Teas with the Hybrid Perpetuals has been to produce a race of varieties with the bold foliage, and large finely formed blooms peculiar to the Hybrid Perpetuals, but with the free and really perpetual flowering habit of the Teas. Too many of the best Hybrid Perpetuals now in cultivation are perpetuals only in name, giving one crop of blooms and no more; whereas Mr. BENNETT claims—and we think from what we have seen that he is perfectly justified in claiming—that his new flowers are really continuous bloomers, and as such will be a valuable boon to rosarians generally, and especially to those lovers of the Rose whose circumstances do not permit of their growing them by the acre.

MR. WILLS has had his "large public meeting," and we hope he will be so far satisfied with the results as to fulfil his expressed promise of placing the matter entirely in its hands, and then of leaving it alone. At the meeting in question, which was not very largely attended by persons likely to be able to render material assistance, there was considerable delay in finding a chairman, but at length certain resolutions were put and carried of which we have had no official report, but which were, if we mistake not, to the effect that it was desirable that an INTERNATIONAL HORTICULTURAL EXHIBITION should be held in 1880, and that a deputation should be appointed to wait on the already existing committee.

We suppose that we are all agreed that it would be desirable to hold such an exhibi-

bition, subject to the contingency of an "if;" but this "if" in the present case is, though a very small word, of very large significance indeed. These contingencies have been well considered at successive meetings of the

present prospect. We respect and value Mr. WILLS' energy and zeal, but we should not be doing our duty if we did not express our conviction that in the present case his energy is misspent and his zeal mischievous. We claim

feeling of those of the horticultural public whose opinion is of any real value in this matter, is very decidedly opposed to Mr. WILLS' project—at present. In addition to laying himself open to the grave charge of compromising the

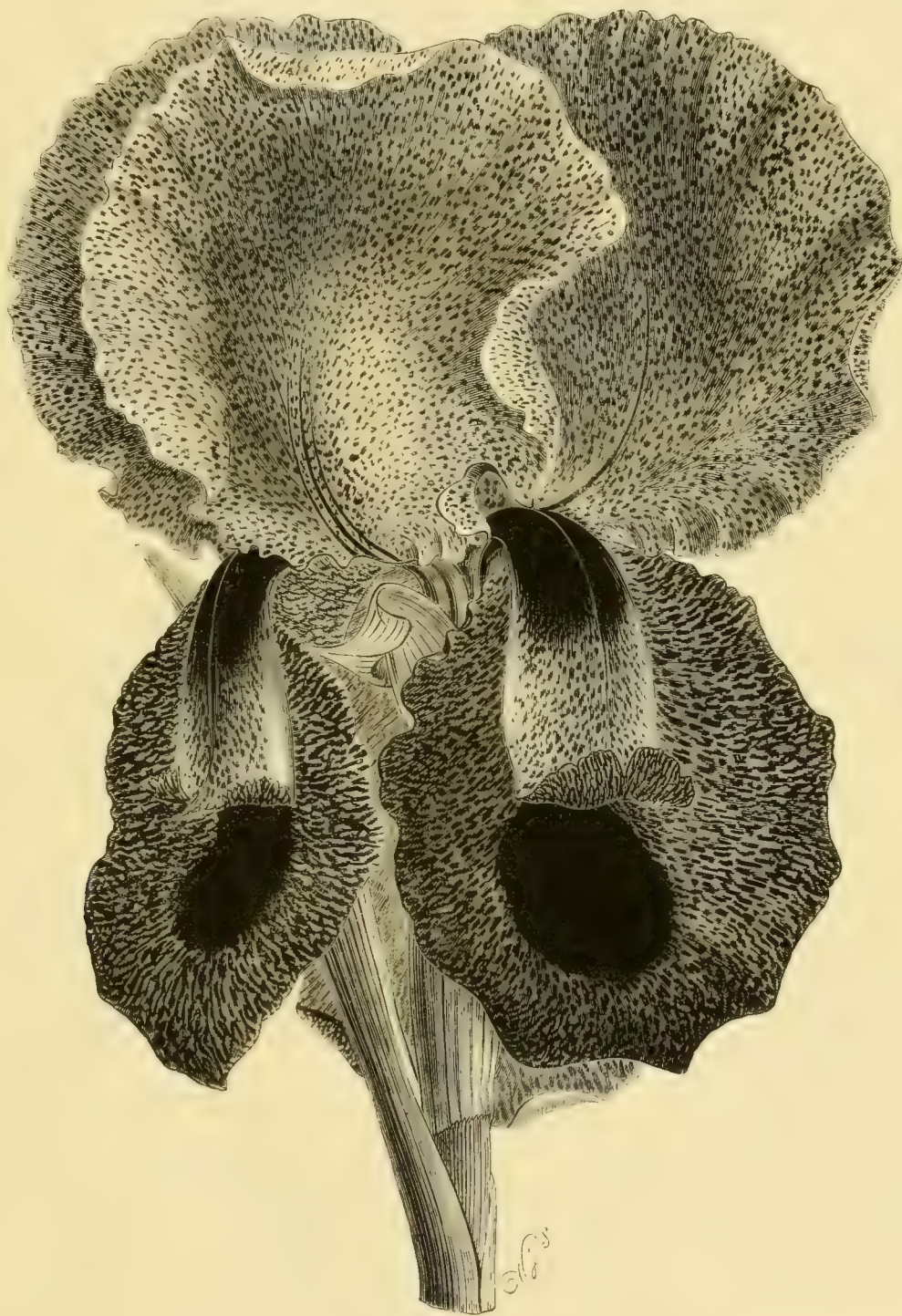


FIG. 100.—IRIS IBERICA VAR. INSIGNIS. (SEE P. 694.)

committee to which Mr. WILLS' deputation—or, we beg pardon, the deputation appointed at Mr. WILLS' meeting, is to present itself. It is hardly likely, therefore, that that committee will see reason to alter its views, unless, indeed, circumstances should greatly change meanwhile, but of which there seems no

to be as well informed as to the feeling of the horticultural community at large as Mr. WILLS himself, despite the favourable onlook which, under certain carefully guarded conditions, H.R.H. the Prince of WALES is inclined to give to his project, and we affirm without hesitation that the general, if not the universal

Prince of WALES, and others of his alleged supporters, who, if we must state the facts, did not make their appearance to support him, Mr. WILLS' proceedings are calculated (quite unintentionally, of course) to produce a most mischievous result in the present state of affairs as between Her Majesty's Commis-

sioners and the Royal Horticultural Society. In the letter from the former body which Mr. WILLS publishes, they express their willingness to loan the ground and afford the necessary accommodation for a consideration—that consideration to be 25 per cent. of the receipts! Indulgent Commissioners! What a prospect of financial success for the undertaking!! Not one word is said for the poor Royal Horticultural Society, whose property is proposed to be utilised in the scheme. Mr. WILLS proceeds of course on the assumption that the Society has no property, or that what it has at South Kensington has been forfeited to the Commissioners. But is this so? What will the Fellows and debenture-holders be likely to say to Mr. WILLS for attempting to barter away their rights in that fashion? The fact is, the delicate and intricate question of partnership has to be solved before the Commissioners can grant Mr. WILLS' request, and Mr. WILLS would be a most disloyal and mischief-making horticulturist if he persisted in his scheme till that question is settled. The fact is, that from the South to the North, from the East and the West, we have evidence before us from leading horticulturists to show that they consider the scheme, in the present depressed state of trade, when most people have a difficulty in making both ends meet, as unreasonable and injudicious, and, moreover, they resent Mr. WILLS' action in the matter as an uncalled-for intrusion. When the proper time comes, then Mr. WILLS' aid, which is now officious and unsought, will be most cordially accepted, but until that time we hope, for his own sake, for that of the Horticultural Society, and for horticulture in general, that he will be satisfied with the efforts he has made, and will comfort himself with the reflection that among the hundreds of names of supporters of the Exhibition of 1866, which he has been at the pains to reprint at his own cost, his own name is the only one which appears in the (self-imposed) honours of prominent black type.

— IRIS IBERICA VAR. INSIGNIS (fig. 100).—We learn from the New Plant and Bulb Company, Colchester, that this beautiful variety was found growing amongst a batch of imported roots, collected some three years ago, of the ordinary type, from which it is most distinct, and, if possible, more beautiful. The standards in the ordinary form are white, and sometimes slightly spotted; in this form the standards are in colour a lilac-white, veined and thickly spotted throughout with a deeper tint of the same hue. The falls are white, veined with black lines, densely spotted and blotched with reddish-brown. The flowers are much larger, and the whole plant dwarfed in habit. A word as to cultivation:—Plant in the hottest and driest situation in the garden, fully exposed to the sun; no manure is required, but a quantity of coarse sand well mixed with the soil will be found acceptable. In such a situation *Iris iberica* will luxuriate and flower most profusely. In spite of the severe winter the beds of it at Colchester were never better, and are at present a glorious sight. Messrs. VEITCH, who exhibited two pans of the ordinary form at Kensington this week, also find the plant does well in the light soil of their nursery at Fulham.

— STRAWBERRY QUEEN MARIE HENRIETTE.—We have lately had an opportunity of seeing a sample of this new Strawberry, raised by an amateur, M. HAACK, of Ghent. The plant is said to be very prolific, the fruit is produced very early, is of large size, conical or crested, shining red externally, with projecting carpels; flesh rosy, juicy, perfumed, and of excellent flavour. Its earliness and its qualities as a great bearer are likely to render it a valuable variety for forcing purposes. Among its other recommendations, to which we can bear personal testimony, is its power of travelling without injury.

— PYRUS MALUS FLORIBUNDA.—If we were asked, What is the most beautiful of hardy flowering shrubs? we believe we should give the precedence

to the plant named at the head of this paragraph. It is not exactly a novelty, for it has been some years in our gardens, having been originally introduced from Japan; it is not that its praises have not been sung, nor its lineaments portrayed, for we ourselves have often called attention to its beauty, and the *Flore des Serres*, the *Florist*, and other publications have faithfully pictured it. For all this it is really very little known—even to our landscape gardeners, who ought to keep on a level with the times on these matters. It is really surprising how it can have happened that a plant like this has not by this time found a place in every plantation of ornamental trees and shrubs, and become as familiar as a Broom or Gorse bush. Our object in now mentioning it is to record what we saw at the Knap Hill Nursery a few days ago, and what any one interested in the subject may see for himself, or herself, during the next week or two, except so far as the picture may be altered by lapse of time. There we saw large nursery quarters literally ablaze with *Malus floribunda*, which was blooming with a degree of profusion almost unexampled, every twig from the ground upwards forming a dense wreath of coral-red buds opening to parti-coloured flowers. The plant is remarkably hardy, and picturesque in habit, grown either as a bush or as a small tree, which it eventually becomes when permitted to take that form. We, however, prefer it as a bush, sending out its widely-spreading branches with a wild exuberance that gives character to its growth, and serves the better to display its wonderful capacity for bearing flowers. This property, moreover, is manifested year after year without break or limit—a result which is perhaps assisted by the fact, that the tree does not weaken its constitution by bearing a crop of fruit—its strong point is its flowers. Should any reader think we are romancing in thus highly praising the *Malus floribunda*, let him take train to Woking, and proceed onwards to Knap Hill, and there fill his eyes with the feast of flowers spread before him—Mr. WATERER will be nothing loth—and if he does not assign to it a very high place, even if not the foremost position, we shall be greatly mistaken.

— MR. BENTHAM.—The *London Gazette* of the 24th inst. announces that HER MAJESTY has been graciously pleased to confer the appointment of Companion of the Most Distinguished Order of St. Michael and St. George on GEORGE BENTHAM, Esq. While we rejoice to find some official recognition made of the life-long services to botany rendered by Mr. BENTHAM, we regret that such recognition has been so tardy, and that it is so inadequate. Such distinctions are not as a rule highly prized by scientific men, inasmuch as they are not specially appropriate to them; but if paid at all, they should be prompt and adequate. Baron VON MÜLLER, Government Botanist of Victoria, has been promoted to the dignity of Knight Commander of the same order; and Mr. HUGH LOW, British Resident at Perak, has received the same honour as Mr. BENTHAM.

— VIOLETTE HÂTIVE PEACH.—A dish of this Peach, large in size and magnificent in colour, was exhibited by Mr. TEGG, gr. to J. WALTER, Esq., M.P., Bearwood, Wokingham, at the meeting of the Reading Horticultural Society on the 22d inst. These superb fruit were gathered in an ordinary Peach-house, subject to the usual conditions of cultivation. Quite a crowd of visitors gathered about the dish of Peaches, and Mr. TEGG was warmly congratulated by his brother gardeners on his success, some of whom thought the sun must have smiled more pleasantly on the domain of Wokingham than on other fruit-growing places in the district.

— COLORADO BEETLE.—It is said that the police have been called in at Willesden to take a beetle in custody, found trespassing in a garden in that locality, and supposed to be the "Colorado." It may have been a lady-bird; but the case is still pending!

— DOUBLE ZONAL PELARGONIUM VESTA.—This fine decorative Pelargonium, described at p. 661, was raised by Mr. R. GILBERT, Burghley Park, Stamford, and about two or three years since awarded a First-class Certificate of Merit by the Floral Committee of the Royal Horticultural Society.

— PROFESSOR KARL KOCH.—It is with very great regret that we announce the death of this eminent botanist, till lately Professor in the University of Berlin, and more especially connected with horticultural botany. His early travels in the Caucasus, his numerous publications on garden botany, pomology, and arboriculture, rendered him the leading authority in Germany on these subjects. His kindly face and genial manners, no less than his reputation as a man of science, secured him a respectful welcome at the various botanical and horticultural congresses, most of which he was officially delegated to attend by the German Government. In this way Professor KOCH became to horticulturists perhaps the best known botanist of the Continent. We deeply regret his loss, not only as that of a valued friend and colleague, but as of a conscientious, painstaking botanist of large experience and wide information. We hope shortly to allude at greater length to the career of our distinguished friend. It is sad to think, that at the last meeting of the Royal Horticultural Society we were discussing with the authorities the propriety of sending, on the part of the Society, a congratulatory telegram to Professor KOCH on the occasion of the seventieth anniversary of his birth on June 6, when the next morning's post brought us the intelligence of his death on the 25th inst.

— WELWITSCHIA MIRABILIS.—At a recent meeting of the Linnean Society a growing specimen was exhibited from the Royal Gardens, Kew, of *Welwitschia mirabilis*, well-known to science by the elaborate description by Sir JOSEPH HOOKER, with a splendid series of plates, in the Society's *Transactions*, but never before exhibited in a living state. Special attention was drawn to this plant, because of the uncertainty of its flourishing permanently. Some peculiarities of this singular plant were briefly alluded to. At Kew the leaf-growth had been observed and it was proved to be entirely basal. After emerging from the lips of the groove no interstitial growth could be detected. The growth being measured, was found to be from 5 to 10 m.m. per month. The leaves, it appears, are the persistent and highly developed cotyledons, lasting the entire life of the plant and never replaced. Seeds had been received at Kew and germinated, but were unfortunately lost; others, it is hoped, may grow at a future time and show the exact mode of development. We wonder what award would have been made at the Floral Committee to this most ungainly plant—perhaps the most extraordinary plant now in existence.

— THE MONARCH RHUBARB.—In the Monarch Rhubarb Mr. TURNER has, at Slough, a variety which appears to us to be strikingly distinct, and at the same time well worthy of recommendation for other good qualities. The stalks, when full grown, are not much more than a foot in length, but very thick, measuring from 6 to 7 inches in diameter, while the leaves are large and cordate in form. One stick is quite enough for a tart, and when cooked the flesh is quite green in colour and of excellent flavour. It is withal a bold handsome-leaved plant, and in a wild garden or even a well ordered flower garden it would look as well as many fine-foliated subjects, obtained and grown at much greater trouble and expense. Of its history, we know nothing beyond this, that it is believed to have originated in the neighbourhood of Birmingham.

— CYTISUS SUPINUS is one of the most attractive flowering shrubs at Kew at present. Its slender branches arch gracefully on all sides, and bear along their whole length bright yellow pea-shaped flowers interspersed among the trifoliate leaves; the leaflets are oblong-obovate, slightly silky.

— PLANTS FLOWERING IN THE EDINBURGH BOTANICAL GARDEN.—At the May meeting of the Edinburgh Botanical Society Mr. SADLER called attention to a number of plants in flower which had been placed on the table from the Royal Botanic Garden. Among the more interesting were *Primula rosea*; *P. ciliata purpurata*, and several well-marked seedlings; *P. intermedia*, and seedlings of the same raised in the garden; *P. pedemontana*, *P. latifolia*, *P. cashmiriana*, *P. villosa alba*, *P. cortusoides*, *P. Sieboldii alba*, *P. Palinurii*, *P. purpurea*, *P. double crimson var.*, *Saxifraga peltata*, *S. flagellaris*, *S. coriophylla*, *S. calyciflora*, *Androsace carnea*, *A. eximia*, *A. Lagerrii*, *A. Brigaortica*, *A. sp. Alps*,

Aretia Vitaliana, *Anemone apennina*, *A. Robinsoniana*, *A. R. alba*, *Arabis blepharophylla superba*, *Aubrietia Hendersoni*, *A. Bougainvillei*, *Bryanthus erectus*, *Copitis trifoliata*, *Draba violacea*, *D. ciliata*, *D. Maweana*, *D. sp. Sikkim*, *D. aizoides*, *Erythronium giganteum*, *Darlingtonia californica*, *Gentiana verna*, *Hutchinsia alpina*, *Iris persica*, *Iberis saxatilis*, *Iberidella sp.*, *Menziesia coerulea*, *M. empetriformis*, *Rhodothamnus Chamæcistus*, *Narcissus rupicola*, *N. triandrus*, *N. Bulbocodium*, *N. bicolor vera*, *Neottinea intacta*, *Parochætes communis*, *Pyxidanthera barbata*, *Trillium grandiflorum*, and *Curculigo sumatrana*. Mr. SADLER also exhibited plants of *Duboisia myoporoides*, and stated that *Rheum palmatum* var. *tanguticum* was coming into flower in the open air in the botanic garden. Mr. ANDERSON-HENRY, of Hay Lodge, exhibited the following plants in bloom:—1. *Arisæma* sp.: the bulbs were presented to him by Mr. ELWES, of Preston House, and are new to this country. 2. A *Yucca*-foliated-like plant, from Sikkim. 3. *Rhododendron jasminiflorum*, a rose-flowered species, a hybrid of his, with pink flowers. 4. A hybrid *Azalea*, with large white flowers striped red. 5. A *Lychnis* sp., raised by him from seeds sent to him by Sir J. HOOKER from Sikkim.

— *EXOCHORDA GRANDIFLORA* may be recommended as one of the prettiest spring flowering shrubs, with oblong glabrous leaves and racemes of white flowers.

— "JACK FROST."—On the authority of the *Gardener* we learn that the lines printed under this title in our issue of April 19 are modified from a "sad lay" published in 1866 by DAVID WINGATE (*Annie Weir, and Other Poems*). We regret extremely that proper acknowledgment of the source whence the lines were taken was not made by the correspondent who forwarded them to us, and are under obligation to our contemporary for calling attention to the matter.

— *PHLOX DIVARICATA* is one of the prettiest spring flowering herbaceous plants. Its large salver-shaped lilac flowers are more like those of a *Plumbago* than of a *Phlox*.

— PRIZES FOR PEAS.—We are requested to state that as there was no competition at the Royal Horticultural Society's Show on Tuesday for Messrs. SUTTON & SONS' prizes for six dishes of Peas, the same prizes will be offered on June 24. The restriction as to varieties has been withdrawn.

— THE "FLORA OF BRITISH INDIA."—The sixth part of this useful publication has just been issued (REEVE & CO.). It contains the continuation of the *Myrtles*, by Dr. DUTHIE; the *Passifloraceæ*, by Dr. MASTERS; the *Melastomaceæ*, *Lythraceæ*, *Onagraceæ*, *Samydaceæ*, *Cucurbitaceæ*, *Begoniaceæ*, *Datisacææ*, *Cactææ*, *Ficoideæ*, *Umbellifereæ* and *Araliaceæ*; by Mr. C. B. CLARKE, to whose patient assiduity therefore the greater portion of the present instalment is due. It is understood that *Rubiaceæ*, and *Compositæ* (both large orders) are in a forward state of preparation, so that it is to be hoped that the completion of this much-needed book will be accelerated so far as circumstances will permit.

— BOTANICAL APPOINTMENTS, &c.—Dr. I. BAYLEY BALFOUR has been appointed to the Chair of Botany in Glasgow, in the room of Dr. DICKSON, who is now installed at Edinburgh.—Mr. W. T. T. DYER and Dr. MAXWELL MASTERS have been re-elected Examiners in Botany in the University of London for the ensuing year.—The Baly Medal of the College of Physicians has been awarded to Mr. DARWIN, in recognition of his great services to physiology.

— ANTS.—Sir JOHN LUBBOCK, whose investigations of ant life have revealed so many striking facts, thus comments on the hairs of plants as furnishing obstacles to ants, and preventing them from climbing up the plants so as to obtain access to the flowers and robbing them of their honey. "When," says Sir JOHN—in the *Journal of the Linnean Society* ("Zoology"), vol. xiv., 1879, p. 607—"I first began keeping ants, I surrounded the nests by moats of water. This acted well; but the water required continual renewing—especially, of course, in summer, just when the ants were most active. . . . It occurred to me, therefore, that instead of water I might use

fur, arranged so that the hairs pointed downwards. This I have found to answer perfectly." Our correspondents who are troubled with ants in their Orchid-houses, though they could hardly encircle all their plants with a girdle of fur, might at least protect in this manner some choice specimens or fine spikes.

— ANEMONE.—While every one recognises the brilliant colours of the ordinary garden varieties few are aware of the great beauty of some other species, as *A. Pulsatilla*, *A. alpina-alba*, a sort of *Honorine Jobert* on a small scale, and *A. palmata*, a yellow-flowered species with palmate root-leaves.

— SEASIDE SHRUBS.—For several years past we have watched the growth of the shrubs in the ornamental plantations at Folkestone and other seaside places with a view to note the species best suited for such exposed situations, and have given the results in these columns. We were the more interested this spring to see what had been the effects of the prolonged winter. *Pittosporum Tobira*, which flourishes so well as a rule at Folkestone, is much hurt but not altogether killed, and is already showing signs of blooming. The young shoots of *Tamarisk* have been killed in many places, but the older branches are "breaking" in all directions. *Eunymus japonicus* is not hurt, and forms splendid bushes; that particular variety in which the leaves are of a golden colour when they first appear is simply gorgeous at present. Its brilliancy recalls that of a bankside overed with *Broom* in summer.

— *RUBUS DELICIOSUS*.—This fine Bramble is in flower in the open border at Kew, and also against a wall. In the latter situation its large clear white flowers are seen to great perfection. In the border the flowers are smaller. The plant forms an erect bush with leaves like those of a *Currant*. It is one of the most desirable shrubs for a garden.

— GRASMERE, WOODBERRY DOWN.—We imagine few who read this heading will associate the name with a suburban residence some 5 miles from the City of London, where *Roses* flourish as if smoke were not, and where many fine specimen trees are to be found, in particular one of *Pyrus spectabilis*. The proximity to two great lakes of the New River Company renders the place in question secure from intrusion, a fact of which nightingales and other song-birds have availed themselves. It is very unusual in these days to meet with so attractive a residence in the immediate neighbourhood of London, so that some interest is felt in the sale of this property, as recently announced in our advertising columns.

— *HEDYSARUM HUMILE*.—A charming dwarf *Sainfoin*-like plant, with unequally pinnate leaves and stalked heads of pea-shaped flowers of a bright magenta colour. It is in bloom on the rockwork at Kew.

— LINNEAN SOCIETY.—The anniversary meeting of this Society took place on Saturday last, when Dr. ALLMAN was re-elected President and a new Council was appointed. A special vote of thanks was passed to Mr. KIPPIST for his conscientious services to the Society during a period of nearly fifty years. Other subjects mooted were as to the necessity of improving the library, for which purpose it is proposed that a special fund be created; and as to the arrangements to be made in the management of the new Natural History Museum at South Kensington, consequent on the transfer thither of the collections now housed in the British Museum. Among the foreign Fellows of this Society recently elected are Professor REICHENBACH, of Hamburg, and Dr. BORNET, of Paris. No doubt can exist as to the propriety of these complimentary appointments. Dr. BORNET is one of the most learned of students of *Algæ*, while Dr. REICHENBACH's services to botany and horticulture are not likely to be undervalued by readers of the *Gardeners' Chronicle*.

— *PRUNUS PUMILA* is a dwarf shrub with narrow glabrous leaves and racemes of small white flowers. It is a good plant for the front of mixed shrubberies.

— *ADONIS VERNALIS* AND *A. PYRENAICA*.—Some confusion apparently exists in gardens with reference to these species, though they are perfectly distinct. *A. vernalis* is the species figured by us

from a specimen growing in Mr. PARKER's nursery a short time since. It is described as presenting an early flowering variety (var. *præcox*), and a late-flowering variety (var. *serotina*). *A. pyrenaica*, which flowers later than *A. vernalis*, has long-stalked radical leaves, while *A. vernalis* has only abortive or scale-like root-leaves; moreover, the glabrous carpels or seed-pods of *A. pyrenaica* are prolonged at the summit into a long hooked style, while downy or hairy carpels of *A. vernalis* have only a short hooked style.

— BOTANICAL WALL DIAGRAMS.—Our attention has lately been called to a series of not only elegant, but apparently excellent, botanical wall-diagrams, well worthy of the consideration of teachers, lecturers, and others. They are now being issued by Dr. ARNOLD and CAROLINA DODEL-PORT of Zurich (and, we believe, can be obtained through Messrs. WILLIAMS & NORGATE), under the title of *Anatomisch Physiologischer Atlas der Botanik*. The diagrams are of a handy size, highly finished in colouring and detail, and give all the latest researches into the structure of plants so far as teaching purposes are concerned. Along with the diagrams is a certain amount of descriptive letterpress of each figure. Types of the various orders are represented; the whole being issued in parts at a moderate price.

— FOREIGN FRUIT AND VEGETABLES.—Kitchen gardeners mourning over the prolonged winter and the laggard spring would experience a novel sensation could they but witness, as it falls to our lot to have to do well-nigh daily, the passing before our windows of railway waggons, often at racing speed, and laden with foreign produce. Rushing along the streets almost at fire-engine pace the waggons no sooner reach the market than they are pounced on by stalwart porters and in a very short space of time are emptied of their contents. One day last week we "assisted," as the French say, at the unpacking of flat boxes of *Lettuces* from Toulouse, of small crates of *Asparagus* from Dijon, of small baskets of *Cherries* and of *Apricots* from Toulouse, and others from Toulon. It would have been deemed incredible in the days before railways and free trade that it could ever be possible to supply the English market with such perishable goods from so long a distance at remunerative prices, for while it is true *Giant Asparagus* fetches 7s. and 12s. a bundle, and green *Peas* were quoted at 2s. a pint, yet *Apricots* and *Cherries*, and especially *Lettuces*, were sold at prices which would not prevent a man of modest means from enjoying his salad. The slow rate of travel of goods trains is ill suited to these products—nothing but *grande vitesse* will suit such goods; and so it happened to us on one occasion to witness at Toulon the loading of a railway car with boxes of *Cherries*, to travel with them by the same train to Paris, to cross with them in the same boat to Folkestone, and to arrive in Wellington Street only a few minutes before they were unloaded from the railway vans in the adjacent market. We felt quite friendly disposed towards those *Cherries*, but they did not reciprocate the feeling!

— THE WEATHER.—The report issued by the Meteorological Office for the week ending May 26 states that the weather was very changeable and unsettled generally, but on the whole finer in the south-east of England than elsewhere. Showers were very prevalent, with hail in the west of Scotland on the 25th, and in Ireland on the 26th. The temperature was decidedly higher than in the previous week, but still below the mean generally, the deficit amounting to 3° or 4° in all districts. In "England, E., and S.," however, the temperature of the first three days was greatly in excess of that of the remainder of the week, maxima of 67° or 68° in the shade being recorded daily in London. Highest maxima occurred generally during the early part of the week, when readings varying from 65° to 69° were reached over England and "Scotland, E." Nights were usually warm, but that of the 23d was rather cold over England, when the sheltered thermometer fell to 37° in many places. Rainfall less than the mean in "England, S.W.," and showing no deficit over the Midland Counties; more than the mean in all other districts, the excess varying from one-tenth of an inch in "Ireland, S.," to eight-tenths in "England, E." Wind was very variable. At the beginning of the week northerly breezes prevailed in Ireland, and southerly elsewhere, but on the 23d winds from the former direction became general. On the 24th, however, they had backed to W., and, after veering to N.W. on the following day, returned to the S.W. or S. by the close of the week. Fresh winds were general in the west, but moderate in the east.

Home Correspondence.

The Proposed International Exhibition.

It must have been apparent to the most ardent believer in International shows that the public meeting to which we were "lifted" on Tuesday lacked the enthusiasm so essential at the commencement of such a gigantic undertaking. To say that nine-tenths of the meeting had horticulture, and matters horticultural, dear to their hearts, would, I opine, be a statement no one would try to controvert; but to say that a large majority of the meeting were in favour of the object in view—viz., the holding of a great International Horticultural Exhibition in 1880—I think could be very strongly combated. It is true when the proposition was put to the meeting only one hand was held up against it, but I noticed many, I believe actuated from a kindly motive, withheld entirely from making a show of their opinion. I know many of these gentlemen desire as strongly as the conveners of the meeting that such an exhibition should be held, but they cannot perceive the wisdom that would precipitate the event, and are justly anxious that the most matured considerations should surround the early stages of the project. I was pleased to see that the only practical outcome of the meeting was to refer the matter to the already existing consultative committee on this question, and I have no doubt this committee will again give the subject the patient attention it requires. We all desire an International Exhibition on the grandest scale, one that will redound to our honour as a foremost horticultural people, not an International Exhibition of such a character as a Northern patriot at the Tuesday's meeting pointed to as an example—which, if my memory serves me correctly, happily contained a few dishes of Apples from the Continent to save it from being international in name only—but one which shall draw not only exhibits from the Continent, but even from America, and if possible our colonial dependencies. To effect this, and make it a greater success than the memorable show in 1866, surely a twelvemonths' notice is too short. I believe it would be acceptable to horticulturists generally, and to the bulk of exhibitors in particular, if in 1881 a grand International Horticultural Exhibition be held in London; ample time would then be allowed for securing the best site, plans would be better perfected, and let us hope the bugbear of bad trade, which has certainly depressed the spirits of some few among us, shall have entirely passed away. *H. A.*

In case I did not make myself so clearly understood as I could have desired at the meeting on Tuesday, in proposing the resolution in favour of referring to the already existing committee the further consideration of the question of holding an International Horticultural Exhibition in 1880, permit me to state that I thought my proposition was at once the most conciliatory mode of procedure, and the best means of clearing the ground for future action. I am desirous that Mr. Wills should have every opportunity of stating his case, and every facility given him for showing what can be done by himself and his friends (indeed, the horticultural community owe him hearty thanks for so ably and boldly keeping the question before the public), but I felt that as the committee appointed last year is still existent and prepared to act when circumstances present themselves to them in a more favourable light than hitherto, the meeting—having by its vote so decisively intimated a desire that an exhibition on a grand scale should take place in 1880—should afford this committee a further opportunity to reconsider their decision; and if they found it was not expedient to proceed, it was then open to the committee to dissolve, and another could be appointed at the aggregate meeting of horticulturists to be convened under my resolution to arrange the details of the proposed exhibition. I think that, in the event of the existing committee agreeing not to proceed with the exhibition, it is their obvious duty to resign, and be superseded by another prepared to act. I trust that a meeting of the committee will be called together as soon as possible, that no time may be lost in so clearing the ground for action as that the necessary preliminaries may be put in motion with as little delay as possible. *Richard Dean, Ealing, W.*

Spring Gardening in Derbyshire.—A correspondent reported in your journal last season the grand display of spring flowers at the seat of J. W. Bateman, Esq., Middleton Hall, Yulgrave. Curiosity led me a few days ago to pay a visit to inspect the design and style of planting so highly spoken of last year. Words fail to give an adequate idea of the magnificence and grand effect of colours now to be seen. The beds on the terrace in front of the Hall, two in number, oval shaped, and linked together with narrow beds, are filled with distinct colours of Hyacinths—pure white, crimson, creamy white, dark blue and pale blue, with the links or chain beds filled up with Tulips. The centre bed, diamond shaped, is filled with four distinct colours of Tulips. On each

side of the Hall door run beds of creamy-white Hyacinths margined with *Scilla sibirica*. In front of the conservatory are several other beds, filled with distinct colours of Tulips and Hyacinths. On the right hand of the drive leading up to the mansion there are two large beds planted with six rows of Tulips in twelve varieties, and between these beds a large heart-shaped bed is filled with four colours of Hyacinths, blending superbly with the brilliance of the Tulips. On the lower part of the lawn are several other beds filled with Tulips with equal grand effect, and on the other side of the lawn a margin of shrubbery 70 to 80 yards long, planted with over 1000 mixed Hyacinths in three colours. Altogether there are eighteen beds planted with bulbs, comprising some of the best and most brilliant colours of Hyacinths and Tulips that I ever saw combined together. The most prominent varieties in Tulips were, scarlet and white Pottebakker, Canary Bird, brilliant yellow; Chrysolora, deep yellow; Cottage Maid, rose and white; Rose Grisdelin, rose and white; Crimson King, deep red; Dassart, vermilion-scarlet; Potter, violet; Molière, purple-lilac; Duc de Malakoff, scarlet; Standard Royal, white striped with red; Vercoom, brilliant scarlet; Vander Helst, red and white; Keizer Kroon, golden-yellow striped with red; Rembrandt, scarlet; Proserpine, silky rose, &c. Such a magnificent combination of quantities and colours must be seen to be fully appreciated, and bearing in mind the severe winter and spring I had hardly expected that bulbs planted without any protection except a slight covering of cocoa-nut fibre would have passed unscathed, whilst so many other plants used in spring bedding have been entirely destroyed. Summarising the whole, I have seldom ever seen such a grand effect in spring gardening; and taking into consideration the cold and bleak part of the country evidence is afforded that bulbs with a little care and judicious selection can be made objects of the greatest interest. *A Reader.*

The Backwardness of the Season.—By comparing a record made last spring of the time of flowering of our most common plants (both wild and cultivated) with a similar record kept this year, it will be seen that the blossoms in this neighbourhood are on the average three weeks or a month late:—

| Names of Plants. | 1878. | 1879. |
|--|----------|----------|
| <i>Cornus mas</i> | Feb. 18 | Mar. 9 |
| <i>Tussilago Farfara</i> | " 19 | " 8 |
| <i>Ulmus campestris</i> | Mar. 1 | " 30 |
| <i>Amygdalus communis</i> | " 1 | April 3 |
| <i>Ranunculus Ficaria</i> | " 3 | " 2 |
| <i>bulbosus</i> | " 6 | May 3 |
| <i>Ribes speciosum</i> | " 10 | April 6 |
| <i>Vinca major</i> (var.) | " 21 | May 19 |
| <i>Primula veris</i> | April 12 | April 30 |
| <i>Cardamine pratensis</i> | " 13 | May 3 |
| <i>Hyacinthus non-scriptus</i> | " 13 | " 22 |
| <i>Rhododendron dauricum</i> (var.) | " 15 | " 19 |
| <i>Prunus spinosa</i> | " 17 | " 4 |
| <i>Alyssum calycinum</i> | " 18 | " 23 |
| <i>P. unius Cerasus</i> | " 19 | " 4 |
| <i>Stellaria holostea</i> | " 19 | " 20 |
| <i>Prunus Cerasus</i> (double) | " 19 | " 20 |
| <i>Persica vulgaris</i> | " 19 | " 10 |
| <i>Fragaria sterilis</i> | " 20 | " 5 |
| <i>Asperula odorata</i> | " 23 | " 20 |
| <i>Prunus lauro-cerasus</i> (Laurel) | " 27 | " 10 |
| <i>Syringa vulgaris</i> (white and purple) | " 28 | " 24 |

E. T. M., Ealing.

Primula cortusoides amœna.—To any gardener or amateur who may happen to be in or passing through Salisbury and who may have an hour to spare I would say visit Mr. George Smith's nursery and florist establishment, which is situate on the Wilton Road, about three-quarters of a mile west of the Great Western and the London and South-Western Railway Stations, in the grounds of which may now be seen perhaps one of the finest floral displays of this charming-looking *Primula* ever witnessed in this, or perhaps any other, part of the country. The trusses are very large, each truss having from nine to ten blooms, which on an average measure 1½ inch each in diameter, the colour being of a bright magenta. Independent of this *Primula*, which in itself is well worth going a few miles to see, there are many other things possessing horticultural merit to be seen in Mr. Smith's nursery. *H. W. W.*

Verbena venosa.—I was glad to see (p. 601) "J. S." so highly recommending this old favourite, which, where grown, is always admired by every individual, though it has become a popular bedder. I have, however, grown it for the last twenty years as a bedding plant in the ribbon border, where, when backed up with some silver-foliaged plant, such as *Dactylis glomerata variegata*, it is very fine. My system is to work up a stock from seed. I never sow later than the last week in February, and get good plants ready by the first week in June, which have been potted off into 60-pots, the centre taken out in due time; then they make nice plants and begin to flower at once, and continue throughout the season

until destroyed by frost. Your correspondent recommends leaving the old roots in the beds: I have found, in this locality, that the roots cannot be depended on by being left in the ground through the winter months, for they very seldom come up here, and then they do not make such healthy plants as from seed-sowing at the above period of the year. *William Biggs, gr., Liverpool.*

Valeriana Phu aurea.—In the present rage for advertising it is a wonder we so seldom hear a word about that wonderfully telling spring bedding plant, the golden variety of *Valeriana Phu*. For a yellow bed I know of no plant to equal it for effectiveness; the leaves are long and very graceful, and as bright as a good *Calceolaria*. A bed of it bordered with *Scilla sibirica* is wonderfully telling in a spring garden. Is this plant little known, or is it scarce? I hold a good stock of it, and so does, I believe, Mr. Hunter, of Lambton Castle. I picked up my first plant in a wayside cottage garden, and have worked it on from that one plant. I never saw it at any other place, nor do I remember a gardener coming here that knew the plant. It is thoroughly hardy, and becomes quite green in summer. *William Culverwell, Thorpe Perrow.*

Reminiscences of Old Florists' Flowers.—Laced Polyanthuses are once more coming to the fore. It must not be surmised that because certain old varieties were not shown at Manchester that they are lost, as I could name two or three who have for years carefully cultivated this flower who, if named, would be continually pestered with applications for plants. This season has been one of the worst I ever remember for Polyanthuses; at the same time some few have done better than for some years, particularly President (Hutton's), which has been very good. Pearson's Alexander is yet to be found true in Cheshire: I have myself fourteen of the true old varieties, but none top it with. In looking over my diary I find that the last well-grown collection I saw was in 1834, grown by an old shoemaker of the name of Thorpe at Wadworth, near Doncaster; he had them in quantity, grown in the open with an east aspect. I note that Alexander, George IV., Kingfisher, Prince Regent, and President were the best. He also possessed the old true double yellow Cowslip and the Wheatear Carnation. Are these two plants yet in cultivation?—as I cannot find them. I called at Wadworth some years back, but found old Thorpe had departed, and his plants with him. I went through the old garden, in hopes of finding something in the Polyanthus line, but not a vestige of a florist's flower of any kind was to be found. I visited Sheffield and Rotherham, where I had known growers years gone by, but all had departed, leaving no successors to carry on the cultivation of their favourite flowers. At the present time I believe the greater number of Polyanthus growers are to be found in Cheshire and Lancashire, a few in Yorkshire; about the South I know nothing. I am under an impression some are yet to be found about Paisley in the North and Bristol in the West, from whisperings that I have heard. Time and patience will, I have no doubt, bring several supposed lost varieties to light: some I know are so low in stock and in so few hands that the holders decline giving any information on the subject. *Ebor.*

Strawberry Cultivation.—I have been informed that the best mode of propagating Strawberry is to take a thick piece of turf, 6 by 6 inches, from an old pasture, turn it upside down, and place it under a single runner, the earth having first been scraped away with a hoe immediately under the plant. As I introduced this method and wrote the article on it two or three years since, I was aware of its advantages, especially in obtaining good plants for potting. [It is quite unnecessary to go to so much trouble to get good plants for potting. Eds.] The year before last I tried a new plan, which I like even better than this. I transplanted all the old plants from a worn-out bed on to fresh land, the result being a magnificent crop; and this year this bed is the most promising of all. I transplanted another old bed last autumn, with the same result. Let me recommend every one not to throw away their old plants, but to transplant them on to new ground. They will grow a large crop the first year. It is not the plants which become worn out, but the soil. *Observer.*

Calla æthiopica.—I think there are few plants that pay better for a little care than the old Arum Lily: so called, and to do it well now is the time to bestow that care upon it. Those grown here are being gradually removed from the conservatory as they finish flowering, and are placed where they have plenty of air to harden them a little before placing out-of-doors. We do not dry them off by laying the pots on their sides, as I see is the practice of some growers, but keep them steadily growing on. When it is considered safe we

plant them out in well prepared ground, and water them when they require it with manure-water; the spade is run round the ball of the plants several times during the summer, to keep the roots within bounds and to keep them in good order for lifting in the autumn. Care is taken to get them under cover before frost sets in, as one of these nights, that we are now I hope leaving behind, would prove fatal to the Calla. By treating Callas in this way I have this season exceeded the expectations of my employers and their friends. I am aware that this is no new method of growing Callas, but perhaps the hint may be useful to some of your readers. *G. Merritt.*

How to Trap Ants.—If your enquiring correspondent at p. 637 will put down a slice or two of bread, with a little honey spread over it, the ants will draw to it quickly until it is black all over, then pour boiling water over them, and repeat the dose when required. *William Culverwell.*

Primroses under Cultivation.—A most attractive and in some respects a unique floral display is at present to be seen in the gardens of Largo House and at Eden Cottage, Largo, Fife. It consists of an extraordinary variety of forms of the common Primrose, and the striking diversity of tints and shades, which attracts the casual observer, is even less remarkable than the large size and perfection of shape which the flowers of many of the plants attain. The propagation of these varieties has been the work of Mr. Howie, of Eden Cottage, and the following facts as to their origin, cultivation and characters may be of interest. In 1871 Mr. Howie obtained from Keil's Den, a wooded ravine near Largo, plants of the common Primrose, which presented some divergences from the usual characters of the species. The flowers, which were 1 inch in diameter, were of a deeper yellow than those beside them, and the outline of the corolla was circular and unbroken. He also gathered in the same locality three plants of the common Primrose, where the corolla of the flower retained its usual shape while the calyx was cut up into linear segments. The plants exhibiting these peculiarities were placed under cultivation, and seedlings were raised from them which were the parent of varieties now amounting in number to several hundreds. These varieties Mr. Howie proposed to arrange in several groups, according to the degree of their resemblance to the parent forms. The Louisa group is distinguished by the unbroken outline of the corolla, the Bracteata group has the calyx cut up into segments; while in the Duplex group the entire calyx is represented by a coloured corolla and a "hose-in-hose" arrangement is produced. In the Louisa group there are considerably over a hundred selected varieties, the flowers of some of which attain a nearly perfect form, with a fine round centre. Their colours consist of different shades of orange-yellow, purple, crimson, and lilac, and in some forms the crimson-coloured flowers have light eyes. Many of the flowers are remarkable for their size, the largest attaining a diameter of 2 inches. In some varieties the flowers have a Polyanthus arrangement, though none of the latter are grown in the garden, and one of the most notable of these has a pure white flower. In the Bracteata group there is also a very large number of selected varieties, some of which may be ranked as Polyanthuses, possessing umbellate scapes of flowers, while in others the scapes are single flowers. One form presents a remarkable resemblance to the Japanese Primrose. Its flowering-stalk is 6 inches in height, and it throws off a whorl of flowers 7 inches in diameter, a short distance above which it terminates in a large cluster of buds. The flower is dark, and, as in the rest of the group, the calyx is segmented. Most of the varieties of this group rival the previous group in the perfect outline of the flower, and the colours are also extremely varied. In some cases the segmented calyx is represented by what may be termed cauline leaves. From the Louisa group a considerable number of forms has originated, distinguished by the possession of a duplex corolla. Mr. Howie also obtained several plants growing wild in the east of Fife with the same arrangement of flower, and he proposed to include them under a single group, the Duplex. A considerable number of hybrids has also been obtained by impregnation of the Louisa and Bracteata groups with the Japanese Primrose from the greenhouses at Largo House, and also with *Primula amoena*. Many of the hybrids from the Japanese Primrose are of striking dark colours, and they are all distinguished by starred centres; in all cases the scapes of flowers are umbellate. Hybrids from *P. amoena* closely resemble the parent form. They are all very profuse in flowers, which in some cases retain the white dot at the extremity at each limb of the corolla. Mr. Howie has also under cultivation a number of plants belonging to what may be called the fourth or Oxlip group of *Primula vulgaris*, and these have displayed several varieties in colour and shape. It may be mentioned that in the grounds of Mr. Luke, of Newark, the flower of the common Primrose is naturally of an orange-yellow. It has

yet to be determined if this colour is to be ascribed to any peculiarity in the composition of the soil. *W. P.*

The Properties and Qualities of Auriculas.—From the remarks made by Mr. Douglas it would appear that the standard as regards the properties of Auriculas remains much as it was some twenty-five years ago, but as everything relating to the improvement of flowers has made such rapid strides since that time I was under the impression that what would pass muster at that date would not be considered up to the mark now. Gardeners, however, need not concern themselves much about the properties of Auriculas or any other flowers, according to the florist's point of view, so long as they can get or raise them of good form and substance, besides being showy and attractive to the eye, as what we have to do is to produce a good display, and grow such things as will render a place gay at all seasons. Rather than go in for named sorts I should more incline to seedlings, except for show purposes at exhibitions, and any one who will take the raising of these up will find it will afford them an immense amount of interest. As yet we have not been informed as to what are the distinguishing characteristics between the alpinas and show sorts, but perhaps some obliging correspondent will give the information. *J. S.*

A Good Garden Reel.—It very rarely happens that we state a want but some reader kindly supplies it. When we mentioned the general frailty and worthlessness of the garden reels offered for sale, we felt sure that it would bring out some suggestions for making a better one. Very promptly there comes from a correspondent a drawing of a reel made by himself, which is here engraved (fig. 101). The reel is of wood, with an iron spindle. To make the wooden

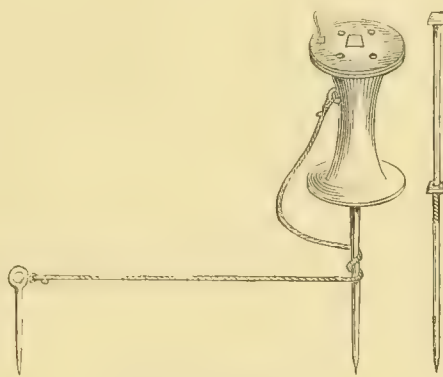


FIG. 101. — A GARDEN REEL.

or spool portion the central shaft is worked with a shave, or, better, turned in a lathe from a piece of wood 9 inches long; the end pieces, 6 inches in diameter, are of inch board, and firmly fastened to each end of the shaft. The central iron is 2 feet long and of $\frac{3}{8}$ -iron; this, as shown at one side, has a head at the top, and 11 inches from this end has a thread cut and furnished with a nut; a hole of the proper size is bored through the reel to receive this iron, and the nut is put on to hold it in place. The lower end of this iron is pointed, to enter the ground easily, and a sharp-pointed pin, with an eye, is provided for the other end of the line. A reel of this size will hold 300 feet of ordinary garden line, and having a broad surface to push upon is easily pressed into hard ground. When sufficient line has been run out, it is stopped by taking a few turns around the iron rod. *American Agriculturist.*

Hellebore Powder.—With regard to "S.'s" question, and the editorial reply to it in last week's *Gardeners' Chronicle*, I presume that no one will be able to obtain Hellebore powder without being made acquainted by the chemist of its deadly qualities. Every packet I buy is duly labelled "poison." Everything then depends upon whether it is used carefully or otherwise, and exactly the same might be said with regard to "digitalis," "vermin killer," and a hundred other things that are in daily use for the purpose of destroying insect and animal life, &c. A good way of using Hellebore powder upon fruit bushes is to tie it up in a thin canvas bag, and then tie the bag firmly on the end of a strong lath, and with another similar lath beat out the powder in such a way that it will fall on the caterpillars. The operator is not only thus able to keep the dust out of his eyes and nostrils, but he can quickly get over a goodly number of bushes, and if the work is well done the caterpillars will soon be dead and dried up, and the trees can be well washed with a syringe or garden engine the same day, bringing down both

insects and powder at once. Of course, when the fruit is approaching the size suitable for culinary purposes no one would think of risking the Gooseberry tart being flavoured with Hellebore powder; but with us it will be weeks before the berries reach that size, and still longer before Currants are fit for use. Speaking for myself, I may say that I have never known any accidents to occur through the use of the powder in question, but it is not uncommon to see in the daily papers accounts of "accidents" occurring on purpose with "vermin killer," carbolic acid, &c., as they might with Hellebore powder, which is not by any means a thing to be trifled with or used in a careless or stupid manner. *F. Harrison.*

I think prevention better than cure, so advise your correspondent "S." to dust his Gooseberry trees with this powder before the fruit has attained any size. A medical friend of ours cautioned me against using either a solution of carbolic acid or Hellebore powder after the bloom had set, therefore I gave the bushes a sprinkling in early spring, and they generally escaped the ravages of the caterpillar at seasons when our neighbour's gardens suffered severely. I attributed their exemption to the application of Hellebore. Soap-suds, the soap being common carbolic soap, such as is used for household purposes, makes a very good solution wherewith to syringe infected plants. Both the black Hellebore and the *Helleborus foetidus* are very poisonous, but I have heard of a powder made from the former being given in the form of snuff to human beings who are afflicted with a peculiar form of blindness. *Helen E. Watney.*

Hedges.—I do not agree with Mr. Rogers as to its being better to plant a double line of Quick-wood than a single line. The plants from being crowded grow weak and sickly, and in consequence of this the plan of planting a double line has long ago been given up in the East Riding of Yorkshire, where Quick-wood hedges are probably managed as well as, or better than in any other part of England. This is due chiefly to the example set by the late Sir Tatton Sykes, who had great experience in hedge planting and trimming, and who was strongly of opinion that one line of Quick was better than two. I think that with a single line of Quick 3 inches apart is much too near. I never plant nearer than from 6 to 9 inches apart. It ought to be the lower branches, not the stems, which make a hedge impervious, and plants 2 feet apart ought to make quite as strong a fence as 6 inches apart. But then they must be properly trimmed, wide at the bottom, and to a thin edge at the top. I specify in my farm agreements that they are to be kept trimmed, not more than 5 feet high or less than 4 feet through at the ground for grass land, and not more than 4 feet high or less than 3 feet through on the ground for arable land. Thus treated they are the best and cheapest fence that can be made. *C. W. Strickland, Hildenley, Malton.*

Reports of Societies.

Royal Horticultural: GREAT SUMMER SHOW. May 27 to 30.—We do but echo the opinion almost universally expressed on Tuesday last when we state that such a magnificent display of flowering plants as formed this year's "great summer show" at the headquarters of British horticulture has seldom, if ever, brought together in London since the famous International Horticultural Exhibition of 1866. It was a flower show in every sense of the word, and not so called by courtesy, as have been too many of the displays of fine-foliaged plants which of late years have almost entirely monopolised the show tents. On this occasion—and we note the change for the better with the greatest satisfaction—flowers preponderated—the grass-covered slopes and terraces under the large marquee were clothed with a brilliant display of Flora's brightest ornaments, and it was seen at once on entering that the difficult task of artistically arranging the great number of subjects sent in had been carried out by Mr. Barron in the happiest manner. The most striking feature of all was undoubtedly the wonderful display of pot Roses contributed by Messrs. Paul & Son, of Cheshunt, and Mr. Turner, of Slough; and the extraordinary collection of Clematises sent from Woking by Messrs. George Jackman & Son. Next to these we should place a large group of fine-foliaged and flowering plants, arranged for effect, by Mr. John Wills, and arranged too in a manner so simple, elegant, and effective as to render additional credit even to Mr. Wills, who surpassed himself on this occasion; and as an exceedingly chaste and novel combination of flowers and foliage we should name Messrs. James Veitch & Sons' group of Roses and Japanese Acers, which were so happily blended together as to produce a perfectly unique effect of the most pleasing character.

To enter more closely into details we must mention that the circular grass plot forming the centre of the show-ground was unoccupied, and thus formed a

coign of vantage from which a good all-round view could be obtained. Facing the eastern end, it was seen that Mr. Turner filled the same position in the centre of the raised bank that he held last year, with nine specimen Roses, which took the 1st prize in their class—as perfect specimens as ever were staged; nay, we should rather say more perfect than has ever been seen before, and which included the enormous bush of Charles Lawson, with its 300 splendid blooms, towering up behind a marvellously well-flowered specimen, 5–6 feet through, of the Tea Rose Madame de St. Joseph (perhaps the most remarkable specimen in the group from a cultural point of view), and flanked on either side with the enormous bush of Céline Forestier, alluded to last week, and which bore over 300 blooms, all open together, and of rare quality, with smaller but still remarkably fine examples of Victor Verdier, the dark Madame Victor Verdier, the delicately-tinted La France, Edward Morren, Duke of Edinburgh, &c. On either side of the Roses were small groups of medium-sized Azaleas, conspicuous for the brilliancy of their flowers; while next to the Azaleas on the right was a fine group, for the most part composed of fine-foliaged plants, such as handsome young specimens of Palms, Crotons, Alocasias, Rhopala corcovadense, Caladiums interspersed with various Heaths and Epacris, Gloxinias and tuberous-rooted Begonias, &c. The left wing was occupied by a group (of the same form and size as Messrs. Cutbush's) of ordinary decorative plants, consisting of small Palms, Azaleas, Dracenas, and Ferns, show Pelargoniums, Spiræas, Heaths, Richardias, and dwarf white Stocks, all of excellent quality and neatly arranged, but too crowded, and lacking variety of surface. Mr. Aldous, South Kensington, was the exhibitor, and an extra prize was awarded to the group, which formed one of four competing in a class for miscellaneous plants, occupying a space not exceeding 300 square feet. Forming an appropriate background to the Roses was a capital group of six exotic Ferns, shown by Mr. B. S. Williams, which won the 1st prize in their class, and which included good examples of Alsophila excelsa, Cibotium Schiedeii, Gleichenia rupestris and G. speluncæ, Davallia Mooreana, and Adiantum farleyense. In front of this group and facing the entrance, Messrs. Dick Radclyffe & Co., High Holborn, exhibited an example of their statuette fountain representing two children under an umbrella, a somewhat childish production, surmounting a small rockery or waterfall, ornamented with small Ferns and Palms.

Returning to the centre, Messrs. James Veitch & Sons' group on the right, of Roses and Japanese Acers, first claims our notice on account of the richness and novelty of its appearance. The Roses were of medium and small size, with exceedingly good foliage and blooms, notably of light coloured varieties such as Caroline de Sansal, Coquette de Blanches, Duchesse de Vallombrosa, and Madame Natchy; while Royal Standard, Magna Charta, and other good sorts of that class were also well represented. As a set off to the Rose blooms the Messrs. Veitch introduced amongst them, alternately, some well grown and well matched specimens of Japanese Maples, such as the pale green-leaved Acer polymorphum palmatifidum, and the copper-coloured A. polymorphum palmatifidum dissectum, plants which so admirably answer the purpose for which they were employed; that this illustration alone of their beauty and usefulness ought to cause them to be sought after to a greater extent than they hitherto have been. Besides the Acers above-named the Messrs. Veitch exhibited a small plant, as received from Japan, which illustrated the Japanese plan of grafting several varieties on the same stock; also a collection of new, rare, or noteworthy plants, which included, amongst others, the fine scarlet-flowered Gesnera macrantha; some fine cut blooms of the singularly beautiful Iris iberica, a number of erect-flowering Gloxinias, rich and varied in colour, and of excellent form; the orange-scarlet flowered Hemanthus cinnabarinus, Pancratium fragrans, Boronia elatior, the new Rhododendron Duchess of Teck, the new marbled-leaved Erythrina marmorata, the sweet-scented Dioscorea retusa, the noble-leaved Anthuriums Veitchii and Warocqueana, the feathery Asparagus plumosus, Alocasia Thibautiana, and various Crotons; and of Orchids, the ever-popular Odontoglossum Alexandræ, Aerides Fieldingii, Dendrobium Bensoniæ, Odontoglossum Roezli, Cattleya Warneri, richly coloured; Saccolabium guttatum, &c. A Gold Banksian Medal was most worthily awarded. Included on the same mound with Messrs. Veitch's collection was a showy group of fifteen Azaleas in 12-inch pots, contributed by Mr. Turner, and which took the 3d prize in their class; the most noticeable varieties being Duc de Nassau, Duchesse Adelaide de Nassau, Alice, Mons. Cuvelier, Reine des Fleurs, and Grandis, a fine salmon-red.

The corresponding bank on the opposite side was rendered conspicuous from all points by the magnificent group of Clematises before mentioned, and which included, amongst the half-hundred specimens comprising it, about two dozen large plants flowered in a style that has never been equalled even by the ex-

hibitors—the Messrs. Jackman. Amongst the new varieties we noticed Mrs. George Jackman, a large eight-petalled pure white flower, with pale straw-coloured stamens; and Edith Jackman, a fine white flower shaded with pink, and nut-brown stamens; while among the better known sorts, the most conspicuous, by reason of their exquisite forms and colours, were Robert Hanbury, Fair Rosamond, Vesta, Sir Garnet Wolseley, Countess of Lovelace, Stella, Aureliana, Miss Bateman, the Queen, and Precision. A couple of window-boxes planted with Clematises, and covered with a rich profusion of highly coloured blossoms, also served to show the value of these handsome plants for window and balcony decoration. A Gold Banksian Medal was never better bestowed than on this most meritorious group. At the rear of the Clematises, and forming a background to them, was a group of Palms from Chiswick, a selection of new plants from Mr. Wills, a group of fifteen Azaleas from Messrs. Ivery & Son, Dorking—a nicely-flowered lot of plants in 12-inch pots, which secured a 2d prize; and then followed a "group of Odontoglossums" from Mr. William Bull, which took the highest award, and which included several plants each of O. Alexandræ, O. citrosum roseum, O. Hallii, O. vexillarium, and its variety roseum; and adjoining these, from the same exhibitor, were examples of Dendrobium superbiens, Dracena Goldieana, the new Spiræa nivosæ, &c.

The magnificent pot Roses from Cheshunt formed an avenue as it were, leading up to Mr. Wills' group, and here on the right was the collection of twenty which won the 1st prize in the class for that number, and consisting for the most part of large plants, in perfect foliage and splendidly bloomed. The grandest specimen of all was one of Charles Lawson, about 8 feet through, while also worthy of all praise were examples of Duchesse de Caylus, Anna Alexieff, John Hopper, President, Marie Rady, Paul Verdier, Victor Verdier, Marquis de Castellane, La France, Horace Vernet, Camille Bernardin, Miss Ingram, Souvenir d'un Ami, Madame Margottin, and Ed. Morren. On the opposite side were the 2d prize collection of nine (and a very close 2d too to Mr. Turner's plants), of which it may equally be said, as of the Slough plants, that they were finer than any shown before, as regards both size, finish, and freshness. The varieties were Dr. Andry, Anna Alexieff, Juno, Céline Forestier, a very large Ch. Lawson, Princess Mary of Cambridge, John Hopper, Madame Victor Verdier, and Edward Morren. Side by side with these superb specimens was a group of smaller plants, in rare form, also shown by Messrs. Paul & Son, and to which a Silver-gilt Flora Medal was awarded. Succeeding the Roses came a dozen exceedingly well-grown Calceolarias, including the remarkably fine form shown with the others at the Crystal Palace on Saturday by Mr. James Ford, gr. to J. G. Megeau, Esq., Windermere House, Church Road, Norwood, and a Large Silver Banksian Medal was awarded. The same exhibitor also staged close by a group of eight fine-foliaged plants, which came in 3d in their class, and which consisted of a similar group to that shown the previous week at Regent's Park, when we noticed a remarkable specimen of Dieffenbachia Bowmanni (also shown here) under the wrong name of D. picta. A group of smaller plants was also contributed by Mr. Douglas, gr. to F. Whitburn, Esq., Loxford Hall, Ilford. Associated with the first mentioned group of Roses from Cheshunt was a large collection of fine-foliaged plants arranged for effect, shown by J. Warren, Esq., Handcross Park, Sussex (Mr. Rann, gr.), which included a well-grown plant of Phyllanthus nivosus, the young white leaves of which stood out most conspicuously; a small but exceedingly brightly-coloured Croton Queen Victoria, various other Crotons and Dracenas, Palms, Sarracénias, Begonias, Ferns, Zamias, Anthuriums, Agaves, &c. Mr. Rann's group won the 1st prize easily.

The central object in Mr. Wills' magnificent display, which won the 1st prize in the class for a group of miscellaneous plants arranged for effect, was a noble plant of Cocos plumosa about 20 feet high, flanked with specimens of the handsome Scaforthias Veitchii and elegans, about 15 feet high, with smaller specimens in front of such fine subjects as the rare Thrinax stellata, Latania borbonica, Phenix dactylifera, Areca Baueri, Artocarpus Cannoni, Phyllotænia Lindeni, Caladiums, Yuccas, various fine Dracenas and Crotons, and a well-grown specimen in the front centre of Nepenthes Hookeri. Carpeting the ground underneath was a mass of Selaginella Kraussiana, dotted with numerous plants of Odontoglossum vexillarium, O. Alexandræ, small Anthuriums, Calceolarias, Gloxinias, Pelargoniums, and other objects of beauty, amongst which we must place an exceedingly good specimen of Drosera dichotoma in flower.

Leaving Mr. Wills' artistic group on the right, we proceed to note the objects exhibited on the sloping bank which extended all round the marquee; the first to hand being a nice group of Indian Azaleas shown by Messrs. Ivery & Son, and which gained a Bank-

sian Medal in the miscellaneous class. Then, filling a corner, came a group of six exotic Ferns from Mr. C. Rann, which took the 2d prize in their class, and which included a remarkably good specimen of Gleichenia microphylla about 5 feet through, a good Davallia Mooreana, a fine Cyathea dealbata, and a very fine Gleichenia glaucescens about 4 feet through. These were followed by the 1st prize group in the same class, shown by Mrs. Torr, Garbrand Hall, Ewell (Mr. Childs, gr.), and consisted of a magnificently furnished specimen of Leptopteris superba, about 4 feet over; a splendid example of Gleichenia Mendelli, from 5 to 6 feet through; a large Cibotium Schiedeii, a smaller plant of Dicksonia antarctica, and a very good Adiantum Farleyense, &c. To the Ferns succeeded the competing specimens in the amateurs' class for six Roses in pots—a very creditable lot for amateurs, but not comparable with specimens of the same size shown by trade growers. The prizes were awarded to the Misses Christy, Combe Bank, Kingston (Mr. Moorman, gr.), Mr. J. Tranter, Henley-on-Thames, and Mr. James, The Redlees, Isleworth. Following the Roses came half-a-dozen tall pyramidal Azaleas shown by Mr. John Wills, and which were 3d in their class. Next we got a change of subjects in the form of new plants, the collections being placed here which are competing for

MR. BULL'S CUPS.—The schedule contained four classes, but only in two was there any competition. In the competition confined to nurserymen for plants sent out by Mr. Bull since the commencement of 1876, Mr. B. S. Williams came in 1st with Cibotium pruinaum, Croton Disraeli, Sadleria Cyatheoides, Dracena Robinsoni, Dieffenbachia Shuttleworthii, Croton princeps, Calyptronema Swartzii, Dracena Goldieana, Croton Williamsii, Odontoglossum citrosum, Kentia Wendlandii, and Dracena Rex. Mr. John Wills came in 2d, showing Anthurium Veitchii, Lomaria Dalgairnsea, Croton Challenger, Panax laciniatus, Davidsonia pruriens, Croton Disraeli, Dracena Goldieana, Gymnothea Raddiana, Anæctochilus cinnamomeus, Encephalartos Hildebrandtii, Dieffenbachia Chelsoni, and Phoenix rupicola. In the corresponding class for amateurs Mr. C. Rann, gr. to J. Warren, Esq., took the 15-guinea cup with a nice group, consisting of plants that we have already named; while the Rev. Canon Bridges, Beddington House, Croydon (Mr. T. N. Penfold, gr.), came in 2d; and Sir Wilfred Lawson, Bart., M.P., Brayton, Carlisle (Mr. Hammond, gr.), was 3d.

Following the new plants came a capital group of Roses in pots, backed by Azaleas, from Messrs. H. Lane & Son, and which took the 3d prize in their class, these being in turn succeeded by the 2d prize collection of eight fine-foliaged plants shown by the Rev. Canon Bridges, and including a well developed specimen of Dieffenbachia Bausei, a good Chamarops humilis, and a handsome Dracena australis lineata, &c. Some miscellaneous subjects followed, and this side was terminated by a mixed group of stove and greenhouse flowering and fine-foliaged plants, which came from Messrs. William Cutbush & Son. First past the entrance on the opposite side was a nice group of choice plants from Messrs. Osborn & Son, Fulham, in which Palms preponderated, and to which a Silver Banksian Medal was awarded. Next came the remarkable half-dozen fine-foliaged plants shown last week at Regent's Park by Mr. C. Rann, and which, with two fresh specimens added, again secured for their exhibitor the highest award. The sober foliage of these plants formed a striking contrast to the next group, which was composed of fifteen Azaleas, good sized and well flowered bushes, shown by R. Thornton, Esq., The Hoo, Sydenham (Mr. Ratty, gr.), and which took the 1st prize in class 11. An admirable group of twenty Roses from Mr. Turner, which took 2d honours to Messrs. Paul & Son's 1st, succeeded the Azaleas, and were in turn followed by a large mixed group of fine-foliaged and flowering plants from Messrs. J. Peed & Sons, Roupell Park Nurseries, Norwood Road, S.E., who took the 3d prize in the class for a collection arranged for effect. Then came a large mixed collection, which gained a Silver Flora Medal for its exhibitor, Mr. B. S. Williams, whose most notable specimens were of the dark-coloured Magnolia Lennet, several fine Azaleas, Heaths, Ghent Azaleas, Anthuriums, Boronias, Pelargoniums, Ixoras, &c. Among Mr. Williams' group was a remarkable plant, worthy of more than passing notice, by name Ochna multiflora. As shown it was a small shrub, with elegant habit, slender pendulous branches; sessile leaves of oblong form, minutely serrulated, and with axillary flowers. The sepals and petals were of a crimson-scarlet colour, reflexed so as to show a thick fleshy scarlet disc supporting four or five ovoid greenish fruit-lobes or carpels. This plant, though not a new introduction, was decidedly one of the most interesting plants in the exhibition, nor was its beauty far behind its interest. Mr. Turner's 1st prize group of eight Azaleas stood next—well-flowered bushes of Cedo Nulli, Madame de Cannart d'Hamale, Duchesse Adelaide de Nassau, Comtesse de Flandres,

Chelsoni, and others. These were relieved by a group of six medium-sized but neatly grown Ferns, from Mr. Douglas, gr. to F. Whitburn, Esq., which were 3d in their class; followed by another group shown by the Rev. Canon Bridges, and the 2d prize collection of eight Azaleas—a capital lot of plants, shown by Messrs. Jackson & Son, of Kingston.

THE LONG TENT.—In addition to the large marquee, a tent reaching from near the Council-room right up to the entrance to the large marquee, had to be brought into use, and this also was well filled with plants, cut flowers, fruits and vegetables, &c. Commencing at the end nearest the large marquee was a well assorted collection of Agaves, Cactus, &c., from Mr. H. Boller, of Kensal New Town, which was awarded a Silver Banksian Medal, and which included many interesting species of Melocactus, Echinocactus, Echinopsis, Mamillaria, Aloe, and Pilocereus, &c. To the Cacti succeeded the open class for Orchids, the 1st prize in which was taken by Mr. J. Douglas, gr. to F. Whitburn, Esq. The central object was a large Dendrobium nobile; and some others were the same as exhibited at Regent's Park last week, with the addition of Cypripedium spectabile, a strong, healthy plant, with eleven flowers; Odontoglossum crispum, with two spikes; O. cirrosum, Calanthe veratrifolia, with pure white flowers, &c. Mr. James, Castle Nursery, Lower Norwood, was 2d with, amongst others, Cypripedium caudatum, Odontoglossum citrosum, with two spikes; Saccolabium ampullaceum, with ten spikes of its pretty rose flowers; the remainder being the same as noticed last week. The 3d prize went to Messrs. Jackson & Son, who had a very fine plant of Vanda tricolor formosa, a superb variety with ten flowers on a spike; Saccolabium guttatum splendens, with two fine spikes; Masdevallia Lindenii, &c. The 1st prize for ten Orchids in the amateur class went to Mr. Child, gr. to Mrs. Torr, who had a fine Vanda suavis, with eight spikes; Saccolabium retusum, Odontoglossum citrosum, with six spikes; and a very fine Lælia purpurata, with ten flowers, &c. Mr. Douglas came in 2d in this class with Odontoglossum Andersonianum, with two spikes, and about two dozen fine flowers; Cattleya Mossiae, Masdevallia Harryana var. Whitburniana, and Odontoglossum cirrosum, &c. In the corresponding class for nurserymen, Mr. B. S. Williams took the highest award with a similar group to that exhibited at Regent's Park. The contributions to the class for a collection of cut specimens of hardy flowers came next, and here Mr. Parker, of Tooting, was 1st, showing blooms of hardy shrubs and herbaceous plants, amongst the best being Trollius asiaticus, T. americanus, T. napellifolius, Dielytra spectabilis, Spiræa japonica, Pyrus malus floribunda, Magnolia Lenzii, Genista præcox, Cytisus nigricans, and C. albus, with a few hybrid Rhododendrons of the ponticum section. In all Mr. Parker showed thirty-one distinct subjects. Messrs. Hooper & Co., Covent Garden, came in 2d, showing herbaceous plants only, including Anemone sylvestris, pure white; Trollius Fortunei, with pure white, small Ranunculus-like flowers; and Trillium grandiflorum, &c. Following these came a capital group of hardy plants and British Ferns, shown by Messrs. Osborn & Son, comprising the pretty Cypripedium Calceolus, Androsace sarmentosa, with charming pale rose flowers; Geranium aconitifolium, pure white; the double variety of the granulated Meadow Saxifrage, Gentiana verna and G. acaulis, &c.; and a capital group of erect-flowering Gloxinias, shown by Mr. John Wills, and which took the highest award in their class. Next to come under notice was the class for twelve stove and greenhouse plants, in which Messrs. Jackson & Son were 1st, with the pretty rose-coloured Boronia serrulata, Pinelea Hendersoni, a healthy plant well furnished with blooms; an exceedingly good Anthurium Scherzerianum, a superb plant of Aphelexis macrantha rosea, and an immense Erica depressa, &c. The 2d prize went to Messrs. J. Peed & Son, whose finest specimens were a magnificent plant of Dracophyllum gracile and the pretty Boronia pinnata, &c. In the nurserymen's class for eight Messrs. Jackson & Son also came in 1st, with a group in which Boronia pinnata and Darwinia tulipifera were very finely represented. Messrs. J. Peed & Son were again 2d. In the amateurs' class Mrs. Torr (Mr. Child, gr.) was 1st, with a very fine Azalea Iveryana, Darwinia tulipifera, a large plant with finely-coloured flowers; Erica depressa, and E. florida, a very pretty species with bluish flowers, &c. D. Martineau, Esq., South Road, Clapham Park (Mr. J. Weston, gr.), came in 2d with small but healthy specimens. Cape Heaths came next, and with these Messrs. Jackson & Son were 1st, and the Messrs. Peed 2d, the plants shown by both being smaller than usual, but examples of E. profusa, E. ventricosa magnifica, and the very distinct E. Mundula were well flowered. In a fine group of herbaceous plants in pots, contributed by Mr. R. Parker, were Erinus alpinus with dense tufts of rose-coloured flowers, Primula Munroi, the Irish Butterwort, Pinguicula grandiflora, Orchis maculata superba, Dianthus neglectus, Saxifraga

Maweana, Iberis Garexiana, Trollius asiaticus, the best of the globe flowers, and a fine pot of Spiræa japonica. The 1st prize for these subjects was won easily by this collection. The class for tuberous-rooted Begonias, about the first of any importance that has been scheduled, brought out a good competition in which Messrs. John Laing & Co., Stanstead Park, came in 1st with a collection which comprised the best of their own seedlings and of the Continental varieties, such as Coltoni, Thomas Bell, Rose Box, J. H. Laing, Sir J. Lawrence, Baronne Hruby, Princess of Wales, Maude Churchill, Gloire de Nancy, Mentor, and J. W. Ferrand. Messrs. Hooper & Co. were 2d, showing mostly Continental sorts, and notably the fine yellow B. Pearcei, Reine de Bougival, a fine white or bluish variety, and Massange de Louvrex, &c. Messrs. Jackson & Son were 3d. Messrs. H. Lane & Son, of Berkhamstead, were 1st for a collection of not less than thirty Rhododendrons, with large and freely bloomed plants, notably of such fine varieties as Mrs. John Clutton, Giganteum, Empress Eugénie, Mammoth, Scipio, Snowdon, Sir J. Newton, fastuosum flore-pleno, and Joseph Whitworth. Mr. Aldous had a conspicuous table decoration; and from Chiswick came some fine examples of the good old plant, Rolison's Unique Geranium, and also of the Scarlet Unique. A class for eight Azaleas brought Mrs. Torr (gr., Mr. Child) to the front with a large and very well-bloomed lot of specimens; R. Thornton, Esq. (gr., Mr. Ratty), being 2d. Near to these was a fine group of Palms and other fine-foliaged plants contributed by Messrs. Hooper & Co., and then came the class for twelve new plants introduced since the year 1876, in which Mr. William Bull came in 1st with a very finely grown and handsome lot, which included Thrinax barbadense, Nephrolepis Duffei, Dracæna Willsii, D. Goldiana, Bowenia spectabilis serrulata, Dieffenbachia Shuttleworthii, Croton roseo-pictus, Encephalartos Frederici Guiliielmi, Lomaria discolor bipinnatifida, Hemanthus Kalbreyeri, Encephalartos Hildebrandtii and Anthurium Veitchii. Mr. J. Wills was 2d, and Mr. B. S. Williams 3d, the former showing the noble Pritchardia grandis, several of his new Dracænas, Acalypha mosaica, Chevallieria Veitchii, Nepenthes Courtii, &c. Another nice group of Gloxinias came from C. Hart, Esq., Beaufort House, Lea (Mr. Reeves, gr.); and Messrs. William Paul & Son contributed eight boxes of cut blooms of Roses, which gained a Silver Banksian Medal. Show and Fancy Pelargoniums were contributed by Mr. James and Mr. Turner, the former being 1st with both classes, though still unable to show his largest plants of the large-flowered sorts. The Fancy varieties were well shown, especially the varieties Madame Sainton Dolby, Princess Teck, East Lynn, Fanny Gair, and Juliet.

FRUIT AND VEGETABLES.—The show of fruit was but a moderate one, although generally very meritorious for the season, which has proved a most difficult one for fruit culture. Grapes were fairly good, Melons large, and Strawberries first-rate. Pines were a poor display, the best fruit being the handsome Smooth Cayenne shown in the class for that kind by Mr. Miles, gr. to Lord Carington, Wycombe Abbey, which was by far the best specimen staged; this took the 1st prize in its class. For two Pines only two lots were staged, and so poor were these that no 1st prize was awarded. Mr. Rutland, gr. to the Duke of Richmond, Goodwood, was placed 2d with a medium-sized Charlotte Rothschild and a small pale Queen. Mr. Child, gr. to Mrs. Torr, of Garbrand Hall, Ewell, took 3d place with small even Queens. For one Queen Pine, Mr. Rutland was 1st with a very moderate fruit, and Mr. Child, with a smaller sample, was placed 2d. Mr. Rutland was again placed 1st in the class for any other variety with a moderate Charlotte Rothschild. The class for three bunches of Black Hamburg Grapes brought nine lots, a few being very good, and some should never have been staged. Here Mr. P. Edwards, gr. to Mrs. Tristram, Liphook, was a good 1st with large bunches, the berries fine, well-coloured, and finished. Mr. W. Johnstone, gr. to the Marchioness Camden, of Bayham Abbey, Lamberhurst, was 2d with small and sprawling bunches, but the berries were fine and well ripened. Mr. Bones, gr. to D. M'Intosh, Esq., Havering Park, Romford, was 3d with neat, compact bunches, the berries large but not sufficiently coloured. Of black Grapes of any other kind there were none, thus showing that the Hamburg is almost the only black Grape that is grown for the first crop. Muscat of Alexandria was represented by one lot only, and these were small and indifferently ripened. Three capital bunches of Foster's Seedling, sent by Mr. Bannerman, wrongly entered in this class and of course disqualified, were so good that they would have been easy winners in the next class, for any other white variety, had the judges or officials but corrected what was evidently an error in the entry. Here Buckland Sweetwater was the only kind staged. Mr. Atkins, gr. to Col. Loyd-Lindsay, Wantage, was 1st with moderate-sized bunches, but the berries fairly ripened; and

Mr. P. Edwards was 2d with larger bunches, the berries green and unfit for exhibition. It is to be deplored that anxiety to exhibit should induce gardeners to cut Grapes before they are half ripe. Peaches consisted of one dish only, a fairly good sample of Stirling Castle, and Nectarines of two dishes, Hunts' Tawney, placed 1st, and shown by Mr. Maher, gr. to C. Allhusen, Esq., Stoke Court, Slough; and Violette Hâtive, shown by Mr. Nash, New Shoreham, who was 2d. Cherries came only from Wycombe Abbey, Mr. Miles putting up superb dishes of Black Circassian and Elton in the class for two kinds, and the former kind in the class for one dish. Two competitors only sent three dishes of Strawberries, the 1st place being taken by Mr. Norman, gr. to the Marquis of Salisbury, Hatfield, who had fine and richly coloured examples of Sir Joseph Paxton, President, and Sir C. Napier. The other lot was about moderate quality, and the sorts were Eleanor, President, and Sir C. Napier. For one dish Messrs. Barnewell & Tilbury were 1st with a fine sample of President, and Mr. Norman was 2d with good Sir Joseph Paxton, Mr. Rutland coming 3d with Sir C. Napier. Melons were various in quality, but the seedling kind named Harewood Hybrid, staged by Mr. Deavin, gr. to C. R. D. Hay, Esq., Harewood Lodge, Sunninghill, a scarlet-flesh in the way of Hero of Bath, was exceptionally good and handsome, and was placed 1st; a neat Queen Emma was 2d, and Read's Scarlet-flesh 3d. Tomatoes were few, but the specimens shown by Mr. W. Iggulden, gr. to R. B. Wingfield Baker, Esq., of Orsett Hall, Romford, were very fine and handsome, and were named Improved Trophy. Mr. Miles was 2d with good Excelsior, and Mr. Rutland had smaller samples. Two competitors only put in appearance in the class for ten sorts of vegetables, but for the season the samples were most meritorious. Mr. Miles was 1st with a capital collection, consisting of Grand Asparagus, good Tender and True Cucumbers, White Broccoli, handsome Canadian Wonder Beans, neat Queen Onions, very pretty Short Horn Carrot, Unique Peas, Veitch's Ashleaf Potatoes, large Stamfordian Tomatoes, and Mushrooms. Mr. Iggulden was 2d, having, inclusive of some of the above kinds, Heartwell Cabbage, Montrose Cucumbers, White Marrows, and Advancer Beans. A limited competition resulted for Messrs. Sutton's prizes for three Melons and three Cucumbers in sorts, Mr. F. Lockie, gr. to Lord Otho Fitzgerald, being put 1st with Oakley Hybrid, Earl of Beaconsfield, and The Squire Melons, all unripe; and Duke of Connaught, Marquis of Lorne, and Kirklees Hall Defiance Cucumbers; Mr. Atkins coming 2d with Model and other Cucumbers, and Lockinge Hybrid and other Melons. None of these latter were attractive for table use as shown in this class. Of fruits not for competition there were a dozen plants of Strawberry Héricart de Thury, and four of the new Early Prolific, of Sir Charles Napier type, sent by Mr. Barron from the Society's gardens at Chiswick. These were splendidly done, but both for quality and colour the former bore off the palm, some of the plants having two dozen ripe fruits of large size upon them. There was also a small collection of Apples from Mr. J. C. Mundell, Moor Park Gardens, Rickmansworth; and some very fine dishes of Uvedale's Saint Germain Pears, with a few Apples, sent by Mr. Ross, of Welford Park Gardens.

A most interesting collection of Radishes from the Society's gardens, showing 100 seed stocks, was deserving of a more extended notice. The samples were good, and evidently were in variety reducible—a few, such as the Long Red, White, and Purple; Round Red, White, and Purple; Olive-shaped Red, White, and Purple; the intermediate Scarlet Early Frame, and the parti-coloured Round Red and White Hipped kind, which is large, early, and succulent. This collection was characteristic of the useful work that is done at Chiswick.

GARDEN IMPLEMENTS AND APPLIANCES.—In this department there was a good assortment exhibited, but nothing calling for more than passing mention, if we except the patent heat regulators shown by Messrs. J. H. Critchley & Co., Grosvenor Works, Cheltenham, and the very simple Patent Slot Throttle Valve, exhibited by Messrs. Foster & Pearson, of Beeston, Notts, to both of which Silver Banksian Medals were awarded. A similar award was also made to Mr. John Matthews, Weston-super-Mare, for a display of terra-cotta vases, and flower pots. Of lawn mowers there was a good display, which included a number of samples of the famous make of Messrs. Thomas Green & Sons, 54, Blackfriars Road; of Edward's Patent Inevitable, shown by Messrs. John Crowley & Co., of Sheffield; of the President, sent by Messrs. Thomas McKenzie & Sons, 16, Holborn Viaduct; of the Reversible Automaton of Messrs. Ransomes & Co., Ipswich; and of the Excelsior of Messrs. Waite, Burnell, Huggins & Co., 228, Upper Thames Street. Messrs. Whitbourn & Young, of Milford, showed an improved form of window box, ornamented by the Xylographic process, and which we hope shortly to illustrate. Messrs. Richardson & Co., of Darlington, had a

lean-to greenhouse, examples of their glass wall-protector, and of the hooded tubular boiler. Messrs. J. G. Smeaton & Co., Harwood Road, Fulham, showed their Surprise boiler, a new form of upright tubular. Messrs. Blake & Mackenzie, School Lane, Liverpool, had quite a variety of useful things for the trade, including seed pockets, a machine for filling them, and dampers for use in fastening them up; waterproof plant labels of various shapes; and a gardener's or nurserymen's order-book, of a handy size for the pocket, and very cheap. Messrs. J. J. Thomas & Co., Edgware Road, showed a great variety of wirework for various purposes, and a good assortment of such articles as come under the denomination of garden furniture, and for which they were awarded a Silver Banksian Medal.

THE ELECTRIC LIGHTS.—The great tent was illuminated by the British Electric Lighting Company (Limited). One light was placed in the centre, and two smaller ones on each side, between it and two large groups of plants. If it was intended to light the entire tent with these three the object was not obtained; all the groups surrounding the centre were well lighted, and both sides of the tent, while the extreme ends of the tent were not satisfactory. It was very interesting to observe the effect of light on Messrs. Veitch's Roses and Maples. The yellow and white Roses were certainly improved by the artificial light, the white was quite pearly, and the yellow of all shades seemed not to pale, but actually to become intensified. Roses, such as Madame Lacharme, La Baronne de Rothschild, and all the lighter Roses were improved. The deeper rose colours were slightly flushed with purple; dark rose, crimson, &c., were certainly deteriorated by the light, all of them being flushed, shaded, or tinged with purple. All plants with pale green finely divided leaves were exquisitely beautiful. Palms with pale leaves and those with the leaf-stalks tinged with yellow were most effective. A plant of *Croton Hawkerii*, with very light green leaves, with the centres of a beautiful pale lemon-yellow, was an object of great interest; if it was beautiful by daylight it must be described as exquisite when placed in the full blaze of the largest burner. Turning to the other side of the tent Messrs. Jackman's Clematis were placed in the full light of the large burner, with the smaller light behind, and taking the group as a whole it was certainly not improved by the light. Here again the purples or shades of that colour were rather duller, and it required all the beauty of such sorts as Miss Bateman, Lady Londesborough and patens floribunda, which in clear light were shown off to the best advantage, to make the group as striking as it was by day. Passing round the tent we noticed that Mr. Aldous' group of white flowers and foliage was not so placed that it could receive the full benefit of the light; but as it was, its chaste beauty was greatly enhanced. The feathery sprays of *Spiraea japonica*, double white Stocks, white Pelargoniums, &c., were really most pleasing, set off as they were by graceful leaved Palms, *Pteris*, *Adiantums*, &c. And here it may be as well to say a word on the large Palms which so well fulfilled their functions in filling up the backgrounds of all the richly coloured groups. The dark thick leaves had a metallic appearance that was striking, and was in some cases weird—as they hung motionless they seemed cut out of tin; here again *Areca lutea* and the lighter-leaved Palms had a decided advantage. It still remains to notice the specimen Azaleas in this tent. The light shone full on Mr. Turner's group, and where the light was brightest the colours were well defined: the lightest Azaleas were seen just as by daylight, rose and light red suffered, those with purple in the flowers being much changed but not for the better. The very large specimen Azaleas, shown in another tent, were, if possible, even more hideous than they were by daylight, one almost wonders that any person who cares for flowers can tolerate such artificial products. Large specimen Azaleas are wanted at flower shows, but the electric light says, "Do let us have them a little more in their natural form, and avoid as a plague close tying in." The upper end of this long tent was lighted by the Electric Light Company (Limited), by means of standards fitted with Wilde's patent automatic carbon holders, the electric current being supplied by Wilde's patent electro-magnetic induction machine—the lower end was lighted by the Société Générale d'Electricité with the Jablohoff candle. This was certainly a steadier and better light than that in the large tent: one standard was fixed over the groups of Orchids, and here it was again interesting to notice the different shades of bright orange and yellow in *Dendrobium thyrsiflorum*. These were quite as effective as by day, and *Oncidium Marshallianum* is not at all altered. *Odontoglossum vexillarium* was considerably altered for the worse, and flowers of *Masdevallia Harryana* containing some purple in their composition were deadened, as it were, while the variety named in honour of Mr. Whitburn, which has more of crimson, was altered but little or not at all. Would this be because the tube is yellow, and that the yellow flushes into the crimson? But it is need-

less to demonstrate further. The groups of Orchids at 20 yards' distance were much the same as by day, except that the *Masdevallias* were perceptibly altered at that distance, and even *Orchis foliosa* had a bluish tinge. The conservatory was brilliantly lighted by Messrs. Siemens Brothers. Altogether this attempt to utilise the electric light to illuminate horticultural exhibitions must be said to have been a great success; the visitors seemed highly delighted with the effect of the light on the plants, and it would have been a great financial success but for the very wet night which followed on a wet sunless day, enough to throw a damper on the most hopeful Council that ever ruled the destinies of any society.

SCIENTIFIC COMMITTEE.—Dr. Masters, and afterwards Sir J. D. Hooker, in the chair.

Monstrous Primroses.—Dr. Masters commented briefly on several Primroses which had been referred to him at the previous meeting, and which admitted of being grouped under the following heads:—1. Simple calycanthemy or petaloid condition of the calyx: short-styled or thrum-eyed; a common condition and very suitable for the herbaceous border. 2. Calyx normal. Corolla partially or completely separated into its component petals; petals bright yellow on the upper surface, and with two purple spots on either side the median line; rich chestnut-brown on the under surface, short-styled—a remarkable form, not so common as the foregoing. 3. Calyx normal. Corolla normal; lobes reddish-brown on the under surface; edges involute or rolled on to the upper surface so as to show the colour; long-styled or pin-eyed. The distribution of the colour is here very remarkable. The specimens were received from Mr. Webb. 4. Fusion of three flowers. Calyx petaloid, of eighteen sepals free for about half their length, forming a cup beneath, of a rich chestnut-brown colour edged with yellow on both surfaces. Within the calyx are three corollas, two fused together, one separate normal in form, but each 6-lobed; short-styled. A form of most remarkable construction, sent by Mr. Cannell, and said to be permanent under cultivation. From the fact of a truss of three flowers being enclosed within one large petaloid calyx, this variety may be recommended not only to the curious, but also to the lover of ornamental plants.

Fruit Blossoms and the Frost.—Dr. Masters showed specimens of fruit blossoms from Mr. Earley. In the Cherry blossoms the petals and stamens were uninjured, but the pistil was completely blackened and killed. In the case of the Apple blossoms the petals were arrested in their growth and distorted, the stamens and pistils were uninjured. Mr. Earley, however, found the stamens to be injured in some cases, which is remarkable in so hardy a flower as the Apple.

Meal on Auricula Leaves.—Dr. M. C. Cooke reported that he had examined the meal on the surface of the leaves of these plants, and had ascertained that it consisted mainly of broken needle-shaped crystals mixed with granules. More careful examination showed that the crystals proceeded from shortly stalked, globose, glandular hairs. They were insoluble in spirits of wine, but were dissolved in benzene. Chemical analysis had shown that the crystals in question were probably those of some alkaloid, but the quantity experimented on was too small for complete analysis.

Root Hairs.—Dr. Masters, in continuation of some previous remarks on this subject, and in allusion to the views of some French physiologists, who consider that pressure or hindrance to growth is a determining cause of the production of these hairs, exhibited a Radish which had in course of its growth penetrated and made its way through a piece of rotten wood some $\frac{3}{4}$ inch in depth. In spite of the manifest obstruction no root hairs were produced or, if any, only few and very minute, as is generally the case in fleshy roots.

Curved twigs of *Cercis Siliquastrum*.—Dr. Masters showed from Mr. Piffard specimens of twigs singularly bent and contorted, owing to growth having been more vigorous on one side than on the other; but to what cause the appearance was due was not apparent, no trace of insect or fungus being visible.

Plants Exhibited.—By the Hon. and Rev. J. T. Boscawen, *Listera nidus-avis*, from Cornwall; by the Rev. H. Harpur-Crewe, various specimens of *Narcissus*, from Spain, including *N. calathinus*?, *N. Bulbocodium*, sulphur-coloured variety, found in wet places near Ovideo; *N. minimus*, from dry rocks near Panorbo. If the *Narcissus* be really found on more careful examination to be *N. calathinus*, the fact will be especially interesting, as, up to this time, it has only been recorded from an islet off the Brittany coast. *Muscari dubia* and *armeniaca*, *Tulipa Orphanides*, and other plants, were also exhibited by Mr. Crewe. Mr. Elwes showed specimens of *Cypripedium pubescens*, to show how greatly they varied in size, and exhibited specimens of species of *Tulip* which under cultivation attained within a very short time four times the size of the wild forms, and varied also in colour and markings. *Tulipa Kolpakowskyana* was also shown to illustrate the

great range of variation in colour of this species. *Habranthus fulgens* (?), a species with hairy leaves and umbels of white flowers, was also shown.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. The only subjects which came under the notice of this body was a collection of Apples from Mr. Lewis Killick; a few varieties from Mr. Divers, Wierton Place, Maidstone; and a seedling Melon of no particular merit, from Mr. Russell, gr., Oatlands Park, Weybridge.

FLORAL COMMITTEE.—Dr. Denny in the chair. First-class Certificates were awarded to Messrs. James Veitch & Sons for *Croton Evansianus*, *Gloxinia Duchess of Connaught*, and for *Azalea Mollis Arthur de Morello*, pale orange; to Mr. Turner, for *Azalea Madeline*, a large, free-flowering, pure white, with a tendency to become double; to Mr. R. Dean, for *Polyanthus superbus*, a very dark chocolate-brown flower; and *Primula sikkimensis*; to H. J. Elwes, Esq., for *Fritillaria recurva* and *Cypripedium pubescens majus*; and to Mr. Speed, Chatsworth, one of the 2d class for *Amaryllis Lady Louisa Egerton*.

Crystal Palace: May 24.—In many respects the annual exhibition held at the Palace on Saturday was of a superior character to what had been anticipated—though not quite so extensive as we have seen it. The prime features were the pot Roses of Messrs. Paul & Son, the Clematises, the Azaleas, the fine-foliaged plants, and the class for herbaceous Calceolarias, which for once brought out something like a competition for the 1st prize. The pot Roses consisted of nine plants, which Mr. George Paul thought were the best he had ever put up. The most conspicuous object amongst them was an enormous bush of Charles Lawson, a remarkably well-flowered *Céline Forestier*, also of great size; and smaller specimens of Madame de St. Joseph, Beauty of Waltham, Anna Alexieff, Dr. Andry, Souvenir d'un Ami and Edward Morren. The 1st prize was awarded; and Mr. Turner, who showed eighteen well-flowered small plants, was also awarded the highest prize. The show of Azaleas was a great improvement on that at Regent's Park, an excellent lot of plants being contributed by Mr. J. Child, gr. to Mrs. Torr; Mr. Ratty, gr. to R. Thornton, Esq.; Mr. Turner, and Messrs. Ivory & Son, Dorking. The Clematises were the same as shown by Messrs. George Jackman & Son at Regent's Park, and looked even better here than at the former place. The principal exhibitors of stove and greenhouse plants were Mr. Chapman, gr. to J. Spode, Esq., Hawkesyard Park; Mr. B. Peed, gr. to Mrs. Treadwell; Messrs. Jackson & Son, and Messrs. Peed & Sons, and the last-named firm also took the lead with Heaths. Mr. Rann, gr. to J. Warren, Esq., Handcross Park, was in strong force with fine-foliaged plants; and Mr. T. N. Penfold, gr. to the Rev. Canon Bridges, Beddington House, Croydon, was also a successful competitor. Mr. B. S. Williams sent the best group of Ferns, and also the best lot of Orchids in the nurserymen's class; while amongst amateurs Mr. A. Luff, gr. to R. R. Hyall, Esq., The Hawthorns, Streatham, was the leading exhibitor, showing amongst others a fine mass of *Phalenopsis grandiflora* with ten spikes of flowers. Show and Fancy Pelargoniums were very bright and effective, though not of their usual quality: Mr. James and Mr. Turner were the only exhibitors. For eight Calceolarias Mr. James was run extremely close for the 1st position by Mr. Ford, gr. to J. G. Megeau, Esq., Windermere House, Church Road, Norwood, and the two lots together formed as fine a group as could well be imagined. The flowers on one of Mr. Ford's plants were of enormous size, and so far in advance of anything else that the judges awarded it a First-class Certificate, and gave it the name of Crystal Palace. To the miscellaneous section Mr. B. S. Williams contributed a choice collection of small plants; so also did Messrs. J. Laing & Co.; and Mr. Parker sent a capital lot of herbaceous plants. From Mr. T. W. Griffin, gr. to J. Wilcocks, Esq., Forest Hill, came a good group of *Gloxinias*; and Messrs. W. Paul & Son sent a capital lot of cut Roses.

The Weather.

LONDON: Barometer.—During the week ending Saturday, May 24, in the vicinity of London the reading of the barometer at the level of the sea decreased from 29.85 inches at the beginning of the week to 29.62 inches by noon on the 18th, increased to 30.16 inches by the morning of the 21st, remained almost stationary till the morning of the 22d, decreased to 30.10 inches by the evening of the same day, increased to 30.23 inches by the morning of the 24th, and decreased to 30.05 inches by the end of the week. The mean reading for the week at sea level

was 30.02 inches, being 0.01 inch below that of the preceding week, and 0.10 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 68° on the 21st, 67½° on the 20th, and 67° on the 22d, to 53½° on the 23d, and 54½° on the 18th; the mean for the week, 63½°. The lowest temperatures of the air observed by night varied from 39½° on the 20th, and 42° on the 23d, to 47° on the 18th; the mean for the week was 43½°. The mean daily range of temperature in the week was 19½°; the greatest range in the day being 28½°, on the 20th, and the least 7½°, on the 18th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—18th, 49°.2, —4°; 19th, 52°.3, —1°.3; 20th, 51°.6, —2°.1; 21st, 54°.3, +0°.4; 22d, 55°.0, +0°.9; 23d, 46°.3, —8°; 24th, 54°.2, —0°.4. The mean temperature of the air for the week was 51°.8, being 2°.1 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 132° on the 24th, 129° on the 21st, 127° on the 22d, and 126½° on the 20th; on the 23d the highest reading was 88°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 35½° on the 20th, 35½° on the 24th, and 38½° on the 22d; the mean of the seven lowest readings was 40°.

Wind.—The direction of the wind was variable, and its strength gentle.

The weather during the week was generally fine, and slightly warmer; but the sky was cloudy at times.

Rain fell on three days during the week; the amount measured was 0.33 inch.

ENGLAND: Temperature.—During the week ending Saturday, May 24, the highest temperatures of the air observed by day were 72° at Cambridge, 70½° at Leicester, 70½° at Nottingham, and 69½° at Blackheath; the highest temperature of the air at Bradford was 60°, and at Liverpool was 60½°; the mean value from all places was 65½°. The lowest temperatures of the air observed by night were 36½° at Nottingham, 37° at Hull, 37½° at Cambridge, 39½° at Blackheath, and 39½° at Bristol; the lowest temperature of the air at Truro and Plymouth was 46°, and at Liverpool was 45°; the mean value from all stations was 41½°. The extreme range of temperature in the week was the greatest at Cambridge, 34½°, and the least at Plymouth, 15½°; the mean range of temperature from all places was 24°.

The mean of the seven high day temperatures was the highest at Cambridge, 64°, Blackheath and Norwich, 63½°, Bristol, 62½°, and Leicester, 62°; and the lowest at Sunderland, 55½°, and Bradford, 56½°; the mean from all places was 59½°. The mean of the seven low night temperatures was the lowest at Blackheath and Nottingham, 43½°, Cambridge, Hull, and Bradford, all 44°, and Brighton and Sunderland, both 44½°; and the highest at Truro, 48½°, and Plymouth 48°; the general mean from all stations was 45½°. The mean daily range of temperature in the week was the least at Truro and Plymouth, 9½°, and the greatest at Blackheath and Cambridge, both 20°; the mean daily range from all places was 14½°.

The mean temperature of the air for the week from all stations was 51°, being 1½° higher than the value for the corresponding week in 1878. The mean temperature was the highest at Norwich, 53°, Bristol 52½°, and Leicester and Cambridge 52½°; and the lowest at Sunderland, 48½°, and Bradford, 48½°.

Rain.—Rain fell on every day in the week at Nottingham, Hull, and Bradford, and on five days at most other places. The heaviest falls were 1 inch at Cambridge, and three-quarters of an inch at Plymouth, Hull, and Bradford, and the least fall was one-tenth of an inch at Truro; the average fall over the country was half an inch.

The weather during the week was fine, and somewhat warmer, but the sky was generally cloudy. Slight thunderstorms occurred at places.

SCOTLAND: Temperature.—During the week ending Saturday, May 24, the highest temperatures of the air observed by day varied from 63° at Dundee, and 62½° at Edinburgh, to 56° at Aberdeen and 58½° at Greenock; the mean from all places was 60½°. The lowest temperatures of the air observed by night varied from 37½° at Leith, and 38° at Dundee and Perth, to 40½° at both Glasgow and Paisley; the mean from all stations was 39°. The mean range of temperature from all places was 21½°.

The mean temperature of the air for the week from all stations was 49°, being 3° higher than the value for the corresponding week in 1878. The highest mean temperature of the week was 52°, at Paisley, and the lowest was 46½°, at Aberdeen.

Rain.—The amounts of rain varied from 0.85 inch at Aberdeen, and 0.70 inch at Greenock, to 0.29 inch at Paisley; the average fall over the country was 0.58 inch.

DUBLIN: The highest temperature of the air was 63°, the lowest was 36½°, the range was 26½°, the mean was 52°; and the fall of rain 0.38 inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, May 28, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. | |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|-------|-----------|----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | | | | |
| May 22 | In. 29.94 | +0.19 | 67.1 | 45.5 | 21.6 | 55.0 | +0.9 | 45.8 | 72 | WSW | 0.01 |
| 23 | 29.99 | +0.25 | 53.3 | 41.9 | 11.4 | 46.3 | -8.0 | 41.6 | 85 | WNW | 0.21 |
| 24 | 29.95 | +0.20 | 69.3 | 42.4 | 26.9 | 54.2 | -0.4 | 43.9 | 68 | E.N.E. | 0.00 |
| 25 | 29.09 | -0.07 | 55.5 | 48.0 | 7.5 | 51.0 | -4.0 | 49.0 | 93 | E. | 0.24 |
| 26 | 29.58 | -0.18 | 59.1 | 40.3 | 18.8 | 48.8 | -6.4 | 41.7 | 77 | WSW | 0.05 |
| 27 | 29.42 | -0.35 | 57.8 | 45.4 | 12.4 | 49.6 | -5.8 | 47.5 | 92 | S.E. | 0.24 |
| 28 | 29.43 | -0.34 | 61.8 | 43.6 | 18.2 | 50.2 | -5.4 | 48.5 | 94 | E.S.E. | 0.60 |
| Mean | 29.71 | -0.04 | 60.6 | 43.9 | 16.7 | 50.7 | -4.2 | 45.4 | 83 | variable | sum 1.35 |

May 22.—A fine day, but cloudy. Warm. Overcast, with thin rain at 10 P.M.
 — 23.—A dull cold day. Occasional showers. Very cloudy.
 — 24.—A very fine bright day. Warm. Sky clear.
 — 25.—A very dull wet morning, fine, but cloudy afternoon. Cloudless at night. Cool.
 — 26.—Generally dull, but fine at times. Occasional rain. Cool.
 — 27.—A very dull day, frequent rain. Cool. Overcast throughout.
 — 28.—The morning was very dull, with heavy rain; from 10 A.M. to 6 P.M. generally fine and bright; at 7 P.M. rain again began to fall, at first lightly, afterwards heavy and more continuous than any since August 4, 1878, when rain to the depth of 1.34 inch fell. Early in the morning of the 29th there was a slight thunderstorm followed by still heavier rain, and the amount measured at 9 A.M. was 1.46 inch, as having fallen in fourteen hours.

Note.—The mean temperature of the air for the forty-nine days (April 10—May 28) was 44°.3, being 0°.1 below the average of sixty years.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

AMARYLLIS: *J. Shaw*. Your seedling has the colour and marking of *A. vittata*, but the segments of the perianth are much too narrow for it to take any high position amongst the varieties of the present day.

AURICULAS: *M. C.* Not worth growing.

CROTON DISRAELI: *Vitis*. We presume it was named after the Earl of Beaconsfield.

GRAFTING ROSES: *Z. Z.* We cannot say for certain whether the grafts would take under the circumstances you describe, but to make sure of their doing so you should give them a little bottom-heat.

NAMES OF PLANTS: *Trafalgar Lawn*. We do not undertake to get the names of florists' flowers, which include Azaleas and Camellias of garden origin.—*G. P.* 7, *Spiraea acutifolia*; 9, *Santolina chamaecyparissias*; 11, *Phillyrea latifolia*; 12, *Ruscus aculeatus*; 13, *Ribes aurea*.—*W. B. G.* Seems to be *Crinum Macowani*.—*W. M. C. D.* 1, *Anemone*—specimen insufficient; 2, specimen insufficient; 3, *Corydalis solida*; 4, *Adiantum tenerum*; 5 and 6, too rotten for identification; *Leucojum aestivum*.—*E. Foster*. 1, *Epidendrum* (we mistook the flower, please send again); 2, *Oncidium sphacellatum*; 3, *Cypripedium barbatum*; 4, *Begonia nigro-punctatum*, also grown as *B. incarnata purpurascens*; 5, *Phyllanthus* sp.—*C. D. Z.* *Oncidium crispum*; *Dendrobium* spoilt by being packed in wool.—*C. E. F.* *Pyrus malus floribunda*.—*T. A. B.* 1, *Prunus Padus*, the Bird Cherry; 2, seems to be a variety of the Portugal Laurel, but the specimen is insufficient.—*Alpha*. 1, *Lycopodium Selago*; 2, *Caltha palustris*; 3, *Ranunculus Ficaria*; 4, *Viola canina*.—*G. S.* 1, *Amelanchier Botryanthus*; 2, *Amelanchier vulgaris*; 3, *Ledum palustre*; 4, *Euonymus japonicus* var.; 5, *Coccoloba platycladon*.—*R. E. H.* Send a better specimen, properly packed.

PEACHES: *G. S.* Mildew. Apply sulphur.
 PERENNIALS: *H. B.* Those you name will answer the purpose very well. Sow them now, in a bed of prepared light soil if that of your garden is naturally very heavy; prick out the young plants when large enough to handle into nursery beds also of prepared soil, and plant permanently in autumn or spring, when the weather is the most favourable. If sown earlier, in heat, and judiciously forwarded, some of them, as the *Antirrhinums* and *Pentstemons*, would have flowered during the present summer, but they will not do so now.

VINES: *North Wales*. The only way in which we can account for the present condition of your Grapes is that they have been sun-scorched, after having been exposed to colds and chills. This complaint is very prevalent this season. Give air a little earlier in the morning, to dry the berries before the sun gains any power.
 VINES: *Rex*. The presence of the warts on the back of the leaves is a pretty certain indication of the atmo-

sphere of the house having been kept too close and too moist to exactly suit them during the earlier stage of their growth. More air and less moisture is the remedy.

COMMUNICATIONS RECEIVED:—A. P.—W. M.—Messrs. Cranston (next week).—J. N. (next week).—Rex.—G. M. (next week).—J. H. (next week).—Foreman (next week).—J. G. N. (next week).—A. C. (next week).—C. W.—J. R.—J. T. B.—A. W.—J. S.—J. F. R.—A. B.—Andre Leroy & Co.—J. D.—G. E. E.—W. H.—H. M. E.—W. F.

Markets.

COVENT GARDEN, May 29.

A decided improvement in business has taken place, all classes of goods being in demand. Good supplies of Grapes are reaching us, but are readily cleared at reduced prices. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Peaches, per dozen | 12 0-30 0 |
| Figs, per dozen | 10 0-15 0 | Pine-apples, per lb. | 2 0-4 0 |
| Grapes, per lb. | 3 0-6 0 | Strawberries, per lb. | 6 0-12 0 |
| Lemons, per 100 | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 4 0-0 0 |
| Jerusalem, bush. | 6 0-0 0 | Lettuces, Cabbage, | |
| Asparagus, Fr. spruce, | | per doz. | 1 6-0 0 |
| per bundle | 1 6-0 0 | Mint, green, bunch. | 0 4-0 0 |
| Eng., per bundle | 5 0-6 0 | Onions, per bushel | 12 0-14 0 |
| Fr. giant, p. bun. | 8 0-15 0 | — young, per bun. | 0 4-0 6 |
| Toulouse, bun. | 1 6-2 0 | Parsley, per lb. | 1 0-2 0 |
| Beans, French, p. 100 | 2 0-0 0 | Peas, per quart | 3 6-0 0 |
| — broad, per lb. | 1 0-1 0 | Potatoes, new, per lb. | 0 6-0 9 |
| Beet, per doz. | 1 0-2 0 | Radishes, English, | |
| Cabbages, per doz. | 1 0-2 0 | long, per dozen | 0 9-0 0 |
| Carrots, per bunch | 0 6-0 9 | — English, Turnips, | |
| — New Fr., p. bun. | 2 0-1 0 | per dozen | 1 6-0 0 |
| Cauliflowers, per doz. | 2 0-5 0 | Rhubarb, doz. | 6 0-8 0 |
| Celery, per bundle | 1 6-2 0 | Shallots, per lb. | 0 6-0 0 |
| Chilis, per dozen | 1 0-1 0 | Spinach, per bushel | 2 6-0 0 |
| Cucumbers, each | 0 9-1 6 | Tomatoes, per dozen | 2 6-3 0 |
| Endive, per dozen | 2 6-0 0 | Turnips, new, bunch. | 1 0-1 6 |
| Garlic, per lb. | 0 6-0 0 | | |

POTATOS:—Old Potatoes getting scarce, and best samples advanced in price. Best, 160s. to 180s.; Champions, 100s. to 110s.; Rocks, 90s. to 100s. New stuff from Malta, 12s. to 14s.; Lisbons, 10s. to 12s.; Jersey Kidneys, 4d. to 5d. per lb.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|------------------------|-------------|
| Abutilon, 12 blooms | 0 6-1 0 | Narcissus, 12 bunch. | 4 0-12 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Pansy, 12 bunches | 2 0-6 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Pelargoniums, 12 spr. | 0 9-1 6 |
| Azaleas, 12 sprays | 0 4-1 0 | — zonal, 12 sprays | 0 4-1 0 |
| Bouvardias, per bun. | 1 0-4 0 | Polyanthus, 12 bunch. | 3 0-9 0 |
| Carnations, per dozen | 1 6-4 0 | Primroses, single yel- | |
| Cinerarias, 12 bunches | 6 0-12 0 | low, 12 bunches | 1 0-2 0 |
| Cowslips, 12 bunch. | 1 0-3 0 | — double white, 12 | |
| Deutzia, 12 bunches | 4 0-12 0 | bunches | 1 6-3 0 |
| Eucharis, per doz. | 4 0-12 0 | Primula, double, per | |
| Euphorbia, 12 sprays | 0 6-1 0 | bunch | 0 9-1 6 |
| Forget-me-not, 12 bs. | 3 0-9 0 | Ranunculus, 12 bun. | 6 0-9 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Roses (indoor), doz. | 1 0-9 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Stephanotis, 12 sprs. | 2 6-9 0 |
| Iris, 12 bunches | 6 0-12 0 | Tropeolum, 12 bun. | 1 0-3 0 |
| Ixia, 12 bunches | 6 0-18 0 | Tuberose, per dozen | 3 0-6 0 |
| Lily of Val., 12 sprays | 0 6-2 0 | Tulips, 12 blooms | 0 6-1 0 |
| Mignonette, 12 bun. | 6 0-12 0 | Wallflowers, 12 bun. | 4 0-6 0 |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Foliage Plants, vari- | |
| ardia æthiop., doz. | 9 0-18 0 | ous, each | 2 0-10 6 |
| Azaleas, per dozen | 18 0-60 0 | Fuchsias, per dozen | 6 0-18 0 |
| Begonias, per doz. | 6 0-18 0 | Genista, per dozen | 6 0-24 0 |
| Bouvardias, per doz. | 18 0-24 0 | Mignonette, per doz. | 6 0-9 0 |
| Cinerarias, per doz. | 6 0-18 0 | Musk, per dozen | 4 0-9 0 |
| Coleus, per dozen | 4 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Cyperus, per dozen | 6 0-12 0 | Palms in variety, | |
| Dracena terminalis | 30 0-60 0 | each | 2 6-21 0 |
| — viridis, per doz. | 18 0-24 0 | Pelargoniums, per | |
| Erica, per dozen | 9 0-30 0 | dozen | 12 0-24 0 |
| — ventricosa, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 4 0-12 0 |
| per dozen | 24 0-42 0 | Rhodanthes, per doz. | 6 0-12 0 |
| — Willmoreana, per | | Roses, per dozen | 12 0-42 0 |
| dozen | 9 0-24 0 | Saxifraga pyramid- | |
| Euonymus, var., doz. | 6 0-18 0 | alis, per dozen | 18 0-30 0 |
| Ferns, in var., p. doz. | 4 0-18 0 | Spiræa, per dozen | 6 0-24 0 |
| Ficus elastica, each | 2 6-15 0 | — palmata, per doz | 18 0-48 0 |

POTATOS.

The Borough and Spitalfields markets reports state that there have been full supplies, especially as regards foreign Potatoes, and trade has been rather heavy. Kent Regents, 120s.; Essex ditto, 85s. to 110s.; Scotch ditto 90s. to 120s.; Champions, 95s. to 105s.; Victorias, 120s. to 160s.; flukes, 140s. to 170s.; German reds, 90s. to 115s.; Belgian kidneys, 95s. to 100s. per ton.—The importation into London continues upon a moderate scale. During the past week 21,045 bags were received from Hamburg, 10,253 Stettin, 400 Bremen, 1560 bags 1504 packages Lisbon, 3620 bags Colberg, 309 barrels Gibraltar, 689 sacks Dunkirk, 186 bags Anwerp, and 50 Boulogne.

Government Stock—Consols closed on Monday at 98½ to 98½ for delivery, and 98½ to 99 for the account. On Tuesday the figures were 98½ to 98½ for both delivery and the account, and the closing quotations of Wednesday were, for both, 98½ to 99.—Thursday's business closed at 99½ to 99½ for both delivery and account.

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THE LONDON GROUND TOBACCO.

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GISHURST COMPOUND.—Used by many of the leading Gardeners since 1850, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

EWING'S MILDEW COMPOSITION, in bottles, 1s. 6d. and 3s. each; one-gallon cans (to make 104 gallons of mixture for syringing), 12s. each; two-gallon cans, 20s. each. Mildew or Red Spider are also effectually prevented or destroyed by merely painting the hot pipes with the composition mixed with whitewash; no direct application to the foliage is then necessary.

EWING AND COMPANY, Royal Norfolk Nurseries, Eaton, Norwich.

For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER.

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This Manure is unequalled in effect for speedy and certain action in producing desired results, the strength and quality being highly concentrated.

(Should be used by every one.)

For the convenience of consumers our Manure is packed in bags containing:—
1 cwt., 16s.; ½ cwt., 9s. 6d.; ¼ cwt., 7s.; 14 lb., 5s.; 7 lb., 3s. 6d.; 3½ lb., 2s. 4d.; Tin, 1s.

And may be obtained of all principal Nurserymen, Florists, and Seedsmen; or direct from the Works, by application to W. TRINDER, Chemical Manure Works, Stroud, Gloucestershire; or T. HARDY, 27, Crosby Hall Chambers, Bishopsgate, London, E.C. Agents wanted.

J. B. WOODS, 21, High Street,
Wandsworth, S.W. (Established 1729),
HORTICULTURAL BUILDER; GAS, STEAM, HOT-WATER and SANITARY ENGINEER.

Every description of Hot-water Apparatus on New and Improved Principles either for Horticultural or Mansion Purposes, Deep-Well Pumps, Baths. Estimates given and experienced Workmen sent to any distance on the most moderate terms.

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Hand Sizes—8 in., 42s.; 10 inches, 63s.; 12 inches, 84s.; 14 inches, 105s.; 16 inches, 126s.; 18 in., 147s. Carriage paid and 5 per Cent. discount.

Every Machine unconditionally warranted.

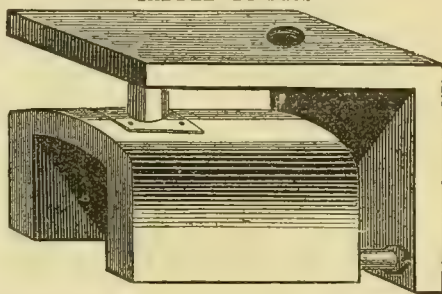
The Highest Prizes ever offered for Lawn Mowers, including Gold, Silver, and Bronze Medals too numerous to mention, were awarded to "The President."

THOMAS MCKENZIE AND SONS, Limited, 16, Holborn Viaduct, London, E.C.; Dawson Street, Dublin; and Victoria Street, Belfast.

Lawn Mowers.

LAWN MOWERS—LAWN MOWERS, of best makers. Price Lists on application. CROGGON AND CO., 42, Upper Thames Street, London, E.C.; and at Liverpool and Glasgow.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

| Sizes. | | | To heat of 4-in. Pipe. | Price. | |
|--------|--------|--------|------------------------|--------|-------|
| High. | Wide. | Long. | Feet. | £ | s. d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 | 0 0 |
| 20 " | 18 " | 24 " | 400 | 8 | 0 0 |
| 20 " | 18 " | 30 " | 500 | 9 | 0 0 |
| 24 " | 24 " | 24 " | 700 | 12 | 0 0 |
| 24 " | 24 " | 30 " | 850 | 14 | 0 0 |
| 24 " | 24 " | 36 " | 1000 | 16 | 0 0 |
| 24 " | 24 " | 48 " | 1400 | 20 | 0 0 |
| 28 " | 28 " | 60 " | 1800 | 25 | 0 0 |

Larger sizes if required.

From Mr. CHARLES YOUNG, Nurseries, Batham Hill, S.W., May 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

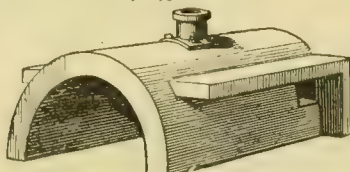
PRICE LISTS of HOT-WATER PIPES and CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

When ordering Boilers please refer to the above advertisement.

Silver Medal, 1874.

THE TERMINAL SADDLE BOILER.—First-class Certificate, 1867; Highly Commended, 1873; and First-class Certificate, 1875.



"This boiler possesses the rare merit of sucking all the heat from the fire."—*Gardeners' Magazine*, p. 254.

"I have no doubt the Best Boiler, that will burn any kind of fuel, is the Terminal Saddle."—*Journal of Horticulture*, p. 327.

"For moderate cost and real efficiency the Terminal Saddle is one of the very best."—*The Garden*, p. 95.

Prospectus post-free.

T. JONES, Temple Street, Manchester.

THE "STANLEY" GARDEN ENGINE.

Simple, Effective, Durable; Easy to Work; Cheap.

Prices—12 Gallons, £3 15s.; 30 Gallons, £6 10s.

Carriage Paid.

CATALOGUE ON APPLICATION.

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To Gardeners and Amateurs.

TEBBS'S UNIVERSAL FUMIGATOR for Greenhouses, &c., has proved to be the best yet introduced. No one cultivating plants under glass should be without one; they are cheap, durable, and thoroughly effective. 3s., 4s. 6d. and 7s. 6d. each; and Small Size for Frames, 3s. each. Wholesale—CORRY AND SOPER, Shad Thames, E.C.; and FLANAGAN AND SON, 98, Cheapside, London, E.C.; and retail of all Nurserymen and Seedsmen.

N.B. When you ask for this article (to prevent disappointment) see that you get it.

ANDERSON'S RUSSIA MATS,

For COVERING, TYING, and PACKING, are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. SACKS and BAGS of every description. TARPAULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

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MAT MERCHANTS and IMPORTERS.

All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description. RAFFIA FIBRE, NETTING and TIFFANY. TARPAULINS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

Wholesale Russia Mat Merchants.

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Rosher's Garden Edging Tiles.



THE ABOVE and many other PATTERNS are made in materials of great durability. The plainer sorts are specially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and once put down, incur no further labour or expense.

as do "grown" Edgings, consequently being much cheaper. GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets of Plain or more elaborate Designs, with Prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stair Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds. Roofing Tiles in great variety. Slates, Cement, &c. T. ROSHER AND CO., Brick and Tile Merchants. See Addresses above.

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N.B.—Orders promptly executed by Rail or to Wharves.

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—We try to be first, and we mean to be always first for colour, manufacture, and weather qualities.—"I think your pots far better than any I have had from other potteries." Mr. DART, Gt. to the Right Hon. Frances Countess Waldegrave.

Arborettes, Mignonette Boxes, Verbena Pots, Snail Guards, Moss Pots, Italian Baskets.

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| Inches. | Inches. | Inches. | Inches. | Inches. | Inches. |
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| | Inches. | Inches. | | | |
| 21-oz., Orchard House, | 20 x 12, 20 x 13, | 14s. 6d., 15s. 9d., | | | |
| | 20 x 14, 20 x 15, | 17s., 18s. | | | |
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15-oz., for Cutting up, 29s., 32s., 35s. per 300 feet case.

21-oz., for Cutting up, 29s., 32s., 35s. per 200 feet case.

LINSEED OIL, PUTTY, WHITE LEAD, OILS, and TURPENTINE, are very low in price at present.

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BELGIAN GLASS for GREENHOUSES, &c.,

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"ARCHIMEDEAN" AMERICAN LAWN MOWERS,

Will Cut Long and Wet Grass (as well as Dry and Short) without Clogging.

They are especially adapted for Cutting Slopes, Steep Embankments, under Shrubs, and close up to Trees, &c.; and are also extremely light in draught, simple in construction, well made, and not likely to get out of order.

AWARDED,

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PRICES FROM TWENTY-FIVE SHILLINGS.

Warranted to give satisfaction.

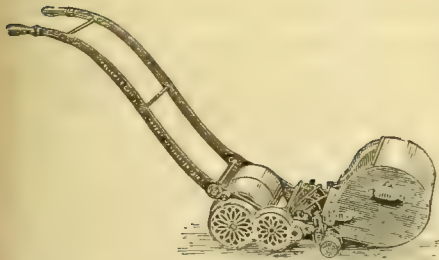
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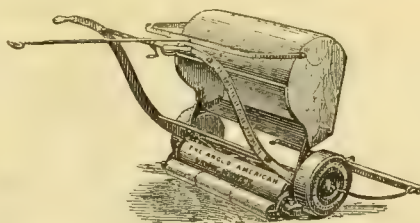
PATENT "CLIMAX," "CROQUET," "ROLLER," "PONY," and ROYAL PRIZE MEDAL "ANGLO-AMERICAN" LAWN MOWERS (From 25s. each).

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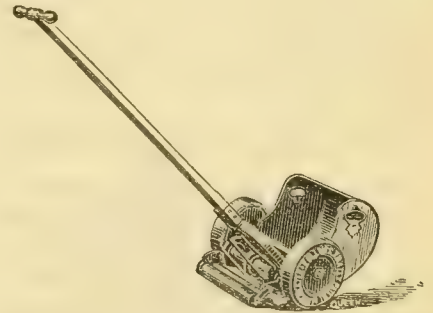
WITH IMPORTANT AND RECENT IMPROVEMENTS.



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Royal Prize Medal Patent "Anglo-American" Lawn Mower.

Between 40,000 and 50,000 of these celebrated Machines have been sold during the past few years.

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SIMPLE, STRONG, and DURABLE.

WILL COLLECT OR SCATTER THE GRASS.

THOUSANDS IN USE.

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DELIVERED FREE TRIAL ALLOWED

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The best Machines for General Purposes.

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The best Machines for Small Gardens and Amateurs.

Roller Machines, and will cut Borders.

Prices, 6 in. 30s., 8 in. 40s., 10 in. 50s.

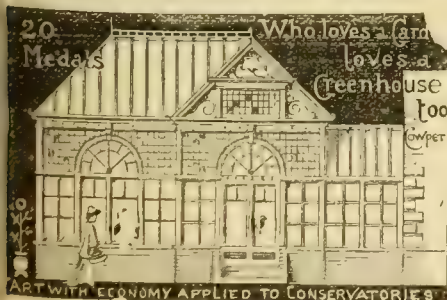
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The best Machines for Large Lawns,

Cricket Grounds, &c.

Made in six sizes, for Pony and Horse Power—2½ to 48 in.

Prices from £14 10s. to £32.



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Applied to Conservatories and Greenhouses.

With Illustrations, Prices, &c.

Part I., now ready. Post-free, twelve stamps.

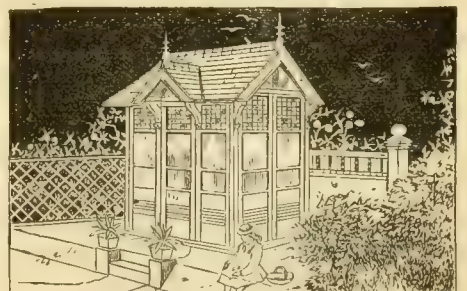
CHEAP ART-SUMMERHOUSES.

Illustrations and Prices Gratis.

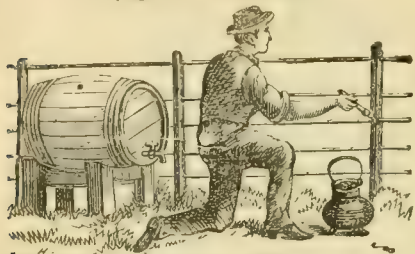
T. H. P. DENNIS & CO.,

MANSION HOUSE BUILDINGS, LONDON, E.C.

WORKS: CHELMSFORD.



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HILL AND SMITH'S BLACK VARNISH,
 for Preserving Ironwork, Wood, or Stone,
 (Registered Trade Mark.)



Is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

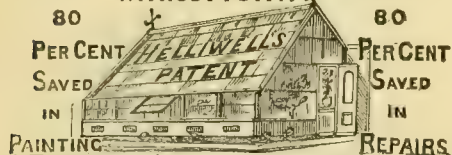
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"Pierrefield Park, June 21, 1878.—Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to Pierrefield Park, Chepstow.—I am, Sirs, yours respectfully, Wm. Cox."

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that it can ONLY be obtained DIRECT FROM THEM, and that every cask is legibly marked with their name and address, without which none is genuine.

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NEW SYSTEM OF GLAZING WITHOUT PUTTY.



No outside Painting is required. Old Roofs Reglazed.

"It is suitable for Railway Stations, Mills, Weaving Sheds, &c., but is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."—*Builder.*

"And will, in our opinion, supersede any other similar system before the public."—*Building News.*

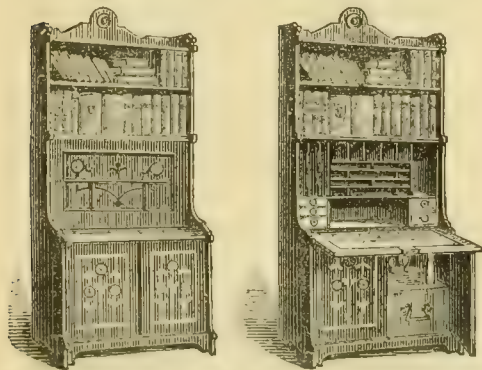
"It seems to meet the end in view more nearly than anything we have seen yet."—*The Field.*

7, Mark Lane, London, Nov. 14, 1878.

"DEAR SIR,—I cannot see what Testimonial you can require from me, than the fact that I have taken off all my putty glazings, and removed Rendle's work to replace it with yours. Any one seeing the two systems would say that yours is far the superior, and that nothing yet out can touch it.—Yours,
 "T. W. Helliwell, Esq., Brighouse. "W. R. PRESTON."

For Estimates, Drawings, or Particulars, apply to the Patentee.
 T. W. HELLIWELL, Brighouse, Yorkshire.

THE Salisbury Combination Secretaires. FOLEY'S PATENT.



No. 2 D. 6 ft. 9 in. by 3 ft. 3 in.

THE SALISBURY COMBINATION SECRETAIRES are adapted to all purposes and classes of society.

Combine the uses of Bookcases, Bureaus, China Cabinets, Cellaret, Sideboards, Escriitoires, Secretaires, &c.

Every part is utilised, the floor space is the same, whether open or closed.

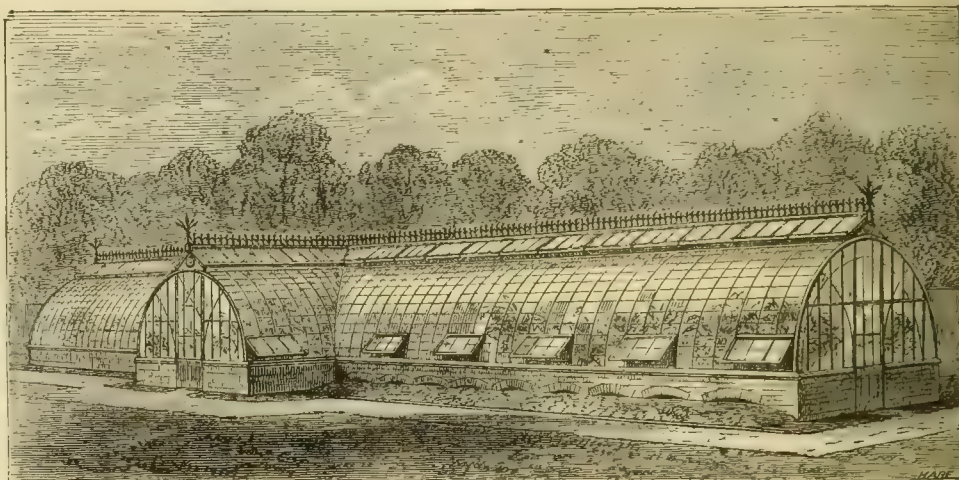
These Secretaires are elegant and original in design and construction, and destined to become the Cabinet of the age.

List of Prices and Illustrations of other Combinations can be obtained of the Patentee and Manufacturer.

ARTHUR FOLEY,
 FISHERTON MACHINE CABINET WORKS,
 SALISBURY.

LEGION OF HONOUR (Paris Exhibition): GOLD MEDAL.

W. H. LASCELLES,
 HORTICULTURAL BUILDER,
 121, BUNHILL ROW, LONDON, E.C.



RANGE of PATENT BENT WOOD CURVED VINERIES, PLANT HOUSES, &c., recently erected at Croydon.

These Houses are light, strong, durable, and of elegant appearance. Can be made as cheaply as a plain, straight House, and no Bent Glass need be used.

Illustrated Sheets sent, post-free, on application, and Estimates given without charge.

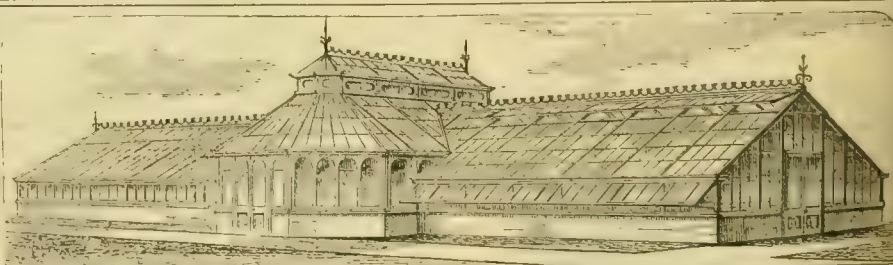


An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites infesting Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—*From Mr. D. THOMSON, Gardener to His Grace the Duke of Buccleuch, Drumlanrig Castle.*—"I duly received the jar of your Insect 'Annihilator' and sprayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied it to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into a reddish-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems 'done for' in about ten minutes, after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis, Dracenas, Marantas, and Crotons, and not one of these are in the least injured." *Sold in Bottles, containing one pint at 1s. 6d., 1 quart at 2s. 6d., and 2 quarts at 4s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each.*

SPEED'S VINE and ROSE MILDEW ANNIHILATOR.—An effectual and instantaneous destroyer of Mildew. It is perfectly harmless to the Grape Vine, the Rose, and the Peach, and may be applied to the most tender foliage. The fruit may be dressed with it in any state with perfect safety, even before the thinning period. It is non-poisonous to animals, although it is instantly destructive to all Fungi. It is simple and easy to apply, and may be rinsed off in ten minutes after its application, leaving no sediment, taste, or smell. It will be found of inestimable service in checking all disease caused by Fungi in the Rose, Grape, Peach, Hollyhock, Potato, &c. *Testimonial from ROBERT HOGG, Esq., LL.D., F.L.S., &c., Pomological Director of the Royal Horticultural Society.*—"I have great pleasure in bearing my testimony to the magical effect which your mixture has upon the Mildew of the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the foliage of the Vine, was so destructive and so instantaneous, as to leave no doubt on my mind as to its perfect efficacy in destroying the Mildew. On examining the foliage with a magnifying glass after the application, I could find no trace of the disease." *Sold in Bottles at 2s., 3s. 6d., 6s., and 10s. each; to make 1 quart, 1/2 gallon, 1 gallon, or 2 gallons, ready for use. Full directions for use enclosed with each bottle. Vaporisers for applying the Annihilator, 2s. each.*

N.B.—The "Parasite Annihilator" and the "Mildew Annihilator" are quite distinct preparations, and are prepared only by **ALFRED LOWE, Chemist, Chesterfield.** May be obtained through any Chemist or Seedsman. London Agents:—F. Newbery & Sons, W. Edwards & Son, J. Sanger & Sons, W. Sutton & Co., J. Veitch & Sons, Hurst & Son, Corry & Soper, Dick Radcliffe & Co.

Two Gold Medals awarded to us by the Royal Horticultural Society, at the



Grand Show at Preston, July, 1878, out of Fourteen Competitors.

Having extensive works, special machinery, and first class workmen, who have been many years in the trade, we are able to supply the very best class of buildings at an extremely low price. As we are the only firm in the kingdom that has ever been awarded Two Gold Medals by the Royal Horticultural Society, this will be some proof of the quality of our productions.

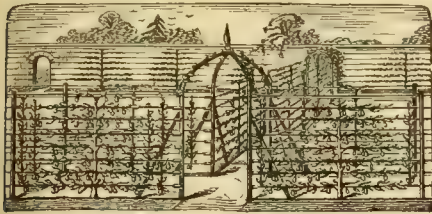
Our buildings are constructed so as to combine great strength, simplicity, and durability, with extreme lightness, and being made of the very best materials, will, with ordinary care, last a lifetime. The ventilators at top and bottom open the whole length with one handle to each series. The glass used is 21-oz. British sheet, and the paint the best genuine white lead and oil.

HEATING APPARATUS, with thoroughly reliable Boilers supplied and fixed in the most practical and efficient manner, and guaranteed to work economically and answer its purpose in all seasons. We devote special personal attention to this branch of our business, and have never had a failure.

Plans, Estimates, and Catalogues free. Customers waited upon in any part of the Kingdom.

R. HALLIDAY & CO., Royal Horticultural Works, MIDDLETON, MANCHESTER.

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IMPROVED ESPALIER FENCING AND WALL TRAINERS.

Estimates given free of charge for Espalier Trainers for Fruit Trees, &c. The Espalier can be easily fixed, wood or stone blocks being unnecessary. In writing for Estimates please give exact lengths required, with a rough sketch showing angles, if any.

FITTINGS for WIRING FRUIT WALLS.—Having a large stock, orders can be executed on receipt at reduced prices. Carriage Paid on Orders of 40s. value. Illustrated Lists, with full particulars, free on application.

WROUGHT IRON GARDEN ARCHES.

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No. 1.—This Arch is very strong, and suitable for training Creepers of any kind. Wrought Iron Frame, covered with stout galvanised Wire Netting, 7 feet high, 4 feet span, 2 feet wide, frame painted green, 15s. each.

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TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards 20s.; 4 yards wide, 6d. per yard, or 50 yards 20s.

NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; 1/4-inch mesh, 4 yards wide, 1s. 6d. per yard. TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.

LAWN TENNIS NETS from 16s. to 25s. **EATON and DELLER**, 6 & 7, Crooked Lane, London Bridge.



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CONTINUOUS BAR FENCING,

Iron Hurdles, Strained Wire Fencing, Field and Entrance Gates, Tree Guards, &c.,

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Catalogues free on application.

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Gardens and Conservatories fitted up with Wirework, &c.

Flower Stands.
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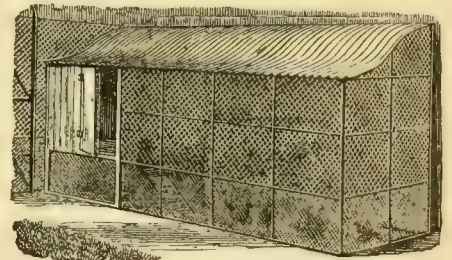
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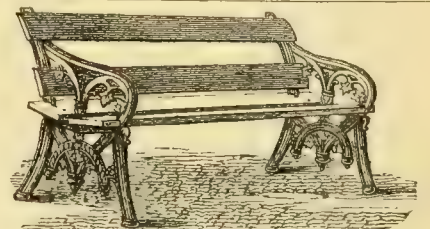
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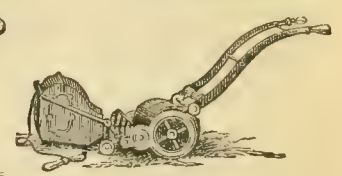
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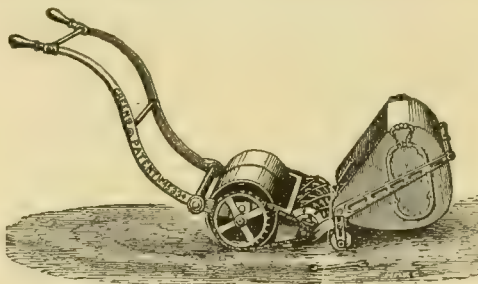
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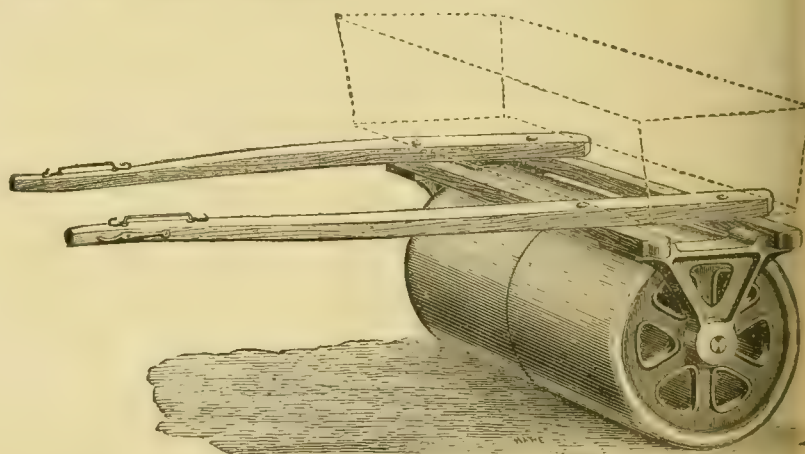
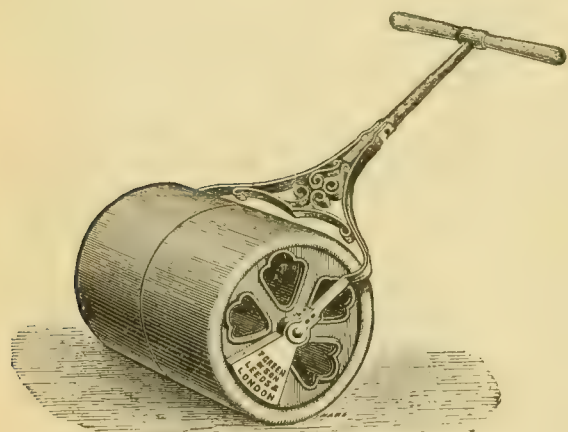
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| Calceolaria, the .. | 722 | Plants, new garden .. | 716 |
| Carpinus Betulus var. quercifolia .. | 716 | Polyanthuses, gold-laced .. | 726 |
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| Continental exhibitions .. | 724 | Poultry yard, the .. | 721 |
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| Exhibitors, erring .. | 726 | Rose, Cloth of Gold .. | 721 |
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| Fragrance, absence of, in flowers .. | 730 | Saxifraga peltata .. | 725 |
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| Garden operations .. | 722 | Reading .. | 733 |
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| Gorse, double-flowered .. | 730 | Manchester Botanical .. | 731 |
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| Light, action of .. | 727 | Strawberry, something new about the .. | 722 |
| London International Exhibition .. | 728 | "Summer Cloud" .. | 731 |
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| Masdevallia Backhousiana .. | 716 | Tropical fruits .. | 728 |
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| Melon nomenclature .. | 730 | Watch, a wooden .. | 724 |
| Muscats, setting .. | 730 | Water, can leaves absorb .. | 726 |
| Narcissus calathinus .. | 730 | Weather, the .. | 734 |
| Nettle, the, as a fibre plant .. | 716 | Winter, the .. | 730 |
| Wynnistay .. | 715 | | |

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
NOTICE.—COMMITTEE'S MEETINGS, FRUIT and FLORAL, at 11 A.M.; SCIENTIFIC, at 1 P.M.; on TUESDAY NEXT, June 10. Band of the Royal Horse Guards at 4 o'clock. Admission, 1s.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
THE COMPETITION FOR SPECIAL PRIZES offered by Messrs. Hooper & Co., John Laing & Co., James Carter & Co., and Sutton & Sons, will be on JULY 8, instead of June 24 as formerly announced.

RICHMOND HORTICULTURAL SOCIETY.
President—H.S.H. the DUKE of Teck, G.C.B.
THE FIFTH ANNUAL EXHIBITION of PLANTS, FRUITS, FLOWERS, &c., will be held in the Old Deer Park, Richmond, on THURSDAY, June 26, 1879.
ALBERT CHANCELLOR, Honorary Secretary.
2, King Street, Richmond, Surrey.

TORQUAY HORTICULTURAL SOCIETY.
The Committee have the honour to announce that their GRAND ROSE and SUMMER SHOW will be held on JULY 1. Prizes amount to £250. Entries close on Tuesday, June 24. Schedules and all information to be obtained from
W. FANE TUCKER, Capt., Hon. Sec. T.H.S.
Braddon Tor, Torquay.

THE ROSE SHOW at NORWICH
is POSTPONED to JULY 9 and 10.
Schedule of Prizes, upwards of THREE HUNDRED POUNDS in value, can be obtained from
Upper Surrey Street, Norwich. Mr. E. A. FIELD.

SHROPSHIRE HORTICULTURAL SOCIETY.
The ROSE SHOW announced to be held July 3, is POSTPONED to TUESDAY, JULY 15, at the Music Hall, Shrewsbury.
ADNITT and NAUNTON, Hon. Secs.

HORTICULTURAL SOCIETY of LIVERPOOL.
The SEVENTEENTH ANNUAL EXHIBITION of CHRYSANTHEMUMS and FRUIT will be held in St. George's Hall, Liverpool, on or about NOVEMBER 26, next. Schedules will be issued at an early date, and forwarded to all former exhibitors. For copies please apply to
R. WILSON KER, Hon. Sec.
6, Basnett Street, Liverpool.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.
The NINETEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Wallis's Rooms, on MONDAY, June 30, at a quarter to 7 o'clock. The Right Hon. the MARQUIS of HARTINGTON, M.P., in the Chair.
Dinner Tickets, 21s.; application for which must be made to the Secretary, at the Offices of the Institution, 26, Charles Street, St. James's, London, S.W.

Five Gold Medals, Paris, 1878.
CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Illustrated Catalogues gratis and post-free. Awarded Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.
CARTERS, The Queen's Seedsmen, High Holborn, London, W.C.

Beautiful New Plant.
MR. WILLIAM BULL has received a large importation from Western Africa of the handsome **HÆMANTHUS KALBREYERI**. It is now in blossom, and an inspection is invited. Price 10s. 6d. each. Special quotations by the dozen or hundred.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

ORCHIDS.—The most popular kinds, either established, semi-established, or imported. For particulars, see our Descriptive LIST No. 44, just published.
The NEW PLANT and BULB COMPANY, Colchester.

Iresine Brilliantissima.
F. AND A. SMITH offer the above New IRESINE, which is far in advance of any other variety. Strong Plants now ready, at 4s. per dozen.
The Nurseries, West Dulwich, S.E.

FRUITING PLANTS of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale.
THOMAS RIVERS and SON, Sawbridgeworth, Herts.

THE DESCRIPTIVE CATALOGUE of FRUIT TREES is now ready, and will be forwarded, free by post, on receipt of three penny stamps.
CATALOGUES of ROSES and ORCHARD-HOUSE TREES post-free on application.
THOMAS RIVERS and SON, Sawbridgeworth, Herts.

Vines—Vines—Vines.
J. COWAN, The Vineyard, Garston, near Liverpool, is now offering a large and splendid stock of strong, short-jointed, and thoroughly ripened GRAPE VINES, suitable for fruiting in pots and planting Vineries. Catalogues free. The Trade supplied.

Double White French Rockets.
R. MILLER, Milton Gardens, begs to offer strong flowering Plants of the above at 20s. per 100, or 3s. 6d. per dozen. Remittance from unknown correspondents. P.O.O. payable at
Milton, Stoke-on-Trent.

TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.
ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

Teosinte.
EUCHLÆNA LUXURIANS.—The New Forage Plant. Plant grows 6 feet high, leaves large and handsome, and are eaten greedily by horses, cattle, mules. A lovely garden plant.
In packets, post-free, 2s. 6d. each.
THOS. CHRISTY and CO., 155, Fenchurch Street, London.

Established upwards of a Century.
DICKSONS and CO., NURSERYMEN, SEEDSMEN, and FLORISTS, 1, Waterloo Place, Edinburgh, will be glad to send, post free, on application, their new Descriptive CATALOGUE of FLORISTS' FLOWERS, including early and late Phloxes, Bedding Violas and Pansies, Show and Fancy Pansies, New Primulas, Winter-flowering Zonal Geraniums, and all kinds of Bedding-out Plants.

MANGEL and SWEDE, Choice Stocks.—We can offer our thoroughly guaranteed Stocks, in 1878 harvest of above, at very low prices to the trade.
SANDER and CO., Seed Growers, St. Albans.

To the Trade.
ASPARAGUS, Giant, 1, 2, 3, and 4-year.
JAMES BIRD, Nurseryman, Downham.

ASPARAGUS PLANTS, Giant, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See Richard Smith's SEED LIST for 1879.
RICHARD SMITH, Nurseryman, Worcester.

Gentlemen's Gardeners, Amateurs, and Others
REQUIRING
GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

WANTED—ROSES, Maréchal Niel, and others; also CUT FLOWERS of all descriptions. Best market price by return.
H. STANLEY, Wholesale and Retail Florist, St. John's Market, Liverpool.

WANTED, ECHEVERIA METALLICA, also SECUNDA GLAUCA. State size and lowest price to
WILLIAM MILES, West Brighton Nurseries, Cliftonville, Sussex.

WANTED, the PRESENT ADDRESS of J. LAMBERT, late of Nuttal Park, Ripley. Any person sending us it will be Rewarded.
T. MILNER and SON, Nurserymen, Bradford.

SUTTON'S GRASS SEEDS for PASTURES, 21s. to 30s. per Acre. Carriage free.
SUTTON'S GRASS SEEDS for PARK GROUNDS, 17s. 6d. per Bushel. Carriage free.

SUTTON'S GRASS SEEDS for GARDEN LAWNS, 20s. per Bushel. Carriage free.
SUTTON'S GRASS SEEDS for CROQUET GROUNDS, 20s. per Bushel. Carriage free.

SUTTON'S PAMPHLET on LAWN MAKING and IMPROVING, gratis and post-free.

SUTTON AND SONS, The Queen's Seedsmen, and by Special Warrant to H.R.H. the Prince of Wales, Royal Berks Seed Establishment, Reading.

ROMAN HYACINTHS for the Trade, to be delivered in August, or later in the autumn. Special prices are given by correspondence. Early orders desirable.
E. H. KRELAGE and SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland.

Now Ready,
TWENTY THOUSAND DAHLIAS, in 400 varieties.
Price and CATALOGUE on application to
KELWAY and SON, The Royal Nurseries, Langport, Somerset.

VERBENAS—VERBENAS.—150,000, all strong, healthy Plants, of Purple, White, Scarlet, Crimson, Pink, and Rose, at 6s. per 100, 50s. per 1000; extra strong, 8s. per 100, 70s. per 1000. Package free for cash with order.
T. FLETCHER, Florist, &c., Chesterfield.

For Sale.
VERBENAS, strong, hardy plants, in good variety, 6s. per 100. Package free. Cash with order to
S. BIDE, Alma Nursery, Farnham, Surrey.

New English Roses.
CHARLES TURNER can now supply strong Plants of his fine new varieties. Descriptive LIST on application. Also Coloured Plates of his splendid new variety "Harrison Weir," sent on receipt of 12 stamps.
The Royal Nurseries, Slough.

Tea and other Roses in Pots.
WM. CUTBUSH and SON have a very fine lot of the above to offer, in all the best sorts. Prices on application.
Highgate, London, N.; and Barnet, Herts.

Now Ready.
CRANSTON and CO'S TRADE LIST of NEW ROSES for 1879.
King's Acre Nurseries, near Hereford.

TEA ROSES.—Tea Rose, Maréchal Niel, strong and healthy plants, in 6-inch pots, 20s. per dozen. Tea Roses of sorts, in 6-inch pots, 18s. per dozen. New Roses of 1879, Tea, Noisette, and Perpetual, 30s. per dozen. The above are now ready to send out.
THOMAS RIVERS and SON, Nurseries, Sawbridgeworth, Herts.

Pot Roses.
W. B. ROWE has some thousands of TEA and NOISETTE ROSES, in pots, unusually good; also some extra fine MARÉCHAL NIEL.
Price LIST on application.
Barbourne Nurseries, Worcester.

BETTERIDGE'S PRIZE ASTERS.—Twelve superb named varieties, including three splendid New ones of last season. Six of each (seventy-two plants) for 3s. LOBELIA, Brighton and St. Martin's Blue, strong Plants ready for the beds, 8s. and 10s. per 100.
J. J. MARRIOTT, Highfield Nurseries, Matlock Bridge.

NEW CATALOGUE.—For everything that is new, beautiful and rare, in the tree and shrub way, and for all those things that cannot be procured elsewhere, see above. Free on application.
RODGER, McCLELLAND and CO., 64, Hill Street, Newry.

To the Trade.
PTERIS SCABERULA.—The undersigned will be pleased to forward sample and price per dozen or 100 of the above beautiful Ferns.
TURNER BROS., Green Hill Nursery, Garston, Liverpool.

FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including JACKMANNI, &c., at 12s. to 30s. per dozen. Selection left to ourselves.
Descriptive CATALOGUES free on application to
WM. WOOD and SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

To the Trade.
CENTAUREA RAGUSINA COMPACTA.
J. J. MARRIOTT has a few hundred plants thoroughly established in single pots, to offer at a low price. Sample and particulars on application.
Highfield Nurseries, Matlock Bridge.

GARLIC, sound, to offer.—Sample and Price on application to
HURST and SON, 6, Leadenhall Street, London, E.C.

SALES BY AUCTION.

Established Orchids.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, June 11**, at half-past 12 o'clock precisely, a collection of Established ORCHIDS, comprising fine plants of *Vanda cœrulea*, *Dendrobium chrysotoxum*, *D. densiflorum*, *Cattleya lobata* superba, *Odontoglossum citrosimum* roseum, *O. grande*, *O. Wentworthianum*, *O. niveum*, and others; also ornamental new galvanised HANGING BASKETS of choice Ferns, *Dracenas*, Palms, and other Plants, all of which are in good healthy condition; a small collection of Choice ORCHIDS from the Continent, some fine specimen plants of *DISA GRANDIFLORA*, &c.

On view the morning of Sale, and Catalogues had.

Rare Brazilian Orchids, &c.

MR. J. C. STEVENS has received instructions from Mr. R. Bullen, of Lewisham, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, June 11**, at half-past 12 o'clock precisely, a splendid importation of the exceedingly rare and beautiful *ONCIDIUM DASYLE*, just received ex R.M.S.S. "Tamar," from Brazil. The Collector (Mr. H. Blunt), describes it thus:—"I have just found the greatest novelty I have seen in Orchids for years. The plant grows amongst the moss-covered trees, on the coldest parts of the mountains here. Flower thus—Lip all yellow, sepals and petals pale yellow, spotted or blotched with a chocolate colour approaching carmine. The column is a deep blue-black, very prominent and just the shape of a bee, and seems as though a black bee was resting in the centre of the flower. The plant is very free-flowering, many of the bulbs having two flower-spikes measuring from 18 to 24 inches in length, with numerous branches, covered with its lovely flowers." The plants offered are in splendid condition.

At the same time will be offered a fine importation, consisting of *Miltonia Morelana* (very rare), *M. cuneata* and *M. Clowesi*, *Warcewiczella violacea*, *Oncidium crispum*, *O. grandiflorum*, *O. curtum*, *O. Marshallianum* and *O. Forbesii*, *Sophranites violacea* and *S. grandiflora*, *Cattleya marginata*, *C. amethystoglossa* (supposed), *C. velutina* (very rare), *C. bicolor*, *C. amethystina*, *C. Leopoldii* and *C. candida*, *Lælia elegans*, *L. purpurata* and *L. Dayana*, *Compertitia coccinea*, and many other choice varieties. There are all splendid plants and in the best possible condition.

On view the morning of Sale, and Catalogues had.

Odontoglossum vexillarium, &c.

MR. J. C. STEVENS is again instructed by James Backhouse & Son, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, June 11**, a collection of valuable flowering and imported ORCHIDS, comprising amongst the flowering specimens some magnificent examples of *Odontoglossum vexillarium* in varieties of exquisite beauty; fine plants of the rare *Bollea celestis*, a strong plant of the grand *Masdevallia Chimera* (*Backhousiana* of Rehb.), good plants of *Pescatorea Roezlii*, &c. Amongst the imported Orchids will be found masses of *Odontoglossum Rossi* majus, probably larger than ever before offered; *O. Londesboroughianum*, *Epidendrum vitellinum* majus, the rare and beautiful *Barkeria elegans* and *Lindleyanum* (?), exceedingly fine masses of *Cattleya citrina*, *Epidendrum erubescens*, &c.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of Established Orchids.

The property of O. O. Wrigley, Esq., Bridge Hall, Bury, who is giving up cultivating.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, June 17, 18, 19, and 20**, at half-past 12 o'clock precisely each day, the valuable collection of Choice and Rare ESTABLISHED ORCHIDS, comprising many of the largest specimens and finest varieties in cultivation; amongst which will be found superb specimens of *Anguloa uniflora*, *Cyclopogon cristata*, *Calanthe veratrifolia*, *Cattleya exoniensis*, *Mendellii*, *Wagneri*, *Warneri*, *labiata*, *maxima*, *lobata*, *Mossie*, *gigas*, &c.; *Lælia purpurata* anceps, &c.; also magnificent specimens of *Phalenopsis*, *Angraecum*, *Dendrobium*, *Aerides*, *Calanthe*, *Cypripedium*, *Lycaste*, *Vanda*, *Thunia*, *Oncidium*, *Trichopilia*, *Saccolabium*, &c., with 450 plants of the choicest varieties of *Masdevallia Harryana*, *Lindeni*, *Veitchiana*, *Chimera*, *Ignea*, &c.; 250 plants of the finest varieties of *Odontoglossum vexillarium*, *Andersoni*, *Alexandra*, *Roezlii*, *Phalenopsis*, *cirrhosum*, *crispum*, *triumphans*, &c.; and large specimens of *Anthurium Scherzerianum*. The whole of the plants are in robust health, and in the finest condition.

On view mornings of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.; or of Mr. JOHN SHAW, 29, Oxford Street, Manchester—if for the country, by enclosing two stamps.

The Celebrated Collection of Plants at Dangstein.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, on the Premises, Dangstein, near Petersfield, on **TUESDAY, June 24**, and two following days, and **TUESDAY, July 1**, and following days, at half-past 12 o'clock precisely each day, this magnificent COLLECTION OF PLANTS, without the slightest reserve, comprising *Camellias* and *Azaleas*, Palms, *Dracenas*, *Crotons*, fine specimen *Gleichenias*, a most beautiful collection of Filmy Ferns, *Trichomanes radicans* in quantity, a grand plant of *Trichomanes tenifolium*, *Hymenophyllum demissum*, &c., *Anacochilus*, *Peperomia*, *Darlingtonia*, *Sarracenia*, *Platycerium*, &c.; also a choice assortment of Orchids, consisting of large plants of *Masdevallia towarensis*, *M. Veitchii*, *M. Harryana*, *Odontoglossum pulchellum*, splendid plants; *Cattleyas* of sorts, *Dendrobies* of sorts, extra fine plants of *Stanhopeas* of sorts, *Angraecum sesquipedale*, *Vandas*, and many other rare and valuable plants.

On view day prior and mornings of Sale. Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Conveyances on the days of Sale will meet at Rogate Station the train from Waterloo at 7 o'clock, arriving at Rogate Station at 9.15; also 9.30 from Waterloo, arriving at Rogate Station at 11.25; and meeting 5.11 and 7.29 trains back at Rogate Station.

Highly Important Sale of Stove and Greenhouse PLANTS, FERNS, &c., grown at Dornchurch.—In consequence of the Messrs. Fraser having resolved not to exhibit or compete, they have instructed

MR. MASSON, AUCTIONEER, to **SELL**, in the Music Hall Buildings, during the SECOND WEEK IN JUNE, their well-known Collection.

Catalogues and further particulars, with cards to view, may be obtained from Messrs. FRASER; or the Auctioneer, 115, Union Street, Aberdeen.

Choice Imported Orchids from Burmah and New GRANADA.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, June 10**, at half-past 12 o'clock precisely, by order of Messrs. H. Low & Co., fine IMPORTED PLANTS, in excellent condition, of *Odontoglossum Alexandræ*, *O. bicorniensis*, *Cypripedium caudatum*, *Trichopilia suavis*, *T. coccinea*, *Oncidium cheiroporum*, *Pescatorea cerina*, *Cattleya Trianae*, *Dendrobium tortile*, *D. crepidatum*, *D. primum*, and others. At the same time will be offered strong ESTABLISHED PLANTS of *Phalenopsis Schilleriana*, *Odontoglossum Roezlii*, *Dendrobium Wardianum*, *D. Bensoni*, *D. suavisimum*, *Cymbidium Lowianum*, *Aerides crassifolium*, *Vanda cœrulescens*, *Boxalli*, &c.

On view morning of Sale, and Catalogues had.

By Order of the Mortgagees.—Wood Green, N.

Within five minutes' walk of the Palace Gates and Wood Green Railway Stations.

IMPORTANT TO FRUIT GROWERS, NURSERYMEN, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will **SELL** by AUCTION, at the Mart, Tokenhouse Yard, E.C., on **MONDAY, June 9**, at 2 o'clock precisely, a valuable FREEHOLD ESTATE, known as "The Vineries," Wood Green, Middlesex, having important frontages of 212 feet to the Nightingale and Truro Roads, by a total depth of 315 feet, comprising a 6-roomed Cottage, with Coach-house and Stabling, Brick-built Offices, and other Outbuildings; also 8 GREENHOUSES, containing 18,000 feet super of Glass, fitted with all requisite appliances, and planted with nearly 500 established Vines and Peach Trees in fine bearing condition, heated by 4500 feet of Hot-water Piping. Title free and Land Tax redeemed. The Property is of the estimated rental value of £150 per annum, and offers (apart from its attractions as a going concern) an eligible opportunity to Builders and Others for a profitable speculation in the development of a building scheme.

Particulars, with Plans and Conditions of Sale, may be had at the Mart, of F. PARKER, Esq., Solicitor, Greenwich, S.E.; or of the Auctioneers, Valuers, and Estate Agents (of whom orders to view may be obtained), at their Offices, 93, Gracechurch Street, E.C.

MR. W. C. B. CAVE will **SELL** by AUCTION, at his Rooms, Moseley Street, Birmingham, on **FRIDAY, June 13**, at 1 o'clock, 600 Lots of STOVE, GREENHOUSE and BEDDING-OUT PLANTS, including grand Specimen and other Plants, fit for the very highest competition; *Pandanus Veitchii*, an extraordinary plant, splendidly variegated; *Marautas Veitchii*, *Makoyana*, *virginialis* major; *Dracenas* *Youngii*, *Baptistii*, *gloriosa*, extra fine plants; *Anthurium crystallinum*, the finest plant in England; Palms in great variety; grand pots of Lilies, probably unequalled; *Caladiums*, *Crotons*, *Gloxinias*, *Fuchsias*, *Pelargoniums*, and a large number of new and rare Plants. For full particulars of which, see Catalogues.

Entries for future Sales invited.

Bedfont, Middlesex.

To MARKET GARDENERS, LAND SPECULATORS, or OTHERS requiring a Site for a Public Institution, or for the Erection of Manufacturing Premises.—60 ACRES of FREEHOLD ORCHARD and MARKET GARDEN GROUND, with Foreman's Cottage, Stabling, Granary, Barn, Bunching and Loading Sheds, Onion and Fruit Lofts, Cattle Shed and Yards, known as the Nursery Farm, and situate on the high road to Stanwell, about half a mile from the picturesque village of East Bedfont, 2 miles from Feltham Station on the South-Western Railway, and 14 miles from Hyde Park Corner. With immediate possession if required.

MR. EDWARD SAUNDERS is instructed to **SELL** the above compact and valuable FREEHOLD PROPERTY, at the Mart, Tokenhouse Yard, London, E.C., on **FRIDAY, June 20**, at 2 o'clock precisely, in One Lot, which will include nearly 500 thriving Apple, Pear, and Plum Trees, and over 29,000 Gooseberry and Currant Bushes in full bearing, together with any Half-Dressings or other Tenants' Right and Fixtures.

Particulars can be had ten days prior to the Sale, at the "Bell" Inn, Bedfont; the "Queen's Head," Uxbridge; at the Auction Mart, London, E.C.; of SHELTON D. ASHBY, Esq., Solicitor, 9, Clement's Lane, Lombard Street, London, E.C.; and of Mr. E. SAUNDERS, the Auctioneer, 6, Bishopsgate Street Without, London, E.C.

Surrey (4554).

Within 4 miles of London Bridge.

TO BE DISPOSED OF, the valuable LEASE, GOODWILL, and STOCK of an Established NURSERY, comprising nearly 1 Acre of Ground, 16 Houses, and other Erections, admirably placed in a main thoroughfare, doing a good trade, capable of much extension. Details and price on application to

PROTHEROE AND MORRIS, Horticultural Auctioneers, 93, Gracechurch Street, London, E.C.

London (4648).

Twenty minutes from the City.

FOR SALE, an excellent NURSERY-MAN'S, FLORIST'S, and FRUITERER'S BUSINESS. Double-fronted Shop, Glass Erections, and half an acre of Land. Doing a good trade, capable of extension. Price about £400. Further particulars of

PROTHEROE AND MORRIS, 93, Gracechurch Street, E.C.

FOR SALE, a Small FLORIST'S BUSINESS, all Glass heated with hot water, well stocked; £150. Apply on the premises. W. FISHER, Myrtle Cottage, Green Lane, South Street, Greenwich, S.E.

Rhyll, North Wales.

TO BE LET, with Immediate Possession, about 10 STATUTE ACRES of most excellent FRUIT MARKET, and NURSERY GARDENS, admirably situated close to this rapidly increasing populous town. These Gardens, established 25 years, are tastefully laid out with good walks, noble high crowned Beech and other hedges, well stocked with the best assortment of fine, full bearing Fruit Trees, the produce of which find ready sale at high prices. There is also a productive Vinery, with Greenhouse and Pits, and a large stock of saleable Fruit Trees, Evergreens, Shrubs, Plants, &c., well adapted for the requirements of the district. A most favourable opening for a practical Man with moderate capital.

For terms apply to Messrs. JAMES DICKSON and SON, Chester; or to Mr. PETER BROWNE, Plastirion, Rhyll.

TO BE DISPOSED OF, an old-established SEED BUSINESS, through death of proprietor First-class position, Eastern Counties.

For particulars apply to Messrs. MILLER SON and STEVENS, Solicitors, Bank Chambers, Bank Plain, Norwich.

TO BE LET, CRANSTON'S NURSERIES

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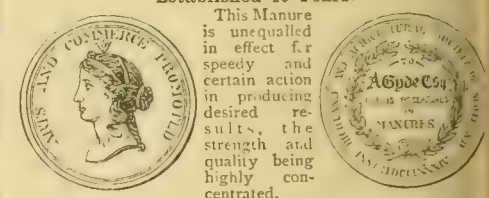
City Office: 8r, Bishopsgate Street Without, E.C.

H. J. LOWMAN, Sec.

For Flowers, Fruit, and Vegetables.

GYDE'S IMPERIAL FERTILISER

Established 40 Years.



This Manure
is unequalled in
effect for
speedy and
certain action
in producing
desired re-
sults, the
strength and
quality being
highly con-
centrated.

(Should be used by every one.)

For the convenience of consumers our Manure is packed in
bags containing:—

1 cwt., 16s.; ½ cwt., 9s. 6d.; ¼ cwt., 7s.; 14 lb., 5s.
7 lb., 3s. 6d.; 3½ lb., 2s. 4d.; Tin, 1s.;

And may be obtained of all principal Nurserymen, Florists
and Seedsmen; or direct from the Works, by application to
W. TRINDER, Chemical Manure Works, Stroud, Gloucestershire;
or T. HARDY, 27, Crosby Hall Chambers, Bishops-
gate, London, E.C. Agents wanted.

GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1850
against Red Spider, Mildew, Thrips, Greenfly, and other Blight
in solutions of from 1 to 2 ounces to the gallon of soft water, and
of from 4 to 16 ounces as a winter dressing for Vines and Fruit
Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen in Boxes, 1s., 3s., and 10s. 6d.
Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).



An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasite
infesting Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—From Mr. D. Thomson,
Gardener to His Grace the Duke of Devonshire, Devonshire Castle. "I duly received the jar of your 'Annihilator' as
sprayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied
it to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into
reddish-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems 'done for' in about ten minutes
after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis
Dracenas, Marantas, and Crotons, and not one of these are in the least injured." Sold in Bottles, containing one pint at 12s. 6d.
1 quart at 23s. 6d., and 2 quarts at 45s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each.

SPEED'S VINE and ROSE MILDEW ANNIHILATOR.—An effectual and instantaneous destroyer of Mildew. It is per-
fectly harmless to the Grape Vine, the Rose, and the Peach, and may be applied to the most tender foliage. The fruit may be dressed
with it in any state with perfect safety, even before the thinning period. It is non-poisonous to animals, although it is instantly
destructive to all Fungi. It is simple and easy to apply, and may be rinsed off in ten minutes after its application, leaving no se-
ment, taste, or smell. It will be found of inestimable service in checking all disease caused by Fungi in the Rose, Grape, Peach,
Hollyhock, Potato, &c. Testimonial from ROBERT HOGG, Esq., LL.D., F.L.S., &c., Pomological Director of the Royal Horti-
cultural Society. "I have great pleasure in bearing my testimony to the magical effect which your mixture has upon the Mildew
of the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the
foliage of the Vine, was so destructive and so instantaneous, as to leave no doubt on my mind as to its perfect efficacy in destroy-
ing the Mildew. On examining the foliage with a magnifying glass after the application, I could find no trace of the disease.
Sold in Bottles at 2s., 3s. 6d., 6s., and 10s. each; to make 1 quart, 1½ gallon, 1 gallon, or 2 gallons, ready for use. Full directions
for use enclosed with each bottle. Vaporisers for applying the Annihilator, 2s. each.

N.B.—The "Parasite Annihilator" and the "Mildew Annihilator" are quite distinct preparations, and are prepared only by
ALFRED LOWE, Chemist, Chesterfield. May be obtained through any Chemist or Seedsmen. London Agents:—F. Newbery &
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FLORVITA.

THE LIFE OF FLOWERS.

For Stimulating and Quickening the Growth of Plants, and producing a Rapid and High Development of Blossom.

Extract from Dr. Voelcker's Analytical Report, of June 7, 1878.

"The preparation is readily soluble in water, and perfectly free from all disagreeable smell, and it may be regarded as the concentrated essence of the most valuable manures, deprived of all the disagreeable smelling and useless products of partial decomposition which generally accompany ordinary manures."

Directions for Use.

One teaspoonful of the Florvita to be added to each gallon of water used.
The Plants should be watered with it three times a week or more.

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CHEMICAL LABORATORY, STOWMARKET.

Sold by all Florists and Seedsmen in the United Kingdom, in 1s. and 2s. 6d. Bottles, and in 18s. and 36s. Jars.

By Permission of the Hon. Board of Customs,
Free of Duty.

NICOTINE SOAP.

A NEW AND UNRIVALED INSECTICIDE
FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing properties, with perfect safety to foliage. No known blight can resist it, and it is the cheapest in the market.

Price, in jars, containing 8 oz., 1s. 6d., and 20 oz., 3s.; drums, 28 lbs., 25s.; and 2 c. sample jars, 6d. each. Two ounces sufficient for one gallon of water for ordinary use.

THE LONDON GROUND TOBACCO.

THE LONDON TOBACCO JUICE.

TOBACCO PAPER, CLOTH, and CORD.

Wholesale from the Manufacturers,

CORRY & SOPER,

SHAD THAMES, LONDON, S.E.;

And Retail from all Seedsmen and Florists.

EWING'S MILDEW COMPOSITION,
in bottle, 1s. 6d. each; one gallon jar, 10s.;
24 gallons of mixture for spraying, 2s. 6d. each; two gallon
cans, 20s. each. M. low 9s. 1s. 2d. are also sold, and
prevent or destroy mildew by means of the following with
the composition name well advertised, and no other preparation
to the full gets the name.
EWING AND COMPANY, Royal Norfolk Nurseries,
Luton, North.

Safe and Certain.

SIMPSON'S RED SPIDER
and THRIP ANTIDOTE. Per quart, 1s. 6d.; half
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Prepared by JOHN KILNER, Worcester, Shropshire.

FOOD to INCREASE the QUANTITY of
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HOARE, 7, Harmer Street, Grove end

LIGHTS for SALE. About 200 Lights,
6 feet by 4 feet; and about 20 ditto, 3 feet by 4 feet.
All Painted and Glazed. Nearly new. An offer wanted for
the Whole or Part. Can be seen at
33, Wells Street, Hackney, E.

A. & J. MAIN'S GARDEN FURNITURE.
Newest Designs and Best Quality.



Price Lists Free on application.
108, QUEEN VICTORIA STREET, LONDON, E.C.



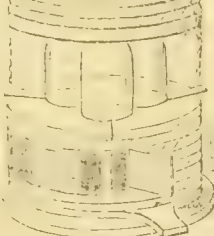
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Garden Furniture
IN
GREAT VARIETY.

Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and
Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows,
Wheelbarrows, Garden Tools, Fancy Wirework, Birdcages,
Hammocks, and all kinds of Garden Furniture at lowest marked
prices. Catalogues post free. 5 per Cent. for Cash.

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Gather Honey from Your Flowers.
NEIGHBOUR'S Celebrated BEEHIVES
PHILADELPHIA EXHIBITION, 1876
PARIS EXHIBITION, 1877.

Three Silver Prize Medals awarded George Neighbour & Sons.
The IMPROVED COTTAGE BEEHIVE, as originally in-
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is neatly and strongly made of straw; it has three windows
in the lower Hive. This
Hive will be found to
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other. Bees have that has
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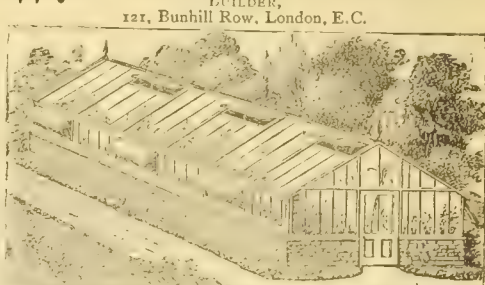
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HIVES of most approved
construction, at 7s. 6d.,
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Complete with Cover and
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An Italian Alp Queen,
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current prices.

LIGURIAN and ENGLISH BEES.—Stocks and swarms
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THE APIARY. BY ALFRED NEIGHBOUR. 5s., postage 5d.
A newly arranged CATALOGUE of other improved Hives,
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| Butt glazed 12 x 15-oz. sheet glass and painted 4 coats | 10 0 |
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J. B. WOODS, 21, High Street,
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HORTICULTURAL BUILDER: GAS, STEAM, HOT-
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Every description of Hot-water Apparatus on New and Im-
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Wholesale Russia Mat Merchants.

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ANDERSON'S RUSSIA MATS,
For COVERING, TYING, and PACKING,

are highly recommended for durability and cheapness. De-
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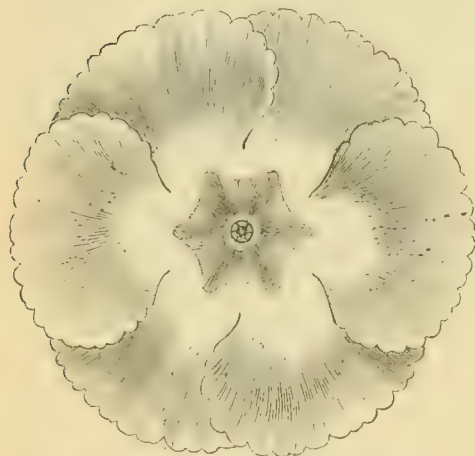
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SUTTON'S RUBY KING (New variety).
Large Silver Banksian Medal, Royal Horticultural Society, January 14, 1879, also a
First-class Certificate, Royal Horticultural Society, January 14, 1879.
"Most striking and magnificent in appearance."—*Gardeners' Chronicle*.
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| Deep Blood-Red. | Perfectly Distinct. |
| Per packet—s. d. s. d. | Per packet—s. d. s. d. |
| Ruby King .. 5 0 | Superb White 5 0 and 2 6 |
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"The Primulas from your seed I have never seen equalled."—Mr. A. BIRT, *Rodborough*.

SUTTON'S PRIZE CALCEOLARIA.
Perfection 5s. and 2s. 6d. per packet.
Little Wonder 5s. and 2s. 6d. per packet.
From the "Garden."
"The Calceolarias of Messrs. Sutton & Sons' Nurseries, Reading, are just now beautifully in bloom, and should be seen by all who take an interest in this class of plant. The strain is one of the finest, being the result of years of careful selection. Many of the individual flowers measures 2½ inches across, and are perfect in shape and colour."
"Your Calceolarias were really beautiful, and took first prize at Gosport Show."—Mr. N. WATERS, *Gr. to Sir E. Commerell*.

SUTTON'S PRIZE CINERARIA.
Sutton's Superb .. 5s. and 2s. 6d. per packet.
Sutton's Double .. 5s. and 2s. 6d. " "
Giant Hybrid 2s. 6d. per packet.
"Our Cinerarias this year were the admiration of every one."—Mr. E. LEWIS, *Gr. to J. H. Cadman, Esq.*

SUTTON'S PRIZE GLOXINIA.
Drooping Flowering .. 5s. and 2s. 6d. per packet.
Horizontal Flowering 5s. and 2s. 6d. " "
Erect Flowering 5s. and 2s. 6d. " "
Mixed 5s. and 2s. 6d. " "
From Mr. J. B. WARD, Lower Edmonton, April 8:—
"Gloxinias from your seed, raised last spring, just coming into flower, are perfectly marvellous. The flowers are 3 to 3½ inches in diameter, and the colour of the bloom is quite equal to your plates."

SUTTON'S PRIZE BEGONIA.
Sutton's New Double .. 5s. per packet.
Sutton's Single Hybrid .. 5s. and 2s. 6d. per packet.
POST FREE.

Sutton Sons

THE QUEEN'S SEEDSMEN,
And by Special Warrant to
HIS ROYAL HIGHNESS the PRINCE of WALES,
READING.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

VICTORIA AND PARADISE NURSERIES,
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TREE FERNS and PALMS.

THE LARGEST AND BEST STOCK IN EUROPE.
ALSO MANY OTHER



MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,
Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.
WILLIAM BULL, F.L.S.,
Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

BEGONIA DISCOLOR REX.
NEW HYBRIDS.

E. H. KRELAGE & SON,
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Beg to offer this new race of Begonias, of which they have fine young plants ready to be sent out.

These Begonias were recently obtained on the Continent, and gained First Prizes for Novelties at Bordeaux in 1877, and Versailles in 1878. They have the properties of their parents, the vigour, the rusticity, the elegant bearing, the flowering, and the tuberous-rooted character of B. DISCOLOR, with the variegated leaf of the varieties of B. REX.

They are recommended for Flower Beds in the Garden, as well as for Market Plants and Drawing-room Decoration. The following varieties are to be had:—

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| Madame Svahn | | each | 10 6 |
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The Set of Seven Varieties, £2 10s.

THE USUAL DISCOUNT TO THE TRADE.

N.B.—Prices in the advertisement of *Gardeners' Chronicle*, May 31, 1879, p. 681, were erroneously quoted.

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Now Ready, a thoroughly Revised Edition of the

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ORIGINALLY COMPILED BY THE LATE SIR JOSEPH PAXTON, M.P.

Price 3d., Post Free 3½d.

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GLASS BOUNDARIES FOR NEW GARDENS.

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SUCCESSOR TO
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Will be pleased to take Measurements and submit Plans and Estimates for Glass Boundaries of any extent.

THE ROOFS INVENTED BY THE LATE
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are especially suited for this purpose, and were so planned by him as Span-roofs, on South, East, and West Sides, and as Lean-to or Semi-Span-roofs on the North.

Boundaries so arranged are no more expensive—frequently less—than building high Brick or Stone Walls, and then covering them with Lean-to Roofs of half the width only; they answer the purpose of protection equally well; look much better—as they can be varied in outline, or combined with houses of other forms and construction; are most useful (supposing a portion only is heated) as Orchard-houses or Cold Ranges for the growth of Vegetables, Hardy Flowers, Roses, &c., to keep up a succession with those grown in the open; and are used and recommended by many eminent Gardeners.

CONSERVATORIES AND GLASS SCREENS (OF AN ORNAMENTAL CHARACTER),

For Pleasure Gardens, similarly arranged, or connected with Kitchen Winter Garden, so as to form a pleasant promenade in wet or cold weather.

Perfect Ventilation and high-class Materials and Workmanship guaranteed.

For fuller particulars see the SHILLING HANDBOOK (60 pages and 28 Illustrations of Glasshouses, Heating, &c.); or the PAMPHLET (with Views and Testimonials), for three stamps.

REDUCED PRICE LIST now out of the Portable and Economical Paxton Roofs, carriage paid to any Station in England or Scotland from London and Country Works. Apply only to

B. W. WARHURST,
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Hot-water Apparatus fixed complete.

THE PARIS EXHIBITION of 1878.

GOLD MEDAL AWARDED.



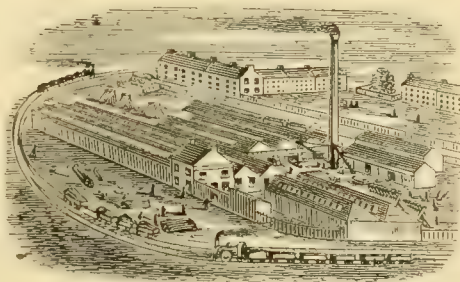
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Hothouses, Churches, Mansions, Public Buildings, Harness Rooms, &c.,

PAISLEY.



HEATING APPARATUS

Erected complete, or the Materials supplied at Moderate Prices.

ILLUSTRATED CIRCULARS POST-FREE.

Complete Catalogue, 3s.



SATURDAY, JUNE 7, 1879.

WYNNSTAY.

SIR WATKIN WILLIAMS WYNN is described in Burke's *Baronetage* as the first commoner in Wales. His family have long enjoyed the advantages of possessing popularity as well as pedigree, and a fine estate.

You enter Wynnstay from Ruabon, and find before you a long avenue of lofty Limes, which is crossed as you approach the house by another avenue of Oaks and Chestnuts. The Sir John Wynn Oak—a mighty structure, and not quite a ruin yet—stands in the park on the left. The bole measures 12 yards round at several feet from the ground, and runs up high. Two pretty stories about this tree are the presentation to Lady Williams Wynn beneath its branches, of a bible, by her friends and neighbours, and the daily visit paid to the Oak by Sir John Wynn in the last century. The tree was then 1000 years old probably, and Sir John was ninety; he was blind, and could not see his favourite Oak, but he liked to be led daily to the spot where the old tree grew that he might feel it with his hands.

The park is as beautiful as Lord Hill's, at Hawkstone, Salop, and more extensive. There are 600 red and fallow deer. If you are a stranger visiting Wynnstay in the absence of the owner, and if an intelligent curiosity has led you to the place, you should walk up the avenue from the Ruabon lodge to the gardens, and there introduce yourself to Mr. Middleton, who is a gardener quite worthy of holding office under the first commoner of Wales. The walled gardens are as large as any private grower of fruits and vegetables could desire. The houses are as old as you would wish your port to be, and they have not improved by the lapse of time. Mr. Middleton does well with the materials at his disposal, and I walked through many houses, where all looked well except the houses themselves, which are shaky. Many of the Vines, unfortunately, have suffered from a very bad attack of Phylloxera.

A fernery in the gardens is well contrived of limestone and spar, and contains a capital collection of British Ferns. A pleasure-garden and shrubbery on the east side of the house breaks the keen wind blowing from the plains of Shropshire. The flower-garden, on the south front, is limited to a narrow strip of geometrical parterre as a fringe between the park and house. Sir Watkin says he likes the grass best, and he may be right. Can any foreground, immediately beneath the windows, be better than the greensward which forms England's carpet? You can have all the colours of the rainbow, I know, in harmony and contrast, all very gorgeous, under the plan of bedding-out, for four months in the year, more or less, during the period when Parliament is sitting, and Sir Watkin is in town, or on the moors, or away at his summer residence, at Llangedwyn, in the valley of the Tanat.

The house, built since the fire in 1858, is in the style of a French château. The Welsh word *croesaw*, welcome, is inscribed upon the threshold. Looking across the park from its highest tower you will see a true border landscape, rich in fertile dales and wooded hills, with the bare Welsh mountains beyond. The view looks straight into the Vale of Llangollen, and in the opposite direction there are valleys

of almost equal beauty running towards Wrexham and Chester. Chirk Castle, in the distance, beyond the viaduct across the Dee, might have been built to adorn the prospect from Wynnstay. It is an old castle, but still a residential house, the abode now of Mr. Myddleton Biddulph. Wales, having been one of the most brave and turbulent little countries, required numerous castles in and after the reign of Edward I. to hold it tight, and several of these castles are seen from the various points of vantage at Wynnstay—from the house, from the Waterloo tower and two other towers in the park, and from the high ground generally. The Dinas Bran Castle, or Crow Castle, is one of these, and is possessed, it is believed, of a curious history, which lends it a romantic interest, though no one can unravel what the history may be. Even the name is involved in obscurity. Is it derived from the Bran, a stream running near? or from King Brennus, who is supposed to have lived here? because the name of the castle may have been derived from his. Bran Castle stands on a conical hill at the entrance to the Valley of Llangollen, and is seen from almost everywhere. Chirk Castle looks out from among trees, and all the neighbouring eminences are crowned with timber as high as the limit of trees on the slopes of the Berwyns, whose spurs approach Wynnstay, and run into the Valley of Llangollen.

The timber of Wynnstay and of the vast estate beyond the park is magnificent, and the country owes a debt of gratitude to the late Sir Watkin, who planted on the little hill, a larger mountain-spur near Llangollen, 80,000 Oaks, 63,000 Spanish Chestnuts, 102,000 Spruce Firs, 110,000 Scotch Firs, 90,000 Larch, 80,000 Ash, 40,000 Sycamores, and many Elms. This plantation won for him a gold medal from the Society of Arts.

The present Sir Watkin is, like his father, a distinguished agriculturist. He has been President of the Royal Agricultural Society of England, and is still a member of the Council. As a sportsman he is in Wales pre-eminent, and in England distinguished. His family have hunted and kept hounds since the first invention of fox-hunting in the merry reign of Charles II. His grandfather was killed in the field when hunting his own pack. His father hunted unrestrained by any definite boundary over half-a-dozen Welsh and border counties, and Sir Watkin excels his predecessors in the patronage of the noble art. He owns a stud of seventy horses, and a double pack of sixty couples of hounds.

I am passing perhaps beyond my proper limits. In leaving Wynnstay I was taken through a charming shrubbery ("the Bath Grounds"), which brought me to a gate within a stone's-throw of the railway station. H. E.

New Garden Plants.

LÆLIA VIRENS, Lindl.

This was in Dr. Lindley's hands, in 1843 perhaps. It was published in *Bot. Rev.* 1844, Misc. 2. And there is a single not well expanded flower in our herbarium. I never understood why it did not reappear, and the flower looking very indifferent I finally suspected that it was some abortion, as they occur often enough. When giving the Orchids in Walpers's *Annales*, vi., I expressed the belief that it was a *Lælia xanthina*. No, it is not. Finally, in February last, I was so very lucky as to get the desired thing. I received it with open heart and hands when it appeared in its box, and recognised it at first sight. A short spathe, 1½ inch high, not 1 inch broad, and two flowers looking out, with ovaries and perigone much like those of *Lælia cinnabarina*, but with a narrow white three-lobed lip, and except this greenish-yellow that is the thing, just a genuine *Lælia*. I am sorry I cannot call it a beauty, but a first-class rarity it is. It is believed to have been bought at Mr. Stevens' great rooms under the name of *Cattleya luteola*: that is a genuine *Cattleya*, and has a circular lip. I have to thank for the great pleasure of seeing this plant that nobody

has had in flower for thirty-six years, my excellent and persistent correspondent, Sir C. W. Strickland, of Hildenley, Malton, Yorkshire.

A plant called *Lælia virens*, Lindl., forming part of an old collection where some of Loddiges' Orchids had been, fell lately into my hands when visiting the rich establishment of Messrs. Haage & Schmidt at Erfurt. It just looks like a small *Lælia crispa*, and this was what was stated by Messrs. Loddiges to Dr. Lindley. *H. G. Rehb. f.*

MASDEVALLIA BACKHOUSIANA, n. sp. (n. var. ?)*

This is a grand Chimæroid. It is coloured much like the well known *M. Wallisii* (the usual Chimæra of gardens), but the colours are much brighter and the flower much larger, excelling in having a very long narrow lip of colour of our northern prize with strong teeth on both sides, and not a broad but an acute sinus at the top. I hope it is constant and without connecting links to *Wallisii*. If those should appear it would have to be regarded a variety; but as it is now it appears to be a distinct species in a group where there is no great variety in colour. It comes from the wild interior of New Granada, and is dedicated with pleasure to the happy possessors, Messrs. Backhouse, of York. *H. G. Rehb. f.*

MASDEVALLIA HARRYANA LETA.

Of this, the rosy-purple variety of the well-known species, I have a wonderful, probably unique, specimen at hand—a two-flowered peduncle, the main axis bearing a second well-developed flower at a distance of 4 inches. It comes from Burford Lodge, Dorking, from Sir Trevor Lawrence's glorious collection. *H. G. Rehb. f.*

ODONTOGLOSSUM HALLII, Lindl., *XANTHOGLOSSUM*.

The typical *Odontoglossum Hallii* has a white lip. So great was Dr. Lindley's belief in the colour of the lip that he named one section *Leucoglossum*, another *Xanthoglossum*. Now our species affords a most remarkable instance of exception as to the constancy of colour of that organ. Mr. F. C. Lehmann, the excellent traveller, has already stated (see the Orchidæ Lehmannianæ in my *Oria Botanica Hamburgensis*, p. 21) that there are two varieties in colour. There is also a memorandum sent by Mr. Sander, of St. Albans, kept in my herbarium, stating that where Mr. Wallis had never seen but the white-lipped *Hallii*, Messrs. Klaboch stated the same organ to be yellow. This yellow-lipped variety is just at hand, sent by Captain Hincks, Breckenborough, Thirsk.

THE CUT-LEAVED HORNBEAM.

CARPINUS BETULUS VAR. *QUERCIFOLIA*.

THOSE who have visited the romantic island of Ruegen can scarcely have failed to pay a visit to the well-known park of Putbus, which, though not so rich in evergreen shrubs and trees as English parks, is one of the most beautiful spots I have seen. There stands on the extended lawn a fine old tree of the above named Hornbeam, and as it struck my attention very much I hope that a short description may be interesting. In its curious composition of branches, some with normal leaves and others with abnormal ones, it offers a very extraordinary aspect. The stem measures about 33 feet in height, and shows at about a yard from the base a circumference of about 5 feet. It begins to ramify at a height of about 5 feet, forming in this way a magnificent umbrella, which almost reaches the ground, and occupies a circumference of 100 feet or more. The normal leaves are oblong-ovate, biserrate at the margin, and about 4 inches in length (9 to 10 centimetres). The abnormal leaves are always much smaller (4 centimetres long, and only 3 centimetres broad), mostly obtuse, very seldom acuminate, the incisions reaching almost the midrib, and there are generally three, rarely four lobes on each side. These characteristic small leaves cover all the abnormal fertile branches, whilst on the sterile branches the lower leaves approach often in size and contour to the normal ones. The bracts on the branches with abnormal leaves are also irregularly formed. As to the distribution of the two kinds of branches they are mixed in all parts of the crown, but the Oak-like ones prevail; on two-year-old branches we find the lower shoots often with normal, the upper with abnormal leaves. If the growth of the branches

is very vigorous the normal form of leaves predominates, those with abnormal leaves are always shorter jointed, and covered earlier and more densely with lichens. The supposition seems to be, that this formation of Oak-shaped leaves is due to arrest of growth, of which, however, the causes are unknown. The whole type of the Putbus tree is certainly the Oak-leaved, with numerous tendencies to the normal form, far more numerous, as on the well known forms of Beeches, Alders, and Limes, with lacinated leaves.

In horticultural literature little is said of this curious form. Professor Karl Koch, referring to some earlier writers, states that it was already known in the second half of the last century (*Dendrologie*, vol. ii., 1873). In Aiton's *Hortus Kewensis*, and in the *Arboretum Britannicum* of Loudon, we find it mentioned as the varieties *incisa* and *heterophylla*; Desfontaines designates it *quercifolia*, and Lamarck speaks of *Carpinus Betulus quercifolia, foliis pinnatifido-angulosis*. It is a pity that there is no history of the Putbus tree, but it is supposed by some that an Oak-leaved branch of a Hornbeam, growing in a wild state, has been grafted on one of the trees of this park. It has not yet been ascertained whether this variation is hereditary, but as the tree bears quantities of seeds every year I shall try to make this out. G—E.

PEPEROMIA PROSTRATA.

ALTHOUGH a most extensive genus, but very few of the species of *Peperomia* are to be found in cultivation in this country, the best known of these being *P. argentea*, *P. argyrea*, *P. arifolia*, *P. maculosa*, *P. resedæiflora*, and *P. Verschaffeltii*. Mr. B. S. Williams has, however, made an excellent addition to the number, in the form of a pretty slender-growing plant, with round variegated leaves, produced on long thread-like rhizomes, which he is now sending out under the name of *P. prostrata*, and which as a stove basket plant will, we think, be welcomed by all plant lovers. Its general character is well shown in the accompanying illustration (fig. 102), kindly placed at our service by Mr. Williams.

THE CULTIVATION OF THE NETTLE AS A FIBRE PLANT.

THE common stinging Nettle (*Urtica dioica*) has again come forward as a fibre plant for textile purposes. This time the Germans have taken the plant in hand, and a commission of inquiry instituted by the Prussian Minister of Agriculture have recently drawn up and presented their report. This commission seems to have considered the subject in its widest scope, including in their review the China grass and other well known fibre-producing Nettles. The cultivation of the plants as well as the manipulation of the fibre appear also to have come under notice. Experiments made with *Urtica dioica* are stated to have proved incontestably that the importation of foreign fibre plants is a thing unnecessary, "as the native stinging Nettle (*Urtica dioica*), growing wild anywhere, would be found quite sufficient for the purpose, the same having been ascertained to produce some of the most excellent spinning fibres." Samples of fibre and of manufactured stuffs, both machine and hand-made, machine and hand-made yarns, twine, ropes, &c., as well as of bleached fibre suitable for paper-making, have all been submitted for inspection to the Department of Agriculture. When properly prepared the resemblance of Nettle fibre to that of cotton is said to be very great and to have "excited universal surprise and admiration." As an illustration of the earnestness with which this contemplated industry is being prosecuted it is announced that one paper mill has been established in East Prussia for making paper entirely from Nettle fibre. The cleaning and preparing the fibre for textile purposes seems to be as yet only in the experimental stage, the present system, which is similar to that adopted for Hemp, is described as being too wasteful.

Our contemporary, *Land and Water*, in a recent issue gave an article on the subject of Nettle cultivation in Germany, from which we learn that it has been recommended that the young plants and slips should be placed in rows about 30 centimetres apart (about 12 inches), and at distances of 33 centimetres between the plants; at this distance they will soon cover the soil. Weeding and digging—provided the ground has at first

* *Masdevallia Backhousiana*, n. sp. (n. var. ?) (Saccilabratæ). Aff. *M. Chimæra* et *Wallisii*: sepalis ovato triangularibus; tepalibus minutis minute denticulatis, medio triangulari incassatis; ceterum argute pinnatis; labelli angulis baccæ geminis carnosissimis erectis utrimque argutis, limbo oblongo saepe elongato angustissimo involuto denticulato, cymis per distichum terminatis, ramulis externis carinatis, cymis in denticulatis; limbo prægredientibus lobis uteris. *H. G. Rehb. f.*

been properly prepared by deep ploughing and a profuse supply of manure—will be necessary the first two years only. The plants will require no further care, but simply manuring the soil every two years. A Nettle plantation laid out in this manner will prove sufficiently productive for a period of from twelve to fifteen years. The cultivated space will assume the appearance of a permanent plantation similar to a Hop garden—a circumstance which, combined with an entire avoidance of any further outlay for keeping the soil in producible condition, will thus present considerable advantages. As the Nettle seems to

In the district of Schwalbach in Bavaria, a regularly worked plantation has been established. For the manipulation of the fibres a similar plan is adopted as with Hemp. "The first gathered harvest proved good above expectation, the products derived from it being of a remarkably fine condition. The two looked as fine as silk, the textures themselves did not cede in any way either in respect to durability or excellence to those produced from Hemp. Extensive tracts of woods have in consequence been marked out by the chief ranger of the forests and woods, and designated for the cultivation of the Nettle. Numerous enquiries

According to the *Textile Manufacturer*, experiments conducted in a field near Berlin proved that a plant sown last year had acquired in the autumn of the same year a height of 3 or 4 feet; it was, however, too much branched to be of much use for fibre. This year, however, the plants are said to look much better, being in some instances 5 feet and more high, and with fewer branches.

Whether these efforts to convert a neglected roadside weed into a useful economic plant will be crowned with success, remains yet to be seen.

CLASSIFIED LIST OF THE KNOWN SPECIES OF APICRA AND HAWORTHIA.

BEING engaged this present summer working at the Aloineæ, I shall be glad to compare any specimens which your correspondents want naming or to hear of any new forms in addition to those contained in the London collections. I am prepared to admit four genera, which are briefly characterised as follows, and in the present paper I will give a classified catalogue of the species and varieties of the two first with which I am acquainted.

| | |
|--|------------|
| Flowers whitish. Style short. | |
| Perianth-tube elongated; limb regular. | APICRA. |
| Perianth-tube short; limb bilabiate. | HAWORTHIA. |
| Flowers bright red or yellow. Style elongated. | |
| Perianth declinate; tube ventricose below, cylindrical above, cuneate at the base; segments short. | GASTERIA. |
| Perianth straight, cylindrical, truncate at the base; segments long. | ALOE. |

Genus APICRA.

Group I. Leaves typically 5-farious.

* Leaves with a few raised tubercles on the back.

1. *A. pentagona*, of which *spirella*, *spinalis*, and *bululata* seem to be mere varieties.

Leaves not tubercled on the back.

2. *A. imbricata*.

3. *A. deltoidea*. A new species, figured and described *Bot. Mag.*, t. 6071.

Group II.—Leaves always multifarious.

* Leaves smooth on the back.

4. *A. foliolosa*.

5. *A. congesta*.

** Leaves scabrous, with raised tubercles on the back.

6. *A. aspera*.

Genus HAWORTHIA.

Section 1.—*Caulescent Haworthias*. Rosette of leaves lengthened out.

Group I.—*Triquetrae*. Leaves in three straight symmetrical rows.

1. *H. cordifolia*.

2. *H. asperiuscula*.

3. *H. viscosa*.

4. *H. concinna*.

Group II.—*Tortuosae*. Leaves in three distinct spirally-twisted rows.

5. *H. subtortuosa*.

6. *H. torquata*.

7. *H. subrigida*.

8. *H. tortuosa*.

Group III.—*Papillosae*. Leaves multifarious, furnished with copious white tubercles.

Tubercles large and prominent.

9. *H. Reinwardtii*.

10. *H. papillosa*.

** Tubercles small and subimmerged.

11. *H. coarctata*.

12. *H. Greenii*. A new species, yet undescribed, allied to the last.

13. *H. eminens*. Also new and undescribed.

Group IV.—*Hybridæ*. Leaves multifarious, rough, with small raised concolorous papillæ.

14. *H. hybrida*.

15. *H. rigida*.

16. *H. nigra*.

Section 2.—*Margartiferous reticulate Haworthias*. Rosette of leaves short. Leaves furnished with pearly dots, not toothed at the edge.

Group V.—*Margartiferae*. Characters as in Section 2. Tubercles on the back of the leaf running into distinct cross-bands.

17. *H. fasciata*.

18. *H. attenuata*, and var. *clariperla*.

** Tubercles large and irregularly seriate.

19. *H. margaritifera*.

var. *granata*.

var. *erecta*.

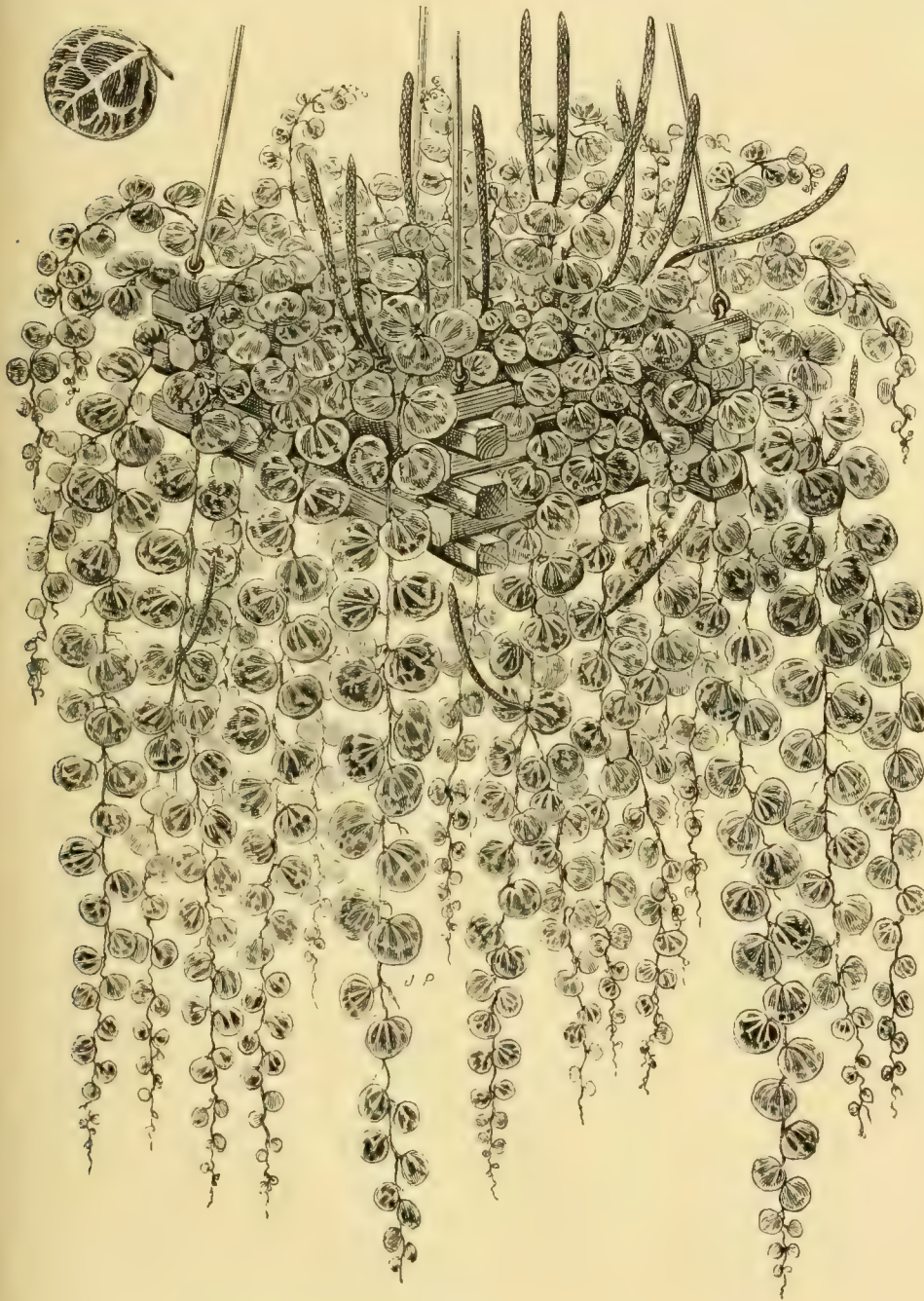


FIG. 102.—PEPEROMIA PROSTRATA, HORT. (SLE P. 716.)

luxuriate mostly in shady spots, it is proposed to plant fruit trees in the plantations. "Whether the Nettle plant will be found to be sucking up the moisture of the soil too quickly, will have to be ascertained by further experiment. This is, however, very unlikely, as the Nettle in its wild state has been known to grow for centuries past to a height of from 6 to 10 feet, and upon an extent of several acres, although the same may, for feeding purposes, have been repeatedly cut and gathered in. The cutting and reaping of the Nettle—in order to ensure a proper technical manipulation of the fibres—must take place before the ripening of the seed; thus, any fear of the Nettle spreading into neighbouring fields may be dismissed."

have been made from all parts of Germany, Hungary, and from Switzerland, respecting the most practical methods for its culture." Over and above all this, we further learn that the Prussian Minister of Agriculture has ordered that samples of the Nettle products, from the raw materials to the finest textures, should be deposited in the Agricultural Museum at Berlin and at the Industrial Museum of Cassel. The landowners in the Wetterau district, and the members of the Agricultural Club of Frankfurt, have also decided upon setting apart an acre of ground for Nettle cultivation, to prove that it can be produced with great advantage upon any average soil and well tilled ground,

20. *H. subfasciata*.
 21. *H. subattenuata*.
 22. *H. glabrata*.
 23. *H. semiglabrata*.
 24. *H. subalbicans*.
 *** Tubercles small and very copious, both on back and face, irregularly scattered.
 25. *H. rugosa*.
 26. *H. Radula*.
 27. *H. subulata*.
 var. *perviridis*.
 var. *concolor* runs this group into the *Virescentes*.

Section 3.—*Rosulate entire-leaved Haworthias*. Rosette of leaves short. Leaves without any pearly dots, and not toothed at the edge.

Group VI.—*Virescentes*. Leaves coriaceous, uniform in texture.

* Leaves smooth.

28. *H. albicans*, of which *ramifera* is a variety.

** Leaves scabrous.

29. *H. scabra*.
 30. *H. scrida*.
 31. *H. virescens*.
 32. *H. icosaphylla*.
 33. *H. Tisleyi*. This and the last new, and undescribed.

Group VII.—*Recurvæ*. Leaves much recurved, limbed and lineate towards the tip.

34. *H. reticulata*.
 35. *H. cymbæfolia*.
 var. *planifolia*.
 36. *H. limpida*, Haw., of which *mucronata*, Haw., and *altilinea*, S. D., are varieties.

Section 4.—*Rosulate toothed-leaved Haworthias*. Rosette of leaves short. Leaves edged with teeth or bristles.

Group VIII.—*Chlorocanthæ*. Prickles minute. Leaves dull green, uniform in colour.

37. *H. chlorocantha*.
 38. *H. stenophylla*.
 39. *H. angolensis*. A species not known in cultivation, discovered by the late Dr. Welwitsch in Angola.

Group IX.—*Tessellate*. Prickles minute. Leaves thick, recurved, tessellated all over the face.

40. *H. tessellata*.
 var. *parva*.
 41. *H. distincta*.

Group X.—*Denticulate*. Prickles minute. Tip of the leaf limbed and lineate.

42. *H. atrovirens*.
 43. *H. keteivirens*.
 44. *H. mirabilis*.
 45. *H. denticulata*.
 46. *H. bilineata*.
 47. *H. affinis*. This and the last two new species sent lately by Mr. McGibbon to Kew.
 48. *H. polyphylla*. New and undescribed.
 49. *H. subregularis*. A discovery of Mr. Cooper's, figured from the Saunders' Collection, see *Ref. Bot.*, t. 232.

Group XI.—*Pallide*. As the last group, but the prickles larger.

50. *H. translucens*.
 51. *H. vittata*. A new species from the Saunders' Collection, figured in *Ref. Bot.*, t. 236.
 52. *H. pallida*.
 53. *H. symmetrica*. A new species, yet undescribed, sent by Mr. Corderoy to Kew in 1874.
 54. *H. pilifera*. A new species from the Saunders' Collection, gathered by Cooper, figured in *Ref. Bot.*, t. 234.
 55. *H. Cooperi*. As the last. Figured in *Ref. Bot.*, t. 233.
 56. *H. minima*. New and undescribed.

Group XII.—*Arachnoideæ*. As the last, but the prickles very large ($\frac{1}{12}$ — $\frac{1}{8}$ inch long).

57. *H. arachnoides*.
 58. *H. setata*.
 59. *H. Bolusii*. A new species, with very long subulate prickles, yet undescribed, sent by Mr. Bolus to Kew in 1872. *J. G. Baker*.

NORRIS GREEN.

NORRIS GREEN, the seat of Mrs. Pemberton Heywood (see p. 725), is situated above 5 miles from Liverpool, and is reached by omnibus, which starts from Liverpool Exchange to West Derby village. The drive from Liverpool to the village of West Derby commands a view of a fine tract of country, densely wooded, and owned principally by the Earls of Sefton and Derby. The mansion, which is of the Italian style of architecture, is approached from West Derby village by a beautiful and well-kept drive, with an irregular belt of trees and shrubs on either side. The lodge is a commodious and well appointed residence, which might well be taken as a model of what such places should be both for utility and comfort, and before reaching the lodge there is a row of excellent cottages for the workpeople, which bear every appearance

externally of what undoubtedly the late Mr. Pemberton Heywood intended them to be internally, namely, models of cleanliness and comfort. The shrubs on either side the drive are confined chiefly to Hodgins' Hollies and the hardier class of *Rhododendrons*, as unfortunately the more tender class of shrubs and delicate *Coniferæ* do not thrive in the district. At one end of the drive leading to the stable-yard there is a road which has direct communication with the main thoroughfare and the stable-yard, and there are two walks starting from this point, one sweeping away to the left, to what was once the flower garden (but which is now an American garden owing to the family residing at Cloverley, their Shropshire seat, in summer), where there is a magnificent conservatory (see p. 725), probably the finest glass structure of the kind in the North of England, but certainly the finest within a large radius of Liverpool.

The other walk, winding to the right, leads the visitor into an enclosed yard, where there are several plant-houses and ranges of useful pits and frames. Leaving this enclosure on the right, we come to a small Italian garden, provided with a range of vineries on the south wall, the garden being separated from the enclosure referred to by a thick belt of ornamental trees and shrubs. At the back of this garden is the principal fruit garden, but we will for the present retrace our steps to the American garden before referred to, and note the principal objects of attraction there and in the conservatory at its extremity, as well as in the pleasure-grounds adjacent thereto. The American garden is in the shape of a parallelogram, and is a sunk garden on the south and west sides, the terrace and walk around it being from 4 to 5 feet above its level, with a beautifully trimmed Holly hedge running parallel with the walk.

The garden itself is tastefully laid out and planted with a choice selection of the finest hybrid *Rhododendrons*, edged with hardy *Heaths*. The conservatory is a square ridge-and-furrow structure, 70 feet long by 40 feet wide, and is a noble and spacious glass erection. There are doors at both sides and at both ends, opposite to each other, with walks leading from each door and intersecting each other in the centre. There is also a walk extending round the house, and a staging from 3 to 4 feet wide all round the house next to the glass for pot plants. The house is efficiently heated with hot-water piping, which is laid under the side stages and paths and covered with metal grids, which are kept in first-rate order. At the entrance opposite the American garden, where the centre walk cuts the house crosswise, there are two large ornamental vases on either side of the walk for plants, which are kept filled with flowering plants in their season, and which has a very good effect.

The roof was at one time covered with climbers, which, however, acted so injuriously upon the splendid collection of *Camellias* planted out beneath them, that it was deemed prudent to have them removed (except one *Clematis indivisa lobata*, which still covers a portion of the roof), thereby giving the *Camellias* a better chance of developing and extending themselves, as well as giving better facilities for good order and cleanliness. The principal attraction in the house is of course the grand collection of choice *Camellias*, which are either planted out or plunged in the borders in pots. The planting-out was performed on a first-rate principle, viz., that of having the border partitioned off into narrow allotments, which enables the gardener to remove a plant or two when it is necessary without disturbing its neighbours; this is an excellent plan and one that cannot well be commended too forcibly to the consideration of intending planters. The plants have all been trained as pyramids, and at the time of our visit were in full flower, and were a sight well worth seeing, being in capital health, as evidenced by the deep green leaves and the natural characteristic of each flower being present in its best form and development. The principal varieties in the collection are as follows:—*Alba plena*, *Imbricata rubra*, *Fimbriata*, *Chandleri*, *Donckelaari*, *Catherine Longhi*, *Rubens*, *Frankfurtensis*, *Margueritta Guillon*, *sasanqua rosea*, *Lady Hume's Blush*, *Jenny Lind*, *Mathotiana alba*, *Reine Louise*, *Tricolor*, useful for cutting; *Weltoniensis*, *Carolina*, *compacta alba*, *Aitonii*, *Chelsoni*, *Princess Bacciochi*. There are also one or two natural standards of the old *reticulata*, with its beautiful *Pæony*-like flowers, which give relief to the formal trained specimens around it, and the old *Habrothamnus elegans* is quite at home planted out in several places on either side the centre walk, which

cuts the house lengthwise; this plant, with its drooping branches, was evidently intended for creating a natural appearance, as well as for dressing the pillars which support the house. Here also is the lovely *Luculia gratissima*, planted out—a plant that is found so difficult to grow in many places, but which is quite at home at Norris Green, and likely to yield a wealth of flowers next winter. There are also, in addition to the plants already mentioned, some fine trained specimens of *Azaleas*, several I noticed of *Fielding's White*, an old variety, but so useful for cutting, plunged out in the border, in pots, and judiciously mixed with the scarlet-coloured *Camellias* along the sides of the walks for the sake of giving effect.

The side stages were brilliant with seasonable plants in flower, and here I may remark, that with such a conservatory to keep gay, and with such a demand for cut flowers, it is exceedingly creditable to Mr. Bardney, the energetic head gardener, that he is able to supply such a wealth of floral beauty all the year round from the comparatively limited number of plant pits and houses at his disposal: however, a good deal depends upon the resources in a person who is invested with such a charge, and the way that labour and material are utilised and organised. The plants in flower included half-specimen and smaller plants of choice *Azaleas*, chiefly those that have been introduced within the last few years, and which are characterised by the size, substance, and distinctness of their flowers; also *Spiræas*, *Ghent Azaleas*, *Deutzias*, *Epacris*, trained *Mignonette*, *Salvia Heerii*, *Rhododendrons multiflorum* and *Gibsoni*, and other hybrids, *Lilies of the Valley*, *Dielytra spectabilis*, *Callas*, double *Poinsettias*, and a fine lot of the old but beautiful *Begonia manicata*, which, as a decorative plant, or when its flowers are cut and used for purposes of table or room decoration, cannot be surpassed; certainly in a case such as I am describing, where there is a great length of flat staging to deal with, it is invaluable for producing an effect, its graceful and pendent habit rendering it a suitable subject for associating with plants of dwarf compact habit, such as *Primulas*, *Cinerarias*, &c.

I have been kindly furnished by Mr. Bardney with a list of small plants that are required annually for the decoration of this conservatory, which will convey to the reader a better idea than any that I could give of the extent to which plant-growing is carried on at Norris Green, most of which has to be done in pits and forcing-houses, where other crops are grown as well. *Lilies of the Valley* come into flower in November, from plants that have been forced in the previous spring, and are kept growing inside till the weather is genial enough to turn them out-of-doors, where they are plunged and nursed and tended carefully, in order to have them in good condition for early forcing the following winter. There are 250 hybrid perpetual *Roses*, 250 *Spiræas*, 5000 bulbs of sorts, *Rhododendron præcox*, *multiflorum* and *Gibsoni* in quantity; 400 *Pelargonium Vesuvium* for winter flowering, 150 *Poinsettias*, 300 *Begonias* of sorts, 100 *Celosias* for winter flowering, 400 *Primulas*, 200 *Mignonette* in 6-inch pots, sixty trained plants, 100 *Plumbago rosea*: this is an especial favourite for winter flowering, and a grand effect is produced from well-grown healthy plants. The common white *Pink* of gardens is also grown in quantities for spring flowering, by inserting a number of cuttings thickly in 4-inch pots in an open mixture of soil and sand in the autumn, and protecting them in cold frames through the winter, and introducing them into the Rose-house after the turn of the year, when they are placed on a shelf near the glass, where they produce a good supply of their delicate white flowers from six weeks to two months afterwards.

Coming out of the conservatory at the north side, the visitor enters a long stretch of pleasure-ground of rather a formal character, which is in a measure the result of the trees and shrubs not doing so well as was anticipated. What seemed to have been once a fine row of specimen *Araucarias* has become very ragged, and the belt of trees on the west side has also been cut up by the east winds, although they are protected at some distance off by a fine plantation of forest trees. At the extreme end of this plot is a fine specimen of *Pinus excelsa*, which rivets the attention of the visitor, and from this point a winding walk curves gently round to the east side of the house, and takes the visitor back to the fruit garden and forcing-houses.

On our way back to the fruit garden from this side there is another well-kept plot of pleasure-ground,

which is thickly enclosed on the south-west and north sides by belts and clumps of shrubs and trees, which appear to have been judiciously selected in order to withstand the keen east winds which prevail in this district during the spring months. A row of trimmed evergreen Oaks along the walk-side has been severely handled this winter, but not permanently injured, and a small lake encircled by trees is conspicuous from this part of the grounds, from the part it plays in attracting the eye to a vast tract of country which, regarded from a landscape point of view, is striking in the extreme. Several fine plants of *Yucca gloriosa* are planted between the evergreen Oaks, and seem to thrive regardless of weather. We have now approached a narrow walk which leads into the principal fruit-garden, which is hidden from view of the pleasure-grounds by a thick belt of trees and shrubs. In this garden are the principal ranges of forcing-houses. The garden is enclosed by a good brick wall which is furnished—the north wall, on the south side, by a fine range of Peach-houses; the east and west walls with Pears, Apples, Cherries, &c.; and the south wall, on the north side, by a range of commodious and well-appointed sheds and offices, together with young men's rooms, fruit-room, &c.; and on the south side is a range of lean-to vineries with the Italian garden already referred to in front. The fruit garden is devoted exclusively to the cultivation of the choicer kinds of hardy fruits, which succeed exceedingly well on account of the sheltered position of the garden.

The Peach-houses are four in number, with a corridor in the centre; they are efficiently heated with hot water-pipes, and I may here state that the late Mr. Pemberton Heywood spent from a £1000 to £1300 in laying down two large boilers which heat all the forcing and plant-houses and the potting-shed, which are somewhat scattered at either extremity and in the centre of the garden, and the connecting of which from one point was a work of considerable magnitude. The houses are each 63 feet long, and are lean-to houses opened at the front by machinery, and provided with a flag path, which is always clean. About 2½ feet from the back wall there are hanging shelves for Strawberries, of which there are nearly 2000 plants forced; and the back wall and front trellis are well covered with Peach and Nectarine trees. The varieties are what may be called old, if that appellation be a correct one, as there are few of the so-called newer kinds that have as yet proved their claim to supersede the old ones, such as Royal George, Early York, Early Grosse Mignonne, &c. The trees are in good health and bearing fine crops, which is the safest way of retaining vigour in hard-forced trees, and the late houses promise well also. The borders were covered with hundreds of bulbs and other plants for forcing, and the back wall of the late house (No. 4) is covered with Fig trees. From these four houses a good supply of early and late Peaches is procured, there being little, if any, chance of successfully cultivating the peach out-of-doors in this part of Lancashire.

The corridor in the centre is kept gay with flowering creepers and other plants in season, the borders being planted with *Selaginella Kraussiana* *en masse*.

The next house is a span-roofed Rose-house running north and south; the house is 40 feet long, 4 feet wide, with a stage and walk all round and a bed of soil in the centre. There is a neat wire trellis laid over the bed, upon which the Roses are trained. The selection is made so as to have a supply of Roses all the winter: the varieties are as follows:—Safrano, Rubens, Niphotos, Goubault, La rosea, Marie Van Houtte, Madame Levet, Duchess of Edinburgh, Marie Sisley, Archimede, Adam Falcot, Adrian Cristophle, Souvenir d'un ami, Devoniensis, Catherine Mermet, La Marque, and Madame Hippolyte Jamain. The side stages are occupied with flowering scented Pelargoniums and Begonias, and the shelves are filled with pots of the common garden Pink coming into flower as before referred to.

On the right hand side of this house is an early nery of unequal span running east and west. The house is 50 feet long and 16 feet wide. The Vines are temporary ones, and the house is crowded with ants for forcing and a batch of French Beans coming into use, hardly giving the Vines a chance of succeeding as they otherwise would do. At the east end of this house is another small nery, a late house, span-roofed, running north and south, and there is a small range of span-roofed pits led with Strawberry plants for forcing, placed

between the Rose-house and the vineries. This house is planted with Lady Downe's and Alicante Vines, which supply useful Grapes which hang till after Christmas, and are then bottled. The borders are inside, and the roots are more under control on that account. The Vines were not started at the time of our visit, but the house was not idle for the time being, being filled with Vallotas, Cinerarias, Epacris, and Mignonette, in small pots for late flowering.

We now leave this garden by a door at the south-east corner and enter the Italian garden, where are the principal range of vineries with a large hard-wooded plant-house in the centre. The vineries are in process of being renewed. No. 1 is planted with Black Alicante and Lady Downe's. No. 2 is a large "projecting" lean-to plant-house, filled with an assortment of Azaleas, Epacris, Heaths, Chorozemas, Aphelexis, and other hard-wooded plants; the front stage is filled with a collection of useful flowering Pelargoniums, Kalosanthes, and a miscellaneous collection of other plants, chiefly for supplying cut flowers. No. 3 is a Muscat-house, where the Vines are being extended, in order to encourage vigorous root-action, which was deficient when the present gardener took charge. The Vines have made good short-jointed canes, and give promise of yielding a supply of useful Grapes. No. 4 is a Black Hamburgh-house, which was planted with young Vines last year, and is intended for early forcing. The Vines were planted last July, and have made capital canes.

The next and final portion of the glass department is divided from the Italian garden by a thick belt of shrubs, as described in the early part of my remarks. The houses, which are three in number, are situated in the centre of an enclosure, which is approached from the back entrance: and there is a circular range of pits around the enclosure, and another running parallel with the houses (east and west) for forcing Potatoes, Radishes, and other vegetables, and for growing Melons and Cucumbers in the summer.

The first house is a span-roofed plant stove 50 feet long by 20 feet wide, with a water tank underneath the centre stage, and a stage and path all round. The climbers on the roof are Allamandas, grown in pots and planted out, Bougainvilleas and Stephanotis; and the foliage plants are principally pyramidal-trained Crotons for a centre row, and backed up with Alocasias, Dieffenbachias, and some of the newest type of Dracaenas. Flowering stove plants are, however, of most importance, and they comprise Phajus grandiflora, specimen Gardenias covered with buds, Pancratiums, Eucharis amazonica, and flowering Begonias, also a few useful Orchids, which should some day form a nice collection where rare flowers are in such demand. No. 2 is a forcing-house used for forcing flowers in winter, and for Melon growing in summer, and No. 3 is filled with pot Vines, which were carrying from six to eight bunches apiece, which were expected to be ripe from the middle to the end of April.

From here there is a walk leading to the outside of the fruit garden, the outer wall of which is covered with horizontal and oblique-trained Pear trees. This walk connects itself at its extremity with another walk leading to the ice-house and the gardener's cottage; the latter is a comfortable dwelling, within easy reach of the garden, and almost beside the main thoroughfare, and is situated at an angle of a large garden, and chiefly for the cultivation of standard fruit trees of sorts, with Raspberries and other small fruits growing underneath; in fact, it might be called a medley garden, for there are scraps of everything from which the gardener may choose a few pets without encroaching upon his allegiance to duty owed to his employer. The plantation of Lavender, so beautiful when in full flower, the squares of herbaceous plants, the plots of alpine, or the dressing or training of orchard Roses, is sure to come in for a good share of leisure attention. These are conditions under which the gardener's life may be called enjoyable, not like those who are "caged," so to speak, out of sight in some "dingy corner" from which they are hidden from the outer world unless when performing their daily toils.

The kitchen garden is detached from the other portions of the gardens, and is well cultivated and cared for—indeed the keep of the entire place is creditable throughout; and under such a liberal employer as Mrs. Heywood, combined with the perseverance and industry of Mr. Bardney, the head gardener, the gardens at Norris Green are not likely to lack in interest to the visitor for a long time to come, and perhaps may be even better known in the future than they have been in the past. *Visitor.*

MEXICAN AND CENTRAL AMERICAN ORCHIDS.

(Continued from p. 686.)

- NANODES, Lindl., Bot. Reg., t. 1541. Besides this doubtful species there is one from Brazil.
N. sp. n.? Guatemala (Skinner, in Hb. Kew).
NOTYLIA, Lindl., Bot. Reg., sub t. 930. About eighteen or twenty species, dispersed from Mexico to Bolivia, West Indies, and Brazil.
N. albida, Kl., Allg. Gartz. 1851, p. 281; Bot. Mag., t. 6311; Gard. Chron. 1856, 280; 1870, 987; viii., 1877, 300. Central America.
N. Barkeri, Lindl., Bot. Reg. 1831, Misc., 168. Mexico.
N. bicolor, Lindl., Benth. Pl. Hartw., p. 93; Bot. Mag., t. 5609. Guatemala.
N. Huegeli, Fenzl, Denkschr. Oester. Akad. i., p. 255; Walp. Ann. iii., p. 553. Mexico.
N. multiflora, Hook., Lond. Journ. Bot. iii., p. 315, t. 10. Mexico?
N. orbicularis, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 26. Mexico.
N. pentachne, Rchb. f., Bonpl. ii., p. 90; Xenia, i., t. 20. Veragua, Panama.
N. tridachne, Lindl., MSS., in hb. suo. Tridachne virens, Liebm. (ined.?). Guatemala.
N. triseptala, Lindl., Paxt. Fl. Gard. iii., p. 45. Guatemala.
N. Turialbae, Rchb. f., Hamb. Gartz. 1863, p. 11. Xenia, ii., p. 104. Costa Rica.
OCTOMERIA, R. Br., Ait. Hort. Kew. v., p. 211. About ten or twelve species in the West Indies and Brazil, and this doubtful one.
O. sp.? Nicaragua (Tate, 456, in Hb. Kew).
ODONTOGLOSSUM, H.B.K., Nov. Gen. et Sp. i., p. 351. Nearly one hundred species are known. They are spread over tropical America, but most abundantly in the mountainous regions from New Granada to Mexico.
O. apterum, Llav. et Lex., Nov. Veg. Descr. ii., p. 35. O. Ehrenbergii, Fl. des Serres, viii., t. 846.
O. Rossii, Lindl., Bot. Reg. 1839, t. 48. Mexico.
O. beloglossum, Rchb. f., Xenia, ii., p. 149, t. 158. Mexico.
O. bictoniense, Lindl., Bot. Reg. 1840, t. 66. Batem. Odont., t. 18. Cyrtochilum Bictoniense, Batem., Orch. Mex. and Guat., t. 6. Zygopetalum africanum, Hook., Bot. Mag., t. 3812. Mexico, Guatemala, 6000—7000 feet.
O. coerulescens, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 27. Mexico, 7000 feet.
O. cariniferum, Rchb. f., Bot. Zeit. 1852, p. 638; Batem. Odont., t. 10; Gard. Chron. 1870, 560. Veragua, 9000 feet.
O. Cervantesii, Llav. et Lex., Nov. Veg. Descr. ii., p. 34; Gard. Chron. 1868, 710. Mexico.
O. chiriquense, Rchb. f., Bot. Zeit. 1852; Lindl. fol. 62. Veragua, 9000 feet.
O. cordatum, Lindl., Bot. Reg. 1838, Misc., 90. Knowles and West. Fl. Cab., t. 100; Bot. Mag., t. 4378 (sub nom. O. maculati). O. umbrosum, Rchb. f. O. linguiforme, Lindl. O. Hookeri, Lem. O. Luddemanni, Regel, Gartenfl., t. 275. Mexico, Guatemala.
O. Dawsonianum, Rchb. f., Gard. Chron. 1865, p. 1226. Mexico.
O. Egertoni, Lindl., Bot. Reg. 1845, Misc., 50. Guatemala.
O. Ehrenbergii, Lindl., Kl. et Otto, Ic., p. 38, t. 16. Mexico.
O. erosum, Rchb. f., Bonpl. 1854, p. 99. Veragua.
O. Galeottianum, Rich., Ann. Sc. Nat., 3 série, iii., p. 27; Gard. Chron. 1870, p. 39; ii., 1874, p. 97, c. fig. Mexico, 7000—8000 feet.
O. Ghiesbreghtianum, Rich. et Gal., Ann. Sc. Nat., 3 série, iii., p. 27. Mexico.
O. grande, Lindl., Bot. Reg. 1840, Misc., 94; Bot. Mag., t. 3955; Batem. Orch. Mex. and Guat., t. 24; Odont., t. 8; Gard. Chron. 1872, 1290, var. Guatemala.
O. Insleayi, Lindl., Fol. 8; Batem. Odont., t. 4; var. pantherinum, Gard. Chron. 1873, 1302; var. splendens, Gard. Chron. 1868, 1038. Oncidium Insleayi, Barker, Batem. Orch. Mex. and Guat., t. 21.
O. Karwinski, Rchb. f., Bonpl. iii., p. 214. Miltonia Karwinski, Lindl.; Oncidium Karwinski, Lindl.; Cyrtochilum Karwinski, Lindl. Mexico.
O. Kramerii, Rchb. f., Gard. Chron. 1868, p. 98; Bot. Mag., t. 5778; Batem. Odont., t. 24. Costa Rica.
O. laeve, Lindl., Bot. Reg. 1844, t. 39; Bot. Mag., t. 6265; Batem. Odont., t. 16; Gard. Chron. 1844, 630. Guatemala.
O. leucómelas, Rchb. f., Bot. Zeit. 1864, p. 415; Xenia, ii., t. 184. Mexico.
O. Londesboroughianum, Rchb. f., Gard. Chron. n.s. vi., 1876, p. 772. Mexico.
O. macrum, Lindl., Fol. 33. Central America, 7000 feet.
O. maculatum, Llav. et Lex., Nov. Veg. Descr. ii., p. 35; Gard. Chron. 1841, 71; var. integrale, 1871, 307. Mexico.
O. madrene, Rchb. f., Gard. Chron. n.s. ii. 1874, p. 804; viii. 1877, p. 102. Mexico.
O. maxillare, Lindl., Bot. Reg. 1847, sub t. 62; Bot. Mag., t. 6144. Mexico.
O. membranaceum, Lindl., Sert. Orch., sub t. 25; Bot. Reg. 1846, t. 34; Bot. Mag., t. 4923; Gard. Chron. 1846, p. 839. Mexico, 7500 feet.
O. nebulosum, Lindl., Sert. Orch., sub t. 25; Batem. Odont., t. 1; Gard. Chron. 1867, 572; var. candidulum, Gard. Chron. 1867, 710, fig.; var. Patinsonianum, Gard. Chron. 1868, 710. Mexico, 5000 feet.

- O. CErstedii*, Rehb. f., Bonpl. iii., p. 214; Gard. Chron. vii. 1877, 302, 811, fig. Costa Rica, 9000 feet.
O. "oliganthum", Rehb. f., in Hb. Lindl. Guatemala.
O. pendulum, Rehb. f., Bonpl. iii., p. 15; Batem. Odont., t. 6. Cuitlanzina pendula, Llav. et Lex.
O. citrosimum, Lindl., Bot. Reg. 1843, t. 3; Lem. Jard. Fleur., t. 90. Mexico.
O. pulchellum, Batem., Bot. Reg. 1841, t. 48; Bot. Mag., t. 4704; Gard. Chron. 1841, 598. Mexico to Veraqua.
O. pygmaeum, Lindl., Benth. Pl. Hartw., p. 82; Rhyncho스테le pygmaea, Rehb. f. Guatemala.
O. Reichenheimii, Rehb. f., Bonpl. iii., p. 214; Batem. Odont., t. 15. Mexico.
O. rubescens, Lindl., Fol. 27. Nicaragua, Oaxaca, 6000 feet.
O. Schlieperianum, Rehb. f., Gard. Chron. 1865, p. 1082, fig. Costa Rica.
O. stellatum, Lindl., Bot. Reg. 1841, Misc., 25; Batem. Odont., t. 13, fig. 2. *O. erosum*, Rich. et Gal. Mexico, Guatemala.
O. Uroskinnei, Lindl., Gard. Chron. 1859, pp. 708 and 724; Batem. Odont., t. 2. Guatemala, 5000—6000 feet.
O. vexativum, Rehb. f., Gard. Chron. n.s. vi., 1876, p. 808. Mexico.
O. Warnerianum, Rehb. f., Bot. Zeit. 1864, p. 297; Batem. Odont., t. 13, fig. 1. Mexico?
(To be continued.)

FRUIT-LORE.

THE following extract from an autograph letter of Thos. Andrew Knight, obligingly forwarded by a correspondent, will be read with interest by our pomological readers:—

"March 14, 1821.

"My dear Sir,—I have addressed to you by the Ludlow coach of this day a few grafts of my three new Cherries, those of the Black Eagle being marked with one notch, those of the Elton with four, and of the Waterloo with VI. The Elton white, the others nearly black. You will also receive some cuttings of the Verdelho Grape, and a few runners of the Downton Strawberry. I wished to have sent you a more liberal supply, but the applications of my friends have reduced my stock of young plants very low. It is a variety which in good soil will increase most rapidly, and the annual plants generally bear fruit. The Verdelho Vine cuttings should be put in a hotbed in pots, being reduced to about 6 inches long, and one bud alone being left above the soil. I entertain no doubt but that with proper management the Verdelho plant might be made to bear a few small bunches next year; indeed, I put in a cutting upon the 10th inst., from which I intend to gather ripe fruit before the end of the year. As the parcel will have to travel a very long way to you, I have added to the aforesaid articles some others, which I venture to hope may be useful to yourself and some of your friends. There are seven cuttings of Currants, the worst of which you will find better than your plants of the same age of the common varieties. Each kind is numbered. Four is very mild with little acid, VI. is mild also, and the others contain more sweetness with about the usual quantities of acid. I think I. and IX. the sweetest. I have also added grafts of a few varieties of Pears, some of which are probably quite unknown to you; and indeed have not borne in this country till the present year. No. 1 is Napoleon, a large Pear, which ripens from November to Christmas. I have seen it only on a wall, but it will blossom early as an espalier, and if it will bear it will be found to possess great merit. No. 45x, Marie Louise, season December, a most admirable variety, much superior, I think, to any we ever possessed, but whether it will succeed without a wall I cannot say. No. 17, Capiamont, season October and November, of rapid growth and much disposition to bear as a wall tree, and its blossoms appear hardy: an excellent variety. No. 15, Passe Colmar: I think this by far the most valuable Pear I ever have seen. Its blossoms on a wall are extremely hardy, and the variety there is productive to an injurious extent. I believe it will succeed as a standard in your climate very well: season March and April. The four following varieties, Nos 2, 3, 4, and 5, are for standard trees solely; No. 2 is a cross between the Jargonelle and Autumn Bergamot; the tree bore last autumn for the first time, having exercised my patience for nineteen years. Its form and size are what might have been anticipated from its parents. The flavour is pronounced excellent: season November to Christmas; the flesh is perfectly Beurré. No. 3 is new also, but bore in the autumn of 1819. The fruit remained quite sound till May, when it became what the French call demi-beururé. Some friends who dined with me at that period thought it very good, and I thought it so for the season. The tree appears a very free bearer. No. 4 is the Elton, the best Pear I think of its season, if gathered about ten days before it is eaten, or before it is quite ripe; season, the end of September, and if the crop be gathered in succession it may be brought to table in equal perfection, or nearly so, for six weeks. It is quite

worthless if trained to a wall. It is always without seeds or internal cavities. No. 5 is the Aston Town, an excellent variety, which succeeds well as a standard tree, but the trees do not bear till their branches become pendent, and therefore should be made pendent by art. I send graft of one variety of winter dessert Apple—the best I know, the Gilliflower; season all winter.

"Sincerely yours,

"T. A. KNIGHT, Downton."

NEW SPECIES OF THISMIA.

THE very singular and elegant flowers of which we give illustrations (figs. 103, 104), *Thismia ophiuris* and *T. neptunis*, are hardly likely to come before the Floral Committee for adjudication, and it is not very likely they would be treated as anything but botanical curiosities if they did. The flowers in question are those of a parasitic plant lately discovered by Signor Beccari, and figured by him in his *Malesia*.

Thismia is a small genus of leafless parasites belonging to the group *Burmanniaceæ*, natives of the Indian Archipelago. The nearest affinities are with *Orchids*, with which the present species vie in singularity of appearance. Surely the remarkable blos-



FIG. 103.—*THISMIA OPHIURIS* (MAG. 4 DIAM.).

soms might supply a hint to designers of lamps or other ornamental articles. The flowers are represented as about four times their real size.

RHODODENDRONS.

IT may perhaps interest some of your readers if I give a short account of a visit I recently paid to the garden of Mr. I. Anderson-Henry, the veteran horticulturist and hybridiser of the North.

My friendship with Mr. Henry commenced some years ago. Our love of Rhododendrons brought us together, and Rhododendrons were to me the principal attraction in his garden, although he has many other curiosities, as is well known, from all parts of the world, and is just now devoting his chief attention, I think, to *Primulas*.

My friend's devotion to Rhododendrons dates back as far as the year 1850. In 1848 Sir Joseph Hooker had discovered a new world of floral beauty in the Sikkim Mountains, and Mr. Henry threw himself at once into the fascinating pursuit of rearing and hybridising. *x* Rhododendron *Henryanum* was one of his earliest and most successful hybrids. This plant had the honour, wholly exceptional in the case of a hybrid, of being figured in the *Botanical Magazine*, and did much to attract attention to the new denizens of our cool greenhouses—scented Rhododendrons.

Those who have not seen and studied these comparatively new floral treasures can have no idea of their value. Somewhat difficult of culture, they repay most fully the care and attention of their devotees; and, thanks to hybridisers like Mr. Henry, they now present much variety as well as purity and fragrance. I can never forget the astonishment and delight with which I beheld for the first time *R. calophyllum* in bloom in the Temperate-house at Kew; and *R. Edgworthii* and *R. Dalhousiæ* among species, and *R. Princess Alice* and *R. Henryanum* among hybrids are nearly equally glorious; and what can be grander than an expanded truss of *R. argenteum*, or more elegant than the fringed *R. Veitchii*? I offered a few years since to one of our most celebrated poets a scented Rhododendron, but the plant was not in bloom at the time, and a crimson hardy variety was preferred. The other day my friend reminded me of my offer. He had seen Princess Alice in bloom, and was over head and ears in love with scented Rhododendrons.

But to return to Mr. Anderson-Henry's plants. *R. Falconeri* was in fine bloom, and a spurious form of *R. argenteum*. The former, when grown under glass, bears enormous leaves, but grown in the open air, as I saw it a day or two ago at Mr. Rogers' of River Hill, the leaves are smaller and much less tomentose underneath. Mr. Henry's fine plant bore flowers with a delicious scent, and of unusual size. I have never seen flowers of any hybrid from this species. In 1869 Mr. Standish stated that he could not cross with the pollen of *R. Falconeri*, and the reason, as he thought, was, that the pollen-tubes were too large to penetrate to the ovules. Perhaps some of your readers can throw light on the subject. My own experience seems to show that it is not impossible to cross with this species; but many times I have gathered large capsules, so crossed, which contained nothing but chaff.

Sir J. Hooker says, I think, that *R. Falconeri* replaced *R. argenteum* as he ascended the mountains. Both are nearly hardy, but both start into growth too early in the spring. In the Temperate house at Kew I think there is a hybrid between *R. argenteum* and *R. arboreum*. They are clearly closely allied, and few things could be more interesting than a breed of hybrids inheriting the grandeur of *R. argenteum* (in foliage and flower) with the hardiness and variety of colour of some of our arboreum hybrids.

It is indeed a problem for Rhododendron growers to solve to throw colour into the white Sikkim, and especially the scented species. Mr. Darwin alludes to the "singular fact that white varieties generally transmit their colour much more truly than other varieties. The fact probably stands in close relation with one observed by Verlot, viz., that flowers which are normally white rarely vary into any other colour."

I was too early to see Mr. Henry's *R. Jenkinsii* (almost the same as *calophyllum*) in bloom. *R. Hookeri* was nearly over. *R. formosum* (*alias* Gibsoni) was, however, in full beauty. This, crossed with *R. Edgworthii*, has produced *R. Sesterianum*. An equivalent of Princess Alice, by which latter Messrs. Veitch anticipated Mr. Henry's seedling, was also in bloom, as well as *R. Boothii* and a curious hybrid with yellow flowers. My host has also fine plants of Rhododendrons *Maddenii*, *Dalhousiæ*, *Aucklandii* or *Griffithii*, Countess of Haddington, and many others, each of which deserves a notice to itself; but what interested me most of all was a hybrid, which, according to my friend's notes, would seem to mix the blood of no less than three Rhododendrons, viz., *Dalhousiæ*, *ciliatum*, and *Nuttallii*. A plant he gave me two years ago blossomed this year with me grandly, provoking my curiosity as much as my admiration, and giving exquisite delight to all who saw it. Mr. Henry has several of the strain, and this may well console him for the loss of another hybrid, which perished lately, at the age of twenty-five, without once blossoming.

Both sides of the picture should be shown. Rhododendron breeding requires time and patience, but Mr. Henry has never ceased to regard the Rhododendrons as his prime favourites, and his enthusiasm and his talk gave me the fullest encouragement. All his notes, I should add, as over and over again his plants and his pollen have been, were at my service. I know that there are many, Mr. Boscawen and Mr. Luscombe, for instance, who are on the same track as Mr. Henry and myself, and I see no reason why Rhododendrons should not have a literature to them-

selves as well as many less lovely flowers. If these few lines tend to such a result I shall be well pleased, and if you can spare the space I should like some day to add a few notes on the following subjects:—Messrs. Veitch's new strain of Rhododendrons at Chelsea, the Kew Rhododendrons, the Rhododendrons at River Hill, Sevenoaks, my own humble experience in hybridising, and, if it will not frighten you, many others. *J. H. M.* [Pray do. *Eds.*]

The farmer's wife never knows what her poultry eat, because, as she tells you, "they almost find themselves," especially in the autumn, when they have access to the harvest fields. That means that they feed on corn which might otherwise be wasted, and in that way they are profitable to her. So, where no pig is kept, and no "swill tub" allowed, the poultry do well at an apparently small expense, because the refuse of the house goes far towards keep-

entered, and they are not "made out of nothing," but out of old boxes and packing-cases.

Then accidents and losses are not often reckoned on, nor when they occur are they considered a legitimate part of the expense. You are told, "Oh, yes; my fowls pay—at least, they didn't pay this year, because I had back luck with my chickens"—or, "I lost a run of fowls by a fox"—or, "a dog got in and killed my best hens." I do not suppose that we have been more unfortunate than our neighbours (from whom I perpetually hear similar complaints), yet many a year have such accidents as these interfered with the look of our balance-sheet, and I do not think it is possible to keep any animals without occasionally experiencing unexpected losses.

While we lived in a town we were safe from foxes, nor do I remember that we suffered from dogs, or even cats, except in the case of pigeons, our fowls being wired in and our garden walled; but when we moved into the country, expecting to "do so well with fowls there," we seemed to be surrounded with natural enemies. We took up our abode about two miles from the town, having bought a few acres of bare hillside, and built a house on them; but we soon found that we had neighbours with whom we could well have dispensed. The foxes had long reared their cubs in the holes of the rocks above us: naturally, they looked upon the poultry we brought up as intended for their special benefit. This necessitated fox-proof runs, and of course added to the expense of our fowls, but in spite of this precaution we have suffered heavy losses from foxes. I cannot leave a hen cooped out at night, unless very close to the house, without running the risk of losing her; twice I have known a fox kill and mangle a hen that he could not succeed in dragging from the coop; and one night we lost all our ducks: the fox had contrived to enter their yard and drag most of them out by a hole which no duck had ever tried to pass through; those which he did not carry off were left mangled, proving that no human thief was the culprit. But I think we have lost even more fowls by dogs than by foxes; we have had nearly a whole run of fowls killed off in a few minutes by a dog that chanced to turn in as it was passing along the road near, and have often lost young broods of both chickens and ducks in this way. Young ducks have many enemies I believe. We have once or twice been robbed of them by hawks, but this only rests on circumstantial evidence; so with stoats and weasels. When I find the young birds with their heads off, or a hole bitten in their throat through which the blood has evidently been sucked, there is very little doubt as to who the enemy is. Rats, again, have occasionally taken up their quarters with us, and committed depredations. Last year they established themselves under the pigeon-house, and for many months we could get no young pigeons; the rats were too cunning to touch the pigeons' eggs—they preferred young birds; so they always allowed the old ones to sit and hatch their eggs, and then robbed their nests.

I suppose we have seldom passed through a year without experiencing loss from one or other of these causes; but I am not aware of having ever had a fowl stolen by human thieves, though some of my friends in the town have been less fortunate in this respect.

Poultry-books, in their "profit and loss" accounts, seldom reckon on these accidents, and I think this is one reason why poultry keeping is so fascinating, the possible profit to be made is so large—(on paper)—it always seems as if it must be attainable—next year; one is led on as by a Will-o'-the-Wisp, never expecting the accidents which are always sure to befall in one shape or another, till after some [years'] experience we feel inclined to say, "fowls never do, but always are to pay." *A. B.*

— In the interesting paper at p. 658 the lady described how her fowls began to lose their feathers, and gradually acquired a dreadfully undressed appearance. "What did it mean? It was not their moulting season." Is it not possible that it being, as she says, her first attempt at poultry-keeping, she had been supplied with old hens? As the lady now knows well, fowls moult later each year they grow older. When she had made their house so comfortable the fowls would probably perch in their proper places instead of crowding together below; which, added to unnatural food, is given by Tegetmeier as a reason for losing their feathers in this way. He mentions also that the

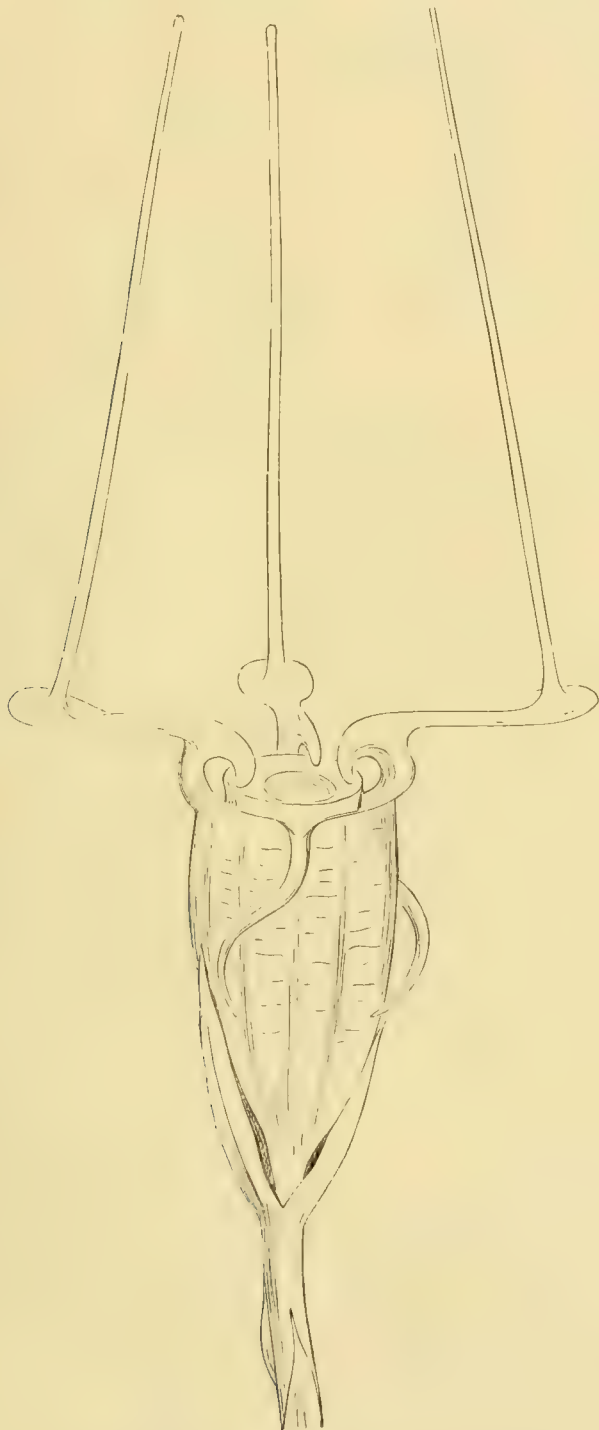


FIG. 104.—*THYMIA NEPTUNIS*, MAGNIFIED. (SEE P. 720.)

The Poultry Yard.

A LADY'S EXPERIENCE IN POULTRY KEEPING (continued from p. 658).—The question "Do fowls pay?" is a most difficult one to answer, because it is so hard to get accurate information on the subject, or to suit the answer to the meaning of the inquirer.

A friend of mine, one day, was assuring me how well her fowls paid; on cross-questioning her I ascertained that she took no account of the garden produce, which she said "She didn't pay for," and that moreover she was feeding them largely on Potatoes.

ing them, but the lady takes no account of what she (or more probably her cook) might have sold the "swill" for, yet in a true balance-sheet this point should be considered. If pigs are kept the pig-feeder and the poultry-feeder are at perpetual war, both wanting the refuse, and neither of them is able to show a creditable balance-sheet without it.

Then there are the fowl-houses: if good ones are paid for, and their price duly entered, they make a formidable hole in the expense; if home-made ones are used, the time employed on them is seldom taken into account, even if the value of the materials is

plumage when lost by disease will frequently not reappear till moulting time. My experience as a poultry-keeper for many years quite confirms his view. *G. E. O.*

Florists' Flowers.

THE CALCEOLARIA.—This is not such a popular flower as the *Cineraria*, nor is it likely to be; still, from a gardening point of view, well-grown specimens of the *Calceolaria* are exceedingly useful as decorative plants in the greenhouse and conservatory, and for some purposes they may even be preferred to the *Cineraria*. About a quarter of a century ago the *Calceolaria* was a very popular flower, and it was certainly deserving of the amount of popularity it enjoyed. At that time there were three sections, viz., the shrubby, or bedding sorts, of which a yellow variety named *Kayii* might be taken as a type; later on an improved form, *aurea floribunda* and others, were raised, and used chiefly for bedding out. The sub-shrubby section comprised certain varieties with larger flowers, but not such a woody habit; of these a dark form named *Sultan* was used for either bedding out or growing in pots. About this time Mr. J. Cole, of St. Albans, Herts, was a very successful raiser of this type of *Calceolaria*. He raised a brilliant coloured flower named *Eclipse*, and another distinct sort of an orange-brown colour margined with yellow, named *Gem*. These were very popular for a time. Then there was the herbaceous section, comprising a distinct type which is probably not now in existence. The flowers of this section had been brought to a very high state of perfection as regards form. The ground colour was a clear yellow, and all the flowers were spotted and blotched with red-dish crimson or maroon. The first two sections were propagated from cuttings freely, but it was not so easy to get a stock of the others in that way. Indeed, so difficult was it to increase them, that they never became very common. Seeds saved from the best varieties produced flowers very nearly as good as the present, but they had a tall habit of growth, which was rather objectionable.

Coming down to the present day, we have in the popular strains of the *Calceolaria* a different section from any of the above. The dwarf form, of which *Sultan* may be instanced as the type, has been worked into the tall spotted strain with the most gratifying result. Growers do not trouble now to increase the stock of a fine variety from cuttings or divisions of the plants. The *Calceolaria* is treated as an annual, or perhaps, more strictly speaking, a biennial; the seeds are sown one year and flower in the following one; but still the seeds are sown and the flowering period is over within twelve months. I have been led to take up this subject from looking over the fine collection of *Calceolarias* grown by Mr. James, of Redlees, Isleworth, the healthy appearance of the plants, and the varied colours of the flowers, creamy white and yellow, blotched and spotted with divers colours, and dark flowers almost crimson-maroon are amongst them. The dwarf habit obtained is not the least desirable result of this intercrossing and selection of varieties.

The best time to sow the seeds is in July, as soon as they are ripe. These are very small, and they should scarcely be covered in the seed-pot or pan, but the soil should be made perfectly level before sowing them, and they it should then simply have a little very fine soil sprinkled over them. A square of glass should be laid flat over the surface of the pot until the small plants appear above-ground. Should the soil become dry and hot through the sun acting upon it during the process of germination, nearly all the incipient plants would be destroyed. Shade from the sun by placing a mat over the frame or hand-light. When the small plants are large enough to handle, prick them off—say a dozen into a 3-inch pot—then when these plants cover the surface of the soil with their leaves, each plant should be potted off singly into a small pot. I place them into cold frames or pits with a north aspect.

The *Calceolaria* delights to grow in a cool moist atmosphere, and there is no danger of the plants becoming weakly or drawn if plenty of air is admitted night and day. As the plants have to be grown and flowered in about nine or ten months, it is quite necessary to see that they receive no check to their growth; pot the plants on as soon as it is necessary to do so from 3-inch to 6-inch pots, and

from that size into 8-inch pots, in which they will flower. I use for potting material—turfy loam four parts, rotten stable manure one part, leaf-mould one part, with sand if the loam is wanting in vegetable matter. It is very material, too, to see that the soil in the pots does not become too dry; a state of dryness that would be quite suitable for stage, fancy, or zonal *Pelargoniums*, would be ruin to our present subjects.

Green-fly is the only insect pest that growers have to contend with, but if the plants are kept in a healthy free-growing state the fly does not attack it so much; only let a plant become over dry at the roots, and hordes of insects will appear in a few days. In fact if *Calceolarias* are to be kept in good health, green-fly should never be allowed to appear upon the plants at all, or if it does appear, fumigating with tobacco-smoke must be resorted to, until all traces of the pest vanish. I never syringe or water the leaves of the plants if it can be avoided; they have a much more clean and healthy appearance when the leaves are not wetted. The plants are very impatient of artificial heat, and no more should be applied during the winter months than is sufficient to keep out the frost. If the plants are clean and healthy they last a very long time in flower, and large plants are well adapted for the decoration of conservatories; smaller plants may be used for houses of humbler pretensions. *J. Douglas.*

—**ROYAL NATIONAL TULIP SHOW, MANCHESTER.**—This exhibition opened on Thursday at the Botanical Gardens, Old Trafford, where it was held in connection with the great Whitsun show. The show was a small one, the flowers being below their usual size, as well as scarce—it could not be else, as up to Friday last Manchester and its district had enjoyed but little of sunny and growing weather. The Rev. F. D. Horner was the chief exhibitor. It was stated by an old florist of forty years' standing that the Tulip season is one of the latest he had known during that period. On June 3 Mr. Samuel Barlow had but two Tulips showing anything like colour, and that on a bed covered with glass on the top and the north side a wall of canvas. The late Dr. Hardy, who lived at Warrington, an earlier district than that of Manchester, was wont to say he could always cut a Tulip in flower on April 30, but there was not a bloom at Manchester this spring on May 31. The Northern Counties Tulip Show, which is announced to take place at Abbey Hey, Manchester, on June 14, will in all likelihood be the best show ever seen, as it will suit the general body of growers in the North, and their flowers will be at their best on that occasion. Generally there is a fine growth of "grass," as the foliage of the Tulip is termed, notwithstanding the inclement weather and long cold dreary spring—such a spring as Manchester has scarcely before experienced in the memory of the oldest inhabitant.

Apiary.

BEE NOTES FOR JUNE.—We were lately examining the apiary of the Rev. W. C. Cotton, author of *My Bee Book*, and were agreeably pleased to note the result of a simple experiment he has had in use during the past severe winter. Of two stocks, each tenanted a Woodbury hive—and so far as we could judge of about the same strength, being early swarms hived last summer—one was carefully made up air-tight, the top-board screwed on, and the feeding plug also secured in its place; this was done after each stock had taken in about twenty pounds of thick syrup in September. The other stock, instead of being made air-tight, had merely four folds of a thick blanket laid on the top of the bars, in place of the top-board. Note the result. The stock on which the folded blanket was laid came out early in the spring in excellent condition, the combs were dry, and the bees seemed so full of life, or health, while very few dead ones could be seen in the hive. The other stock, which was secured so carefully to keep them warm, as the old housekeeper remarked, was in a wretched plight—the combs were quite mouldy and decaying from the excessive moisture, fully two-thirds of the entire stock were dead: in fact, although well provided with food, they have since all died, and the stock is lost.

Many bee-writers of the olden school insisted upon thorough ventilation. This is not so much needed where the bees are kept in common skeps, as is still

done by most cottage bee-keepers; but where wood hives are extensively used, as in all fashionable apiaries, we cannot be too careful about ventilating each hive, if we ever intend to succeed in wintering our stocks in good condition. The above experiment has certainly taught us a most important lesson: the flannel, or old blanket, used on this occasion was moist on the folds resting on the bars, but the upper surface, exposed to the air, had kept dry all the winter. Our plan, when making up the stock hive after autumn feeding to stand the winter, in the case of wood hives, has been almost as simple, for we place an ordinary match under each corner of the top-board, thus allowing a free current of air to run through the bars and combs. This has answered well, so that we cannot complain of mouldy combs and dying bees from excessive moisture, though we are now assuredly converted to Mr. Cotton's system of wintering stocks.

Just of late we have thought much of the old nursery couplet:—

"A swarm of bees in May
Is worth a load of hay,"

for we have not heard of a single swarm during the last cold month: nay, we confess, if we had not liberally fed our stocks with a little honey, to encourage them, some of them would have died out, and we would still advise all our friends to inspect those hives regularly which seem weakly, for we fear many may still perish merely from neglect.

Watch the entrance of the hives about noon on a quiet warm sunny day, to notice if the bees are carrying in pollen; this is an encouraging sign—the queen has commenced laying, and we generally with confidence foretell the success of the stock from this sign. Our bees have returned laden for the past three weeks with a yellowish pollen, which we judge has been collected from the flowers of the Lesser Celandine (*Ranunculus Ficaria*, L.); others have brought home large quantities of green pollen, which we believe is gathered from the Gooseberry.

We have observed two or three queen wasps flying abroad; it is well if gardeners would keep a sharp look-out after these insects; they are not unfrequently found upon the blossoms of wall-fruit trees, especially so on sunny days. A single queen now destroyed will probably stay the production of hundreds. *R.*

Garden Operations.

KITCHEN GARDEN.

Under the more genial conditions which have lately prevailed the aspect of vegetation has materially improved, and with an increased amount of sunshine, which must surely shortly be forthcoming, the prospects in this department are full of promise of an abundant yield by-and-by. Before the early summer crops of vegetables come off the ground it may not be amiss to point out the necessity of exercising that forethought which at all times requires to be given to the distribution and arrangement of the crops, in order that those apportioned for the respective plots may be put in as soon as possible, and also as a means of avoiding unnecessary waste by the production of a superabundance. The main aim in private establishments should be directed towards securing ample supplies of everything in season in successive rotation. The lateness of the season will, as a natural consequence, affect the maturation of subjects generally; we therefore advise that the cutting of Asparagus and pulling of Rhubarb from roots which are required for early forcing next season be discontinued at once. As far as practicable take advantage of showery weather for transplanting every kind of plant. At the present time this remark will apply more particularly to such subjects as the different kinds of winter stuff—Broccoli, Cabbage, Celery, Leeks, &c. With the exception of Celery, all these plants should be placed in moderately deep drills, in order to facilitate watering, and for the purpose of securing the rain which comes naturally, we do not practise the antiquated method of drawing up the surrounding soil to as rows of Peas, Beans, and such subjects, or of making convex mounds round individual plants of Cauliflower, Cabbage, &c., at this time of year, but rather prefer to have the surface left concave. If not already done, defer no longer to make a sowing in quantity to meet the demand of Rosette Colewort and Carter's Heartwell Marrow Cabbage for use next autumn; likewise make proportionate sowings of Peas and French Beans to come in in September; also Turnips and other salad-ing subjects, including Endive at intervals, to form a successional supply. The plan of sowing Lettuce seed thinly in drills at this season and onwards for some time to come is a good one, and should be practised, particularly in those places which are naturally somewhat arid. The winter crops of Cos

Lettuce have withstood this variable and severe winter wonderfully well. These are now fit for tying up, an operation which must be attended to in the case of this particular and valuable kind, otherwise that crispness which is so desirable in this subject will not be attained. In the frame ground late crops of Potatoes, Carrots, and French Beans will need frequent supervision. Air freely all these subjects, and draw off the lights when rain prevails to save time in watering. Attend to the training and stopping of Gherkin and other Cucumber plants which are located here, and keep them free from greenfly by fumigating the plants before the insects are to be seen. As other frames fall vacant, late Melons and Cucumbers for autumn use should be planted. Tomatoes may likewise be successfully cultivated in such places. *G. T. Miles, Wycombe Abbey.*

FRUIT HOUSES.

VINES.—As soon as the early house has been cleared of the fruit, the inside borders may receive a heavy supply of tepid liquid manure, the ventilators may remain constantly open, and good syringing may be indulged in until the old foliage is free from accumulations of dust and insects. When the Vines begin to make fresh laterals an even growth should be encouraged over every part of the house, by pinching out the points of those that show signs of becoming too gross, and so depriving the weak parts of the food necessary for the proper nourishment of the buds that are to give next year's crop of Grapes. The heavy rains that we have had during the past fortnight will keep outside borders in a healthy growing state for a considerable time, and good feeding roots will soon find their way to the surface if a nice mulching of fresh stable manure, through which air and warmth can pass, is spread loosely over the surface. By this time all late-keeping Grapes should be set, and as they swell rapidly at this season, thinning must be set about without delay. Choose medium sized taper bunches for hanging through the winter, and thin out the berries with a liberal hand. Lady Downe's, Muscats, and other kinds liable to scald when passing through the stoning process, must be closely watched for ten days or a fortnight. Although sudden bursts of sunshine have much to do with scalding, it is not caused by the sun shining directly on the berries, as we often observe scalding where the sun cannot reach them. The best preventive will be secured by keeping the houses warm by night and freely ventilated early in the day, to prevent a sudden rise of temperature and condensation of moisture on the berries, which do not take up solar heat so rapidly as the atmosphere of a sparsely ventilatedinery. Young Vines intended for fruiting next season, that have filled the trellis with laterals, may now be kept cooler and somewhat drier at night. Ventilate freely through the early part of the day and close with sun-heat in preference to that obtained from fire. If growing in inside borders see that they are thoroughly mulched and watered as a means of keeping the surface roots alive as well as to prevent strong feeders from striking downwards in search of food. The above treatment will also apply to pot Vines when the young canes begin to show signs of changing colour. *W. Coleman, Eastnor Castle.*

THE CHERRY-HOUSE.—The acquisition of ripe Cherries at an advanced season is such an important addition to the limited supply of dessert fruits during the month of May, that it is somewhat surprising to find cultivators of early fruit so apathetic about this matter, since, comparatively with kindred subjects brought to perfection by similar means, it is very expensive. It certainly appears that the details of cultivation and expense connected therewith are not so fully entered into or understood as they should be. In those houses which have been slightly forced the crop will now be ripe, and to keep the Cherries in a perfect state as long as possible, and prolong the supply until such time as the out-of-door ones come in—which will this year be considerably later—it will be necessary to see that the roots of the trees do not lack moisture or the ripe fruit receive any, that a free course of ventilation be constantly kept up, that shading be employed whenever powerful sunshine prevails, and that the attacks of birds be frustrated: these conditions will ensure a supply for another three weeks or a month. Apart from the foregoing considerations, it is also highly necessary in the case of Cherry trees, when placed under glass, to ventilate to the fullest extent at this season whenever practicable. *G. T. Miles, Wycombe Abbey.*

ORCHARD-HOUSE.—We have been very busy with out-of-door operations during the past week or ten days. At bedding-out time the other work must needs fall a little behind. It has been raining all day, however, and that gives us an opportunity to see to our indoor work, and this is certainly one of the advantages of an orchard-house. Nothing could be done to wall trees on a wet day, but work in the orchard-house is a pleasure. Further, my experiences are very vivid, after the lapse of twenty years, of spending more than one day unmailing and nailing a

single Peach or Nectarine tree, and oftentimes shivering with cold during the operation. In many districts it is useless to plant walls with Peach and Nectarine trees, in some cases owing to the nature of the soil, in others owing to the climate. All points considered, the orchard-house to many is a great advantage, and nine seasons out of ten, even if unheated, there is a certainty of a good crop of excellent fruit, certainly superior to most that can be grown on walls in this climate. If the fruit is ripening as it ought to be now in the early house, it will be necessary to discontinue syringing. It will all depend upon the attention given to the trees as regards watering whether the fruit will be of good flavour or not. The soil must at this stage be kept as nearly as possible in a uniform degree of moisture. Do not let the soil become too dry before water is applied to it. It is not a good plan to allow the fruit to hang until it drops from the trees. I look over them once every day, and all fruit that parts readily from the trees is placed in a flat-bottomed basket upon a sheet of cotton wadding; the basket is then placed in a cool room until the fruit is required for use. See last Calendar, at p. 659, for instructions as to pinching the growing shoots of trees in the late house. The fruit will soon be up to the period when it ceases to grow perceptibly during the stoning period. Let all the fruit be thinned out now that is not required; the largest and best-formed should be selected to remain, as well as those placed in good positions on the trees. Prepare the compost to surface-dress the trees. As this is an important element in successful culture, it may be as well to state that the compost is turfy loam broken up fine, fresh stable manure, and malt-dust in equal parts, thrown together in a heap to ferment. The heap must be turned daily to prevent over-heating: a handful or two placed on the surface of the pots attracts the roots to the surface, and causes a strong healthy growth. Attend now to syringing twice every day, in the morning and again at shutting-up time in the afternoon. *J. Douglas, Loxford Hall.*

ORANGE-HOUSE.—A tree or two were removed into the cool orchard-house with ripe fruit upon them some time ago; it has not yet all been gathered, and to show how long the fruit will hang good upon the trees, that fruit is still juicy and good although it was quite ripe in January. Peaches, Nectarines, and most other fruits must be used as soon as ripe, and there is often too much this week and none the next, and the family are not at home when it is in condition, or something of that sort. It is worth knowing that Oranges can be used at any time during a period of four or five months. The work in the house where the fruit is ripening is rather of a monotonous character. Water freely and surface-dress the pots if required. Syringe twice a day, and be not sparing of the water. If the young growths are vigorous they must be stopped in the same way as orchard-house trees. The trees like to be fully exposed to the sun, and do not thrive under the shade of Vines. *J. Douglas, Loxford Hall.*

STRAWBERRIES IN POTS.—Regarding the quality of Strawberries, the best sorts to force, and the best means of keeping them in good condition after they are grown until they are required for use, a good deal has been said of late in favour of reverting to the practice of our grandfathers. It is not within my province to criticise what are pretty well known by all good growers to be exploded absurdities, and I must therefore confine my brief calendarial remarks to genuine facts and sound practice. Those who have been advised by my recommendations to grow Sir Charles Napier, Dr. Hogg, President, and James Veitch for late forcing will now be enjoying the benefit of having fine fruits in a presentable state for their employer's table. These varieties require to be brought forward carefully, not in a forcing house, where the fruits would probably get scalded, but in orchard-houses or late pecheries, or failing these facilities a cold pit or frame will answer the same purpose. No position excels that of a span-roofed house running north and south, with the plants set a good distance from the glass and abundance of air at all times unless in boisterous weather, which is not of frequent occurrence so late in the season. The flower-spikes will be short and strong, and the leaf-stalks of a like character. The surface of the pots should also be replaced with mulching to keep the surface roots cool and busy at work. It is quite as simple to have a supply of fruit on this principle as it is by hard forcing, if the cultivator understands the varieties and his work. Those who condemn Sir Charles Napier do so because they do not understand how to grow it to perfection. It is the finest Strawberry in cultivation at this season, and stands the railway better than anything else. The plants should be kept cool and comparatively dry some time before the fruit is gathered, in order to prepare it for travelling. Plants in fruit may now be retarded as recommended in former Calendars, or by putting them in a frame behind a north wall and throwing a net over the glass to protect the fruit from the ravages of birds. *W. Hinds, Canford Manor.*

PLANT HOUSES.

ORCHIDS.—During the months of June, July, and August, no operation will take up so much of the grower's time as watering; neither is there any other work, so far as these plants are concerned, more important. Such being the case, it is a good plan to do each day's watering before taking any other job in hand. There are some Orchids that do not suffer much if even at this time of the year they are allowed to remain dry for a day or two; but there are others, such as Disas, Masdevallias, and Cypripediums, that suffer greatly if dry at the roots for a few hours. In watering through a house of Orchids upon any day in winter, the operator on coming to plants about which he has a doubt as to their being exactly dry or wet, will act wisely if he passes them over till the next watering. If through the three months mentioned he reverses this principle, he will, so far as water is concerned, satisfy the wants of at least 90 per cent. of the Orchids grown in this country. Of the remaining 10 per cent., Cattleyas and Lælias are the most important plants, the majority of these, as I have before stated, prefer thorough soakings at long intervals. When these plants are properly potted in the best fibry peat and good sphagnum, with pieces of crocks and charcoal peeping through here and there, it is almost impossible to tell by their looks when they are really dry. If, on the morning of a hot drying day they are thoroughly soaked, by noon the surface of the peat will look as dry as dust, while the roots below will be as wet as possible, having sucked up enough water to last the plants several days. No more water must be given to such plants until the whole mass of compost, roots, and crocks, has become dry. Those plants growing on bare blocks in any of the houses, will require watering once every day. By far the best way to water them is to hold block and plant under water for a few seconds. Many trust to syringing these plants, which is a bad practice, as the blocks and roots never get thoroughly drenched, whilst any flowers in their immediate vicinity are almost sure to get sprinkled, which ends in their being spoilt by spot and decay. At this time of the year, when every house is teeming with flower, the less the syringe is used the better, even the damping down had best be done with a rose watering pot. Care must also be taken that no drip from suspended baskets or pots falls upon flowers beneath. The cool spring which we have had this year has been very favourable for the occupants of the cool-house. I doubt if Masdevallias and Odontoglossums ever looked better in the first week of June than they do this year. Their foliage is good and their spikes splendidly developed; not in any way do they show the least sign of injury by heat. If this house has been ventilated as advised in a former Calendar, the plants will have had a good time of it. Should we have dull moist weather but little damping down will be required in this department, as plenty of moisture will come in through the ventilators. It may happen that the air will keep too moist for the flowers, in which case a little fire-heat must be turned on, full ventilation being on at the same time. A few minutes of sunshine upon the glass will answer the same purpose. Any Odontoglossums not repotted in the spring ought now to be top-dressed with peat and sphagnum. The latter grows so freely in this division that it may be found necessary to run the shears over the tops of the pot, so as to keep it within bounds. It is true some complain of the difficulty in getting it to grow; but I expect they use sphagnum gathered out of water instead of that which grows in damp places, but which is seldom or never entirely under water. We gather ours from under Oak trees in low lying woods, and it is astonishing how it flourishes in the Orchid-houses. The Cattleya and intermediate houses must now be freely ventilated. They ought not to be shut up early in the afternoon, in order to bottle up the sun-heat, so long as the outside air is 50° the bottom ventilators should be open, and a little air may be left on all night. Use enough fire-heat to keep the temperature 65° at night, and even in the day the pipes may be warm unless we get very hot weather. Now is a good time to pot the following plants in this division if they require it:—Cattleya speciosissima, C. Skinneri, C. Triane, C. maxima, C. exoniensis, C. labiata, Trichopilia, Cypripedium Schlimi, C. insigne, Lycastes, Bolleas, Pescatoreas (if not in flower), and Cymbidiums. The weather is as yet too cold to allow the East Indian-house ventilators being used much. A fair amount of fire-heat must still be used to keep up the proper temperature; 70° by night and 75° by day without sun-heat: with sun-heat a rise of 5° or 10° will do good. The present is the proper time to rebasket or repot Phalenopsis amabile, P. Schilleriana, P. grandiflora, and P. Lowei; also Angrecum sesquipedale, Saccolabium retusum, Saccolabium giganteum, Aerides virens, Cypripedium lævigatum, and Cypripedium hirsutissimum. Those Saccolabiums, Aerides, and Vandas which are now in flower must on no account have their roots disturbed for the present. *J. C. Snyers, Burford Lodge, Dorking.*

THE Gardeners' Chronicle.

SATURDAY, JUNE 7, 1879.

APPOINTMENTS FOR THE ENSUING WEEK

TUESDAY, June 10 { Royal Horticultural Society: Meeting of
Fruit and Floral Committees at 11 A.M.;
and Scientific Committee at 1 P.M.
WEDNESDAY, June 11 { Guildford and West Surrey Horticultural
Society's Show
THURSDAY, June 12 { South Essex Floricultural Society's Show

THE one hundred and second anniversary of the Bath and West of England and Southern Counties Agricultural Association opened on Monday last, on ground about $1\frac{1}{2}$ mile from Exeter, with a fine show of cattle, horses, poultry, implements, &c. The Horticultural department, as usual under the management of the energetic Mr. BOSCAWEN, was remarkable for its fine collection of Orchids. The background consisted of Palms, Cycads, Tree Ferns, and the like, which formed an appropriate setting for the floral treasures. Most of the local genera contributed specimens, and Messrs. LAING, of Forest Hill, sent a collection of Begonias; Mr. JACKMAN, of Woking, was represented by an assortment of Clematis; Mr. NOBLE, of Sunningdale, by a collection of Rhododendrons. The ten-guinea cup for the best single specimen Orchid was awarded to — MILES, Esq., of Bristol, a second award being made to E. BRYMER, Esq., who also succeeded in winning the cup for the best group of Orchids offered by the Mayor of EXETER. We defer a fuller report of this show till our next issue, but in the meantime we may mention that in the same city of Exeter the Albert Memorial Museum was thrown open with a remarkably good collection of natural history objects, illustrating the injuries to garden and field crops, pasture lands, timber trees, and grains, resulting from the attacks of destructive British insects, exhibited by Mr. W. S. M. D'URBAN, one of the officers of the Museum, and the Misses E. A. and G. ORMEROD, of Isleworth.

The contents of the cases at Exeter show the vast importance of the study of entomology to the farmer, gardener, and forester. The collection is stated to be at present a mere beginning towards carrying out a collection of economic entomology to illustrate the injuries resulting from the attacks of destructive insects in Britain, showing the transformations of each species, the natural checks which exist to their increase in the shape of parasites and other insects which prey upon them, and the artificial remedies which may be adopted to arrest their ravages.

The collection is exhibited in its present state in the hope that attention may be directed to the subject, and that those who have the opportunity may be induced to observe the habits of insects which injuriously affect their crops and plantations. It is also hoped that farmers, gardeners, timber and grain merchants, &c., will assist in increasing and perfecting the collection, which is intended to be permanently placed in the Devon and Exeter Albert Memorial Museum. The arrangement adopted is different from that in the Bethnal Green Museum Collection of Economic Entomology, where each order of insects is grouped separately. In this, each case is devoted to the insects injurious to one plant or to groups of allied plants.

The illustrative vignettes have been executed by Miss G. ORMEROD and the Misses FLOUD. They are in some instances original drawings from the living object, and in others have been adapted from various sources, especially *Curtis' Farm Insects* and the early volumes of the *Gardeners' Chronicle*.

The models are the work of Miss E. A. ORMEROD. The larvæ were prepared by Mr R. L. DAVIS, of Waltham Cross, and others.

The whole collection was arranged by Mr. W. S. M. D'URBAN, who, we believe, is the same gentleman to whom we are mainly indebted for the recent important discovery of Palæolithic implements in large numbers from the Valley of the Axe.

The double-fronted frames in which the collections are exhibited at Exeter are made on the plan of the frames containing AGASSIZ' fine collection of invertebrate animals in the museum at Neuchâtel, Switzerland. It is well adapted for museums where space is an object, the width being only 9 inches, and yet there are 72 square feet of exhibition space in a frame 12 feet long and 3 feet high, supported on legs to any required height. Table cases can stand on each side if necessary. The box cases (thirty-two in number), with glass fronts 18 inches square, are arranged in two rows on each side of the frame. At the bottom of each case is a brass tongue for lifting it out by, and a strip of wood at the top secures the case from falling out. An iron rod, passed along over the brass tongues and padlocked, secures the cases from being pulled out. The glass is fixed in a telescope frame, and readily takes out, though the boxes are dust-proof. The boxes are 4 inches deep, but when required objects can be brought up close to the glass by means of false bottoms screwed in. Nearly 300 vignettes are shown, besides models, specimens of the insects in every stage, and of plants attacked by them. A printed label to each vignette explains it, and the other specimens are also labelled. The injuries done are described and remedies recommended.

We have only to say in conclusion that this exhibition of insects and insect ravages has proved a great attraction at Exeter, no less than 500 persons having visited the Museum during the first two hours of its opening, and some 2000 or 3000 visitors at least being expected.

Specimens of insects that are notably injurious or beneficial, and also small specimens (such as could be sent by post) of portions of the plants or timber injured by them, or of their useful products, will be gratefully received and acknowledged by Miss E. A. ORMEROD, Dunster Lodge, Spring Grove, Isleworth, near London; or by W. S. M. D'URBAN, Curator, Albert Memorial Museum, Exeter.

— PLANTING IN PARIS.—Have any of our landscape gardeners noted the following letter in the *Times*? If so, will they not be besieging the botanists to know what the "Vanilla" tree is?—shade of LINDLEY!—and flooding the nurserymen with orders? We suppose the writer means the Catalpa, the long pods of which are not unlike Vanilla pods, and which has handsome foliage and purple or lilac bloom, or perhaps he means the Paulownia. But who would dream of planting the Catalpa or the Paulownia as a town tree in London, unless he rather liked to be disappointed?—no one but some one capable of mistaking the Catalpa for the Vanilla.

"Any one interested in the planting of squares or boulevards, and with time to spare, would find a trip to Paris well repaid by a view of the Avenue d'Essling, now a mass of purple bloom, which quite eclipses the Chestnuts so familiar in this city. The Vanilla tree with which that avenue is planted has very handsome foliage, and would quite stand the London climate, making a pleasant variety and growing rapidly."

— ROYAL HORTICULTURAL SOCIETY: SPECIAL PRIZES.—The competition for the special prizes offered by Messrs. HOOPER & Co., Messrs. JOHN LAING & Co., Messrs. JAMES CARTER & Co., and Messrs. SUTTON & SONS, will take place at South Kensington on July 8, instead of on June 24, as previously announced.

— A WOODEN WATCH.—On the authority of the *Journal of Applied Science*, it seems that a watch, made almost entirely of wood, and weighing only half an ounce, is in the possession of a resident of Bristol, Pennsylvania. "Its dial-plate is made from the horn of a buffalo killed by a locomotive on the

Texas Pacific Railway. The outside is of brown Olive-wood from Jerusalem, and all the works, except a few of the more important, are of Box-wood, even the stem and the bow are of wood. Imagine the owner of such a curiosity as this carrying it as a time-keeper? Yet this is what its possessor, a Mr. DEVRIT, does. Several large offers have been made for this strange watch, but its owner seems content to let it tick its life away in the natural way."

— THE GENUS *ÆCHMEA*.—In the May number of the *Journal of Botany* Mr. BAKER commences a systematic enumeration of the species of this genus, which is made by him to comprise *Hohenbergia*, *Pothuava*, *Pironneava*, *Chevaliera*, *Hoplophytum*, *Echinostachys*, *Orgiesia*, and *Canistrum*. Nearly sixty species are enumerated. Mr. BAKER, as we have already mentioned, is preparing a systematic list of the Bromeliaceæ cultivated at Kew, to be inserted in the report of the Royal garden for the present year in a form similar to, but, we trust, rather more extended than, that of the Aroideæ published last year.

— THE WINTER.—The *Bulletin d'Arboriculture* records the fact that during the, we may almost say present, winter the temperature in Belgium has often been lower than in Russia, and that on May 9 the temperature was lower at Ghent than at St. Petersburg, being about 10° C. lower than the average.

— CONTINENTAL HORTICULTURAL EXHIBITIONS.—An exhibition of Roses, fruits, &c., in which foreign exhibitors are invited to compete, is to be held by the Société d'Horticulture de Melun et Fontainebleau at Brie-Comte-Robert from September 6 to 8, both days included. Some eighty classes are proposed for ornamental plants, stove, greenhouse, and hardy, cut Roses, fruits, vegetables, and miscellaneous objects. The secretary is M. A. LEBRUN, Brie-Comte-Robert.—The Société Centrale d'Horticulture de Paris will hold its annual exhibition in the Palais de l'Industrie, Champs Elysées, commencing to-day (June 7), and continuing over the 10th inst.

— SAXIFRAGA GRANULATA FLORE-PLENO.—This beautiful double Saxifrage, which is one of the most free and effective of spring flowering plants, is well deserving of notice because of its great value for cutting from and using for filling vases, &c. The blooms will last for a fortnight and longer in water in a cut state, which is of itself a good quality. This fine and useful hardy plant is far too much neglected; as it is grown so easily and blooms with such freedom as to distance in decorative value many other things of a more pretentious character. It does well in a hot and dry situation, better than it does in cold and moist spots; and some of the old Lancashire botanists, with whom it is a great favourite, say that they experience great difficulty in making it grow in their gardens round Manchester.

— THE STRAWBERRY BLOSSOM.—There is a marvellous bloom upon Strawberry plants everywhere this year, thus showing that the severe winter in destroying the foliage did no harm to the crowns. To have the bloom at its greatest bulk during the first week in June will without doubt place it beyond all danger from frost, and as the ground is so moistened with continual rains, and the foliage is so robust, there ought to be no doubt as to the nature of the crop, which should be most abundant. Our chief hope now lies in the fact that as the end of June will be reached before the fruit begins to ripen, we may then reasonably look for fine weather. To many thousands of persons who do not grow a single plant the nature of the Strawberry crop is one of the first moment. A large produce means to these plenty of work gathering it and good pay, whilst a vast number find ready means of subsistence in the sale of the cool delicious fruits in our large towns, and especially in the metropolis. In the neighbourhood of London it is the custom to turn out about 3 o'clock in the morning and gather for three or four hours, and this is continued later in the day if the market price is good. The cool of the evening also furnishes a pleasant time for gathering, but the early morn is the most favoured. Whilst the Gooseberry and Black Currant crops are evidently thin, a heavy Strawberry crop will to some extent recompense the market growers, who find a universal good fruit season a rarity.

When trees are literally covered with bloom all is not gold that glitters; the word of promise is too often broken. Probably for this year, and in spite of a continued cool season with heavy rains, all the worst dangers are past, and 1879 may, it is to be hoped, in fruit history be classed amongst fairly good seasons.

— FOLIAGE EFFECTS.—Whatever may be the deterrent effect wrought by the late cold, wet spring upon vegetation in general, at least it is giving us some beautiful effects in foliage contrasts, and the foliage of all deciduous trees is unusually rich and luxuriant. The most effective contrasts are seen in landscapes where there are masses of Scotch Fir or other dark-spined Pines, amidst which are largely

brilliance of colour, and the long succession in which they are produced adds considerably to the value of this fine species of a noble genus. It was hitherto known at Glasnevin and in other collections as *B. coccinea*. Recently, however, its identity has been ascertained, and a figure of it, prepared from specimens furnished from Glasnevin, will, we understand, shortly appear in the *Botanical Magazine*. We fear, however, that the highest skill in art and colouring will fail to do justice to the subject.

— MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The exhibition which opened on the 30th inst., and has been continued during the best part of the present week, promises to be the most

stems of the Saxifrage have spread in every direction, not only binding down the earth, but the stones also. The tuft is more than a yard across, and has now a number of stout fleshy stems, bearing at their extremities large umbels of pinkish flowers. The plant is so very distinct from others of the family, that it is worthy of a place in every collection; still, it is only when it is planted in positions where it can have plenty of room to spread and abundance of moisture that it is seen to advantage. Not far from the Saxifrage was another plant too seldom met with in gardens—*Cardamine latifolia*. It was here growing close beside the edge of the pond, and its large branching stems overhanging the water, bearing a profusion of showy rosy-purple flowers.

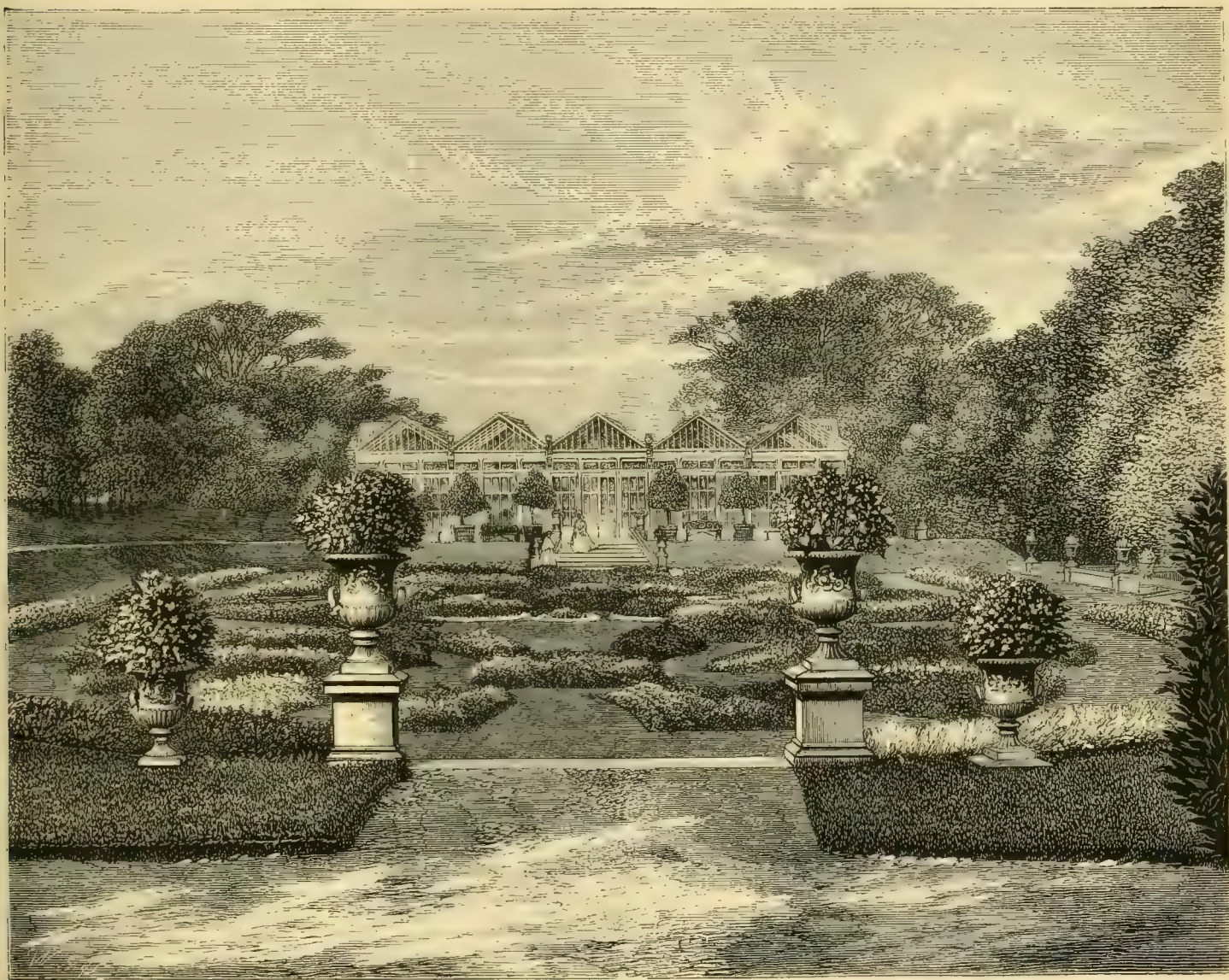


FIG. 105.—THE AMERICAN GARDEN AND CONSERVATORY AT NORRIS GREEN, NEAR LIVERPOOL. (SEE P. 718.)

interspersed such pale green-leaved trees as Beech and Birch. In one case a singularly beautiful contrast was seen where a long line of dark Fir was faced by a mass of dwarf Birch, and in another, where grand heads of Beech and Oak, then in early leaf, alternated. In passing through a woodland district the eye is constantly struck with the varied effects wrought by the unstudied mixture of noble trees in masses. Probably no attempt in the landscape gardener's art could have produced more charming results. The spring can well vie with the late autumn in the beauty of leaf tints.

— BROWNEA AZARA.—The *Irish Farmers' Gazette* states that this magnificent species has been for weeks one of the glories of the large stove conservatory at Glasnevin. Its pendulous globes of conglomerate flowers are quite dazzling from their

successful, from a financial point of view, the Society has yet held. On Whit-Monday, while the weather was wretchedly wet in London and other places, it was gloriously fine in Manchester, and so great was the throng of visitors that paid for admission to the gardens that the large sum of £610 was taken in shillings. Hitherto the greatest takings on a Whit-Monday has been about £350. The weather was scarcely so fine on Tuesday, and there was the attraction of the Manchester Races; but on Wednesday £350 was taken in shillings, and with fair weather the Council were sanguine of larger takings than usual during the time the show remained open, viz., up to and inclusive of Friday, June 6.

— SAXIFRAGA PELTATA.—Mr. BACKHOUSE pointed out to us the other day a most singular development of this plant. It is growing near the edge of the water in his garden at York. The creeping root-

— DECIDUOUS MAGNOLIAS.—Of these splendid spring-flowering trees we know the following:—1, *Magnolia Yulan*, also known as *conspicua*, the Lily-tree of the Chinese, a large bushy tree with pure white flowers, a fine specimen of which is now to be seen in Hyde Park, near Rotten Row. 2, *M. obovata* (THUNBERG, 1794), the purple *Magnolia* of the gardens and of the *Botanical Magazine*, of which *M. Lenné* is a fine variety. Between these two species various hybrids have been raised, the best known of which in this country is the *Soulangé* variety, with the large flowers of *M. Yulan*, but tinted on the outer side with a light shade of the purple colour of *M. obovata*. Other hybrids, which we know by name only, are \times *Norbertiana*, \times *Alexandrina*, \times *speciosa*, \times *cyathiformis*, \times *grandis*, and \times *triumphans*. 3, *M. gracilis*: of this we have seen no flower; and lastly, 4, *M. Campbelli*, from Sikkim, the most gorgeous of all

according to the figure in Sir J. D. HOOKER's *Illustrations of Himalayan Plants*. This tree is in the country, but it has not yet flowered.

— *CUPRESSUS LAWSONIANA*, OR *CHAMÆCYPARIS BOURSIERI*? There is now some doubt whether the beautiful tree almost universally known in British gardens under the former name should bear the specific name of *Lawsoniana* or *Boursieri*. The rule followed by botanists is to adopt the first specific name of a plant published with a description of the plant, or, in some more complicated cases, the first name under which it is published and described, and referred to the right genus. This does not apply to cases in which there is a possibility of opinions differing as to which is the right genus. Thus, for instance, *Chamæcyparis* is an independent genus according to some authorities, whilst others regard it as a section of *Cupressus*. Therefore, no question can arise in this case as to the correctness of the genus, because they are essentially the same. To give an example of an undoubted mistake in the genus, we will assume that the tree under consideration was described as a *Juniper* from imperfect material. Then comes a botanist with perfect material, and describes it and refers it to its proper genus. The name given by him would be accepted, because we cannot expect a man to wade through the descriptions of the species of *Juniper* when he has a *Cupressus* before him, and because it would obviously be unfair to suppress his specific name in favour of the one given by the botanist who referred it to the wrong genus. Though there is not exactly this difficulty in determining which of the two names quoted this tree should bear, still it is not clear. The history of its discovery, introduction, and description is briefly as follows:—Towards the end of the year 1854, WILLIAM MURRAY, brother of the late ANDREW MURRAY, returned from North-west America with a rich booty of new Conifers in dried specimens, living plants, seeds, &c. The whole collection was purchased by Messrs. LAWSON, the well-known nurserymen, and Mr. ANDREW MURRAY soon afterwards described and figured the novelties, amongst them one which he called *Cupressus Lawsoniana*. To fix the date, it may be added that these descriptions and figures appeared in the *Edinburgh New Philosophical Journal*, new series, April, 1855. The previous year some dried specimens of Conifers from the same region were exhibited before the Botanical Society of France by Prof. DECAISNE, and he proposed the name of *Chamæcyparis Boursieri* for one of them. This name, together with an imperfect description, appeared in the minutes of the June meeting of the Society mentioned, published in the *Bulletin de la Société Botanique de France*, 1854, p. 70. That only dried specimens of it were known in France we learn from the publication in question, and from CARRIÈRE'S *Traité Générale des Conifères*, the first edition of which appeared in 1855, wherein the author expressly mentions *C. Boursieri* as not being in cultivation. Thus far all is clear, but in the second edition of his work CARRIÈRE cites *Cupressus Lawsoniana* as a synonym of *Chamæcyparis Boursieri*. The question is, Was he right? for if he was right then the specific name to be adopted (providing always that the name was originally published with an adequate description or illustration) is *Boursieri*, whether we make the genus *Chamæcyparis* or *Cupressus*, unless the plea of imperfect description be allowed. To allow this, however, would not be unnecessarily stretching a point, although the right genus was indicated; and this is what the majority of botanists would do, because they argue that the publication of a name, with an imperfect description of the leaves only, is of no use whatever in determining the plant. This is what GORDON seems to have done, for he cites *Chamæcyparis Boursieri* as a synonym of *Cupressus Lawsoniana*. It is a pity that a name so well known and so well bestowed should have to be reduced; but this cuts both ways, and the French may be as familiar with the one as we are with the other. The author of the monograph of the Coniferae in DE CANDOLLE'S *Prodromus*, Prof. PARLATORE, refers DECAISNE'S *Chamæcyparis Boursieri* to *Juniperus occidentalis*, HOOK., and the *Chamæcyparis Boursieri* of the second edition of CARRIÈRE'S *Traité* to his *Chamæcyparis Lawsoniana*, the *Cupressus Lawsoniana* of MURRAY. This, if it can be substantiated, will settle the question, but PARLATORE does not state whether he had actually seen the original specimens collected by BOURSIER. True, the description, such as it is,

given in the *Bulletin de la Société Botanique de France*, would lead one to infer that PARLATORE was right in his assumption. This is an extract:—"M. DECAISNE présente des échantillons de plusieurs conifères gigantesques de la Californie, recoltés et envoyés au muséum par M. BOURSIER DE LA RIVIÈRE, agent-consulaire de France. L'un de ces échantillons se rapporte à un *Chamæcyparis*, auquel M. DECAISNE donne le nom de *C. BOURSIERI*; cette espèce se distingue de ses congénères par la brièveté de ses feuilles, très étroitement imbriquées, ovales, acuminées et munies chacune d'une glande à sa partie moyenne; ses plus jeunes rameaux, depourvus de cônes, ressemblant à ceux de l'*Arthrotaxis* selaginoides." This description tallies well with *Juniperus occidentalis*, HOOKER, which is remarkable for its closely imbricated leaves, having a very conspicuous gland on the back, and its branches have a much greater resemblance to an *Arthrotaxis* than have those of *Cupressus Lawsoniana*, though only BOURSIER'S original specimens can finally decide the point. The absence of these specimens would, on the other hand, be sufficient justification for upholding the name given by ANDREW MURRAY.

— CAN LEAVES ABSORB WATER?—Some short time since we had occasion to allude to the experiments of the Rev. GEORGE HENSLOW, from which it appeared, contrary to the opinions expressed by DUCHARTRE and others, that leaves do absorb water. We have now before us, in the *Bulletin* of the Botanical Society of France, the record of some further experiments on this subject by M. MER, and which confirm Mr. HENSLOW'S experiments. M. MER'S conclusions are as follows:—

1. Leaves can absorb water either when they are entirely submerged after having lost their turgidity, or when liquid is in contact with a portion of their surface only, the remaining portion being subject to transpiration.

2. Absorption is more active on the lower surface than on the upper face, more active also in leaves with thin cuticle than with those with a thicker epidermis. In the former case absorption occurs to such an extent as to prevent the drying up of the internodes and leaves not immersed in the water when these organs receive water from no other source; it is nevertheless not sufficient to preserve the turgidity of the roots. In the second case this absorption is not strong enough to restore the weight the plants had before being withered.

3. The absorption is not local merely as it induces turgidity in neighbouring parts. Moreover, all the tissues of a plant are more or less continuous (*solidaires*) with reference to water.

4. The leaves do not absorb water when, α , they are still turgid, unless there are adjacent organs transpiring rapidly; nor, β , when they have at their disposition tissues rich in water, and from which by preference they derive their supplies of water when slightly withered.

— CLEMATIS (ATRAGENE) VERTICILLARIS.—We owe to the kindness of the Rev. H. N. ELLACOMBE the opportunity of seeing specimens of this *Clematis*, a very old inhabitant of our gardens, but now rarely met with. It was figured by SIMS in the *Botanical Magazine*, tab. 887, as *Atragene americana*. The plant is a hardy woody-stemmed climber with ternately divided, long-stalked leaves, the segments themselves stalked, oblong, ovate-acute, remotely toothed, and covered with a thin pubescence. These leaves are arranged in tufts in the axils of the old leaves, intermixed with the flower-stalks, which are of about the same length as the leaves, and bear at the extremity a nodding purplish blue bell-shaped flower, 2—3 inches in diameter. Dr. GRAY (*Manual of the Botany of the Northern United States*, 5th ed., p. 35) gives as the localities where this plant grows wild, "Rocky places in mountainous districts, Maine and Western New England, to Virginia, Wisconsin and north-westward." The same author adds that "a pair of leaves with a peduncle between them, developed in spring from each of the opposite buds, gives the appearance of a whorl, whence the specific name." In the cultivated plant we find the axillary buds to be composed of a contracted axis, terminated by a flower-stalk; from the sides of the axis are given off crosswise, below the flower-stalk, two pairs of leaves in close approximation one to the other, so that the resemblance to a whorl is even greater than where only two leaves are developed from each axil. Mr. ELLACOMBE notes that the flowers this year, owing to the plant having been removed, and to the May frosts, are very inferior both in colour and size

as compared with their ordinary state. Nevertheless, it is abundantly clear that this *Clematis* is a valuable hardy spring-flowering climber.

— GOLD-LACED POLYANTHUSES.—The number of flowers which are being forwarded for inspection, and the high opinions entertained of them by the senders, serves to prove that there is a great lack of knowledge as to what constitutes quality according to the rules laid down by the florists. These rules form the bases of standards of quality, they are recognised by our leading florists in the present day, they are harmonious with the highest expression of beauty in a flower, and they are constantly being enforced in these columns. By some size, apart from all other considerations, is thought to be what is required, but mere size in almost every instance is unattended by qualities of equal value. The common faults are, the eye is large, open, and irregular in shape; the centre indefinite, irregular, discoloured, angular, and stained with dark orange. The body colour is confused, being neither red nor black, or if of a good and decided colour it is that which is most generally prominent in gold-laced Polyanthuses, and however good in itself ranks as but of little value, apart from other considerations. The lacing is, in almost all cases, broad, irregular, and deficient in regularity, while it is altogether different in colour from the tint of gold in the centre. The colour of the lacing should as nearly approach that of the centre as possible, and it should regularly margin the segments and cut down the middle of them, in a thin, regular, and unbroken line. A great many flowers forwarded are no better than border varieties. One important point is that the flowers shall be unchanging in their leading colours—that is, that the golden centre shall remain pure and unstained, and the dark body colour, whether red or black, remain so without changing to maroon, orange-red, or any such confused combinations. Some flowers that open of a promising character become blotched and disfigured with age. Others open with stained parts, and become brighter with age. These are inconstant flowers, and cannot be depended on. Many of the flowers forwarded have long stems or footstalks, and those never make symmetrical and attractive-looking trusses. Other points might be named, especially those of the rotundity of the segments, and the circular outline and flatness of the pips; but enough has been said to give some idea of what ought to characterise flowers that can lay claim to be considered as acceptable varieties.

— POSTPONEMENT OF ROSE SHOWS.—The Norwich Rose show has been postponed to July 9 and 10; and the one announced to be held at Shrewsbury has been put off from July 3 to July 15.

— CRANSTON'S NURSERIES, KING'S ACRE, NEAR HEREFORD.—As will be seen by an announcement in another column, Mr. JOHN CRANSTON and his co-partners, who have carried on this famous Rose nursery for the last thirty years, are about to retire from business, and the nurseries are to be let on lease. As an item of news in connection with the Rose trade, it may be mentioned that more than 30 acres of land and ten glasshouses are at King's Acre devoted to that flower alone.

— ERRING EXHIBITORS.—The troubles of managers of flower-shows and judges have commenced with the beginning of the flower-show season. A horticultural society, in a prosperous commercial town on the Great Western line, held a spring show some time since, and notwithstanding that the managers print the following among their rules and regulations:—"Everything intended for exhibition must be staged ready for the judges by 10 o'clock, when all exhibitors must retire from the ground," it was none the less the judges could commence their work. In this particular instance—and it is unfortunately one of too constant occurrence—the committee are much to be blamed for not enforcing their own rules. Exhibitors are ever active to take advantage of lax discipline, with the inevitable result that the company fills the exhibition-tent ere the judges are half-way through their work, and they have to make many of their awards with the exhibitors pressing about them. If a remonstrance be addressed to the managers, the judges are told that they have announced that the show shall open at a particular hour, and they must keep faith with the public, who complain if they cannot have the run of the show as soon as open to

them; it is not to be wondered at that some judges strike—it is enough to drive them to this extreme step. Managers sometimes say they cannot enforce their own rules, or they will give offence to leading exhibitors. This is a sad confession of weakness, and it is a matter for great regret that it should ever be made. Let managers make rules and regulations that are reasonable (and it is not unreasonable to have all the exhibits arranged by 10 o'clock), and resolve to abide by them, and they will soon find that exhibitors are quick to recognise the fact that their own interests lie in the direction of supporting the managers. In the case of some exhibitions the fault lies more with the local exhibitors than with those that live at a distance from the place of exhibition, and it is the former that ought to set the example of promptitude and punctuality.

— BEES AND THEIR PRODUCE.—MM. BONNIER and FLAHAULT, in commenting, in a recent number of the *Annales des Sciences Naturelles*, on the heightened colour and increased production of nectar at high elevations, cite the following figures as to the production of honey in the Pyrenees at various elevations. In the Department of the Eastern Pyrenees it appears that there are 19,829 bee-hives at between the sea level and 1500 metres of elevation. The average produce of these hives according to elevation is given as follows:—

| Elevation. | Average Yield. |
|--------------------|----------------|
| 0—300 metres | 3.05 kil. gr. |
| 300—600 „ | 4.68 „ |
| 600—900 „ | 5.00 „ |
| 900—1200 „ | 7.00 „ |
| 1200—1500 „ | 9.33 „ |

A metre is equal to about 3 feet 3 inches, a kilogramme is equal to something over 2 lb.

— WINDOW PLANTS IN WINTER ONE HUNDRED AND FORTY YEARS AGO.—COLLISON, writing to LINNÆUS in January, 1743, says:—“I am sure you would be delighted to see my windows filled with six pots of flowers, which the gardener has sent me to town; viz., great plenty of Aconites, white and green Hellebore, double Hepatica, Crocus, Polyanthus, Periwinkle, Laurustinus, vernal red Cyclamen, single Anemones, and Snowdrops. This is my delight, to see flowers which make a room look cheerful and pleasant, as well as sweet. None of these were brought forward by any art, but entirely owing to the temperature of the season, though some years I have known things forwarder than now.” This must have been a rather more agreeable form of “old fashioned” winter than the one we have passed through, with the mean temperature of April 6° below the average.

— VEGETATION OF HAMMERFEST, THE MOST NORTHERN TOWN IN THE WORLD.—Although the most northern town in the world, Hammerfest enjoys a relatively mild climate, in consequence of its proximity to the Atlantic Ocean. But it is only relatively mild, being as severe as that of Iceland. Dr. SCHÜBELER has done much of late years to familiarise us with the vegetation of Norway, especially in respect to the northern and eastern limits of wild and cultivated plants. We may remind the reader that Hammerfest lies in nearly 71° N. lat., or the highest boreal limit of corn cultivation in the most favourable longitude. It is so easy of access now in the summer time that many people resort thither to view the midnight sun. But the prevalence of mist and fog render this a rare sight, and many travellers whose time is short leave without witnessing it. The tallest woody vegetation consists mainly of *Salix lanata* and *Betula nana*, which rarely attain a height of 3 feet. *Calluna vulgaris* and *Rhododendron lapponicum* are not rare on the hillsides around Hammerfest, as well as the fragrant *Thymus Serpyllum*, which extends from here to the extreme south of Europe. Wallflowers and Stocks are among the most commonly cultivated ornamental plants, and the lovely alpine *Auricula* is a great favourite, as it withstands the winter without protection. Of kitchen herbs, Savory and Sage are cultivated. The only grain successfully grown is Barley, and with this bread plant Potatoes are associated. A little farther north, and the inhabitants feed almost entirely upon animal food. At Tromsø, only about 1° farther south, the vegetation is much more luxuriant, the Birch forming a charming, though miniature forest, and Willow and Cedar grow to a considerable

height. *Asplenium septentrionale* and *Struthiopteris* are found here associated with such showy things as the Meadow Sweet, and the Willow Herb, *Epilobium angustifolium*. These with *Angelica Archangelica* cover entire hillsides, growing intermixed. The summer residences of the wealthier portion of the community are very neat and pretty, and well-kept lawns are found everywhere. The scenery around Tromsø is described as exceptionally beautiful.

— WASHINGTONIA.—Another Washingtonia—not the Washingtonia proposed by KELLOGG to displace LINDLEY's Wellingtonia, both of which must fall before ENDLICHER's Sequoia, a name supposed to be derived from See-qua-yah, a celebrated Cherokee chief, “whose life has been spent in endeavouring to enlighten his race by inventing an original alphabet, and by the introduction of mechanical contrivances and useful implements for their benefit.” The new Washingtonia, although it will not have to yield to a British commander or an Indian chief, may possibly be reduced to a synonym, for the plant to which it is now proposed to apply it had previously been referred to two different genera, and by the same author. Moreover, the inflorescence and flowers of the plant in question are still unknown—at least to Mr. HERMANN WENDLAND, the author of the new Washingtonia. This name is proposed by him (in the *Botanische Zeitung*, January 31, 1879) for the Palm erstwhile called *Brahea filifera*, then *Pritchardia filifera*, and which Mr. WENDLAND would now call Washingtonia filifera. He is now convinced that the differences in the leaves are sufficient to indicate that this Palm is not a Pritchardia. Besides, the fruit is quite different. It is a black-blue, oval, somewhat laterally compressed drupe, from 3 to 4 lines long, with remains of a terminal stigma. Stigma oblique, very short, with two scales at its base, representing the rudimentary carpels. Only the calyx is persistent; it is leathery and almost funnel-shaped, from 1½ to 2 lines long, with three short, obscurely toothed, rounded lobes. The outer layer of the pericarp is very thin and glossy on the surface; the middle layer is finely fibrous and thoroughly saturated with an oily substance, which it retains undiminished for a very long time; at least, after keeping four years no difference could be discerned. The seed is light brown, oval, 2 to 2½ lines long; the hilum is small and near the base on the flat side; albumen homogeneous; testa thin; embryo cavity at the base close to the hilum. The principal distinctive characteristics of this fruit are its small size, its oleaginous mesocarp, its thin crumbling endocarp, the small hilum, and the position of the embryo. This Palm was originally introduced by Mr. LINDEN in 1869, but immense quantities of seed and young plants have since been imported, so that it is now in most collections. It is easily cultivated, Mr. WENDLAND adds, provided it is put out-of-doors in the summer and in the Agave-house in winter. A very rich soil suits it, with plenty of water and not too small a pot.

— EXTRAORDINARY LUXURIANCE OF PLANTS IN FRESH SOIL.—The fertility of virgin or fresh soil is notorious. In the *Philosophical Transactions* for 1724 is an interesting article, by the Hon. PAUL DUDLEY, entitled “Observations on Some of the Plants in New England, with Remarkable Instances of the Nature and Power of Vegetation.” Among the remarkable instances of the power of vegetation Mr. DUDLEY had a well attested account of a Pumpkin seed from Mr. EDWARDS, of Windsor (near Boston). In the year 1699 a single Pumpkin seed was accidentally dropped in a small pasture, where cattle had been foddered for some time. This seed took root of itself, and without any care or cultivation, the vine ran along and over several fences, and spread over a large piece of ground far and wide, and continued its progress until the frost came and killed it. The plant had only one stem, but a very large one, for it measured 8 inches in girth. From this single vine were gathered 260 Pumpkins, one with another as large as half a peck, enough to fill a large cart, besides a considerable number of small and unripe ones. The *Philosophical Transactions* give an account of a single plant (? grain) of Barley, that by steeping and watering with saltpetre dissolved in water, produced 249 stalks and 18,000 grains; but then there was art, and even force, in that case, whereas in the other there was nothing but pure Nature and accident. Mr. DUDLEY mentions Apple

trees, with trunks from 6 to 10 feet and more in girth, and single trees, both Pear and Apple, bearing 40 bushels of fruit. Among other instances of luxuriance, he states that an Onion set for seed will rise to 4 feet 9 inches; a Parsnip will reach 8 feet; red Orrie 9 feet; and in the pastures he measured Mullein about 9 feet high, and common Thistles 8 feet. He further adds that 6 quarts of Indian Corn will plant an acre of ground; and that it was not unusual for an acre of good ground to produce 50 bushels of corn.

— ACTION OF LIGHT AND HEAT ON PLANTS.—The number of degrees of solar radiation received per minute over a square centimetre of surface exposed normally to the solar rays has been estimated as follows:—

| | |
|---|------------|
| At Paris, at a height of 30 metres | 1.745 deg. |
| At the Glacier des Bossons, 1200 metres .. | 2.022 „ |
| At the Grands Mulets, 3050 metres | 2.262 „ |
| At the summit of Mont Blanc, 4810 metres .. | 2.392 „ |

These figures represent the total amount of heat received by radiation, which is naturally proportionate to that absorbed by the green colouring matter, chlorophyll.

— CYTISUS ARDOUINI.—We have received from Messrs. JAS. BACKHOUSE & SONS a specimen of *Cytisus Ardouini*, a dwarf alpine sub-prostrate shrub, 6 to 12 inches high, with abundant yellow pea-shaped flowers, which is flowering very profusely both on the rockwork and in ordinary borders.

— M. SPACH.—The death of this industrious botanist, on the 18th ult., is announced. He literally died at his post, in the herbarium of the Jardin des Plantes, with which establishment he had been connected for nearly half a century. M. SPACH was in his seventy-ninth year. He is best known in this country by his descriptions of flowering plants in the *Histoire Naturelle des Végétaux—Suites à Buffon*.

— THE VALUE OF CABBAGES.—The *Chelmsford Chronicle* of May 30 states that a crop of Cabbages, belonging to Mr. CHARLES RANDALL, consisting of sixteen acres, was sold by auction at Evesham recently, and realised no less than £520; one lot, consisting of an acre, sold for £35.

— ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—The summer show of this Society is announced to be held on July 24.

— SHEPTON MALLET AND EAST SOMERSET HORTICULTURAL SOCIETY.—The fifteenth exhibition of this Society will take place as usual in Langborn Park, Shepton Mallet, on Tuesday, August 19.

— TROWBRIDGE HORTICULTURAL SOCIETY.—The annual exhibition is arranged for Wednesday, August 20. The schedule of prizes is as attractive as usual, and good encouragement is given to exhibitors.

— THE WEATHER.—From the Meteorological Office report for the week ending June 2 we learn that the weather was showery and unsettled. There was a severe thunderstorm, with very heavy rain, in “England, S.” and Midland Counties on the night of May 28, and much rain in “England, S.” on June 2. The temperature was below the mean in all districts, the deficit varying from 4° in “Scotland, W.” to 7° in “England, S.W.” No very striking maximum or minimum has been observed, the highest reading of all, 68°, being recorded at Nottingham on May 31. No night frosts were reported. The rainfall was about the mean in “Ireland, S.,” but more in all other districts, especially in “England, S.,” where the total fall for the week was as much as 2½ inches. This unusually heavy amount was due principally to the thunderstorm of May 28, on which occasion 1.64 inch fell in London, 1.33 inch at Marlborough, 1.43 inch at Strathfield Turgiss, 0.92 inch at Dover, and 1.24 inch at Hastings. At the last-mentioned station 1.80 inch fell on Monday, June 2, and the total rainfall for the week amounted to as much as 3.55 inches, or about twice the average for the entire month of May. The wind was generally northerly or north-easterly during the early part of the week, but south-westerly to westerly subsequently. The northerly winds were fresh to strong in force on May 27 and 28, and the south-westerly winds were strong in the south-east on June 1 and 2.

Home Correspondence.

Tropical Fruits.—To complete the notes I gave on this subject in your last issue I now add that the "Tarippe" or "Trap" fruit is produced by an entire-leaved species of *Artocarpus*—by *A. Blumei* I was told in Singapore. The "Langsat" is *Lansium domesticum* according to Bert. Seemann (*Treasures of Botany*). Rambutan (= hairy fruit, Malay) is *Nephelium lappaceum*. Of "Jintawan" there are three kinds or species. Collins ("Report on Caoutchouc," p. 24) refers these fruits to *Urceola elastica*, Roxb., which plant he credited as producing the "Gutta soosoo" of Borneo (= milky gum, Malay). Mr. W. T. T. Dyer, however, now identifies these Bornean caoutchouc yielding plants (at least three species) with the genus *Willughbeia*, a near relative of the African rubber-yielding *Landolphia*. The Bornean *Willughbeia* are gigantic climbers, with stems 2 to 6 inches in diameter, and near Brunei city they are called "Manoongan," "Manoongan putih" (putih = white, Malay), and "Manoongan manga" (manga = sweet). On the Limbang River the fruits are called "Jintawan." The fruits are tolerably well described under the head of "Urceola" in *Treasures of Botany*. Of "Baloona," "Mambangan," "Tampoi," and "Luing" I know nothing as to the genera to which they belong. The fruits are common in Borneo, and the names are those used by the Malays. The Malays are immigrants presumably of Arabic extraction, who have become dominant in Malaysia, and their language is the *lingua franca* of the whole Archipelago, very easy to learn colloquially and very expressive. The inland or native tribes (*i.e.*, Borneans proper), of which there are many, speak dialects of a distinct language, and often neither understand Malay nor even the dialect of the neighbouring tribes. Long standing feuds exist which prevent any intercourse, and so language and customs are retained. The result is that each tribe has a different name for the same thing, and in the case of fruits, for example, the fruit in its young or green state is called by one name, but when full grown or ripe a totally distinct name is given to it. The same with animals and birds, and the result is most perplexing to a stranger in many ways. The Malay is the fixed and only written language used in Borneo, and I always obtained Malay names when possible. In addition to those fruits named, I saw many others. One called "Prada prada," of which I brought specimens to Kew, is, I believe, a new species of *Garcinia*. It is a showy scarlet fruit, changing to purple when ripe, and has white edible pulp of a very agreeable sub-acid flavour. "Champada," often found in Malay gardens, is nearly related to the "Jack fruit" (*Artocarpus integrifolia*). The leaves are hairy below, however, and the fruit much smaller and of finer quality, but not equal to "Tarippe," which is the most delicious and refreshing of all the Bread-fruits I have seen. "Rambi" is a sub-acid fruit, very similar to "Langsat" when gathered. The fruits are the size of pigeons' eggs, pale yellow, with three pulp-coated seeds, and are borne twenty to thirty together on a drooping stalk, 18 inches long. Leaves large, oblong, entire. The "Langsat" has pinnate leaves, three to seven fruits in a cluster, and about five pulp-coated seeds in each fruit, three to four often abortive, and the seedless pulp is then much sweeter. The "Rokum" fruit (*Flacourtia inermis*) has red Gooseberry-like fruits, and are improved by rolling between one's palms ere they are eaten. *Melastoma malabathricum* produces a small (*Eugenia Ugni*-like) edible fruit, of pleasant flavour, in a thirsty land. *F. W. Burbidge*.

London International Horticultural Exhibition for 1880.—The result of the large meeting of horticulturists in the Royal Albert Hall on May 27 (when there were over eighty present), plainly shows that the general body of horticulturists should have been summoned long ago and their opinions ascertained on the subject. Had this step been taken, many of the preliminaries for carrying out the Exhibition in 1880 would have been at this moment well in hand. I append copies of the two resolutions, which were carried unanimously, and also a copy of a letter which was addressed to the chairman of the meeting by the Messrs. James Veitch & Sons. I regret very much the letter from Messrs. Veitch & Sons was not seen till after the meeting was over, as I should have been most willing and quite as anxious as the writers that it should have been read to the meeting.

Resolutions.—Proposed by Mr. R. A. Arnott, and seconded by Mr. W. Thompson, and carried unanimously:—

"That in the opinion of this meeting it is highly desirable that an International Horticultural Exhibition should be held in London next year."

Proposed by Mr. Dean, and seconded by Mr. Cutbush, and carried unanimously:—

"That in the opinion of this meeting the information put before the meeting by Mr. Wills, and the unanimous vote of the meeting, is of a nature to justify the already existing committee in reconsidering the question of

holding an International Horticultural Exhibition in 1880, and that they be requested to hold a meeting at an early date, and report at an aggregate meeting of horticulturists to be afterwards considered." [? convened.]

The proceedings terminated with a vote of thanks to Mr. Wills and the chairman.

Royal Fecit Nursery, King's Road, Chelsea, S.W.
[Copy. May 26, 1879.]

"Proposed International Horticultural Exhibition for 1880. To the Chairman of the Public Meeting convened for the above object.

"Sir,—Having noticed an announcement of a large public meeting to be held to-morrow (Tuesday) at the Royal Albert Hall to elect a chairman and committee to carry out the arrangements for holding an International Horticultural Exhibition in London next year, we beg to draw your attention to the fact that a committee has been already in existence for some months, with the object of carrying out a similar exhibition.

"The committee has met on several occasions, and after carefully considering the various questions of site, cost, &c., decided by a very large majority that in the present state of commercial depression in this country it is not desirable at present to proceed with so large an undertaking, but the committee decided not to dissolve itself, but to await a more favourable turn of affairs, and then again consider the question. We observe that it is now proposed to elect a chairman and committee, which latter, as there is already one in existence, must necessarily be antagonistic. We ourselves intend to remain members of the original committee, and therefore write to say that in any fresh committee that may now be formed we desire that no one connected with our firm may be included. *James Veitch & Sons*."

I regret extremely that you have now for the second time taken so much trouble to prejudice horticulturists and the public against the proposed scheme of holding a grand International Exhibition in London next year. I believe I shall not be alone in thinking you have gone beyond the limit of fair and legitimate criticism. In the *Gardeners' Chronicle* of May 24 you predicted the failure of the meeting I had organised for the 27th, and now in your issue of May 30 you have taken considerable pains to misrepresent what took place. I am at loss to understand in what way I can have merited such unjustifiable censure upon the action I have taken in the matter of holding a great International Exhibition next year. The whole of your article shows a spirit of antagonism, and is calculated to place an obstruction on the rails, in order to upset the train of horticultural progress. You entirely misrepresent what took place. Is this just or impartial? The *Daily Telegraph*, on the 28th, gave a fair and unbiased report of what took place, and also the *Times* on the following day. Why should the *Gardeners' Chronicle* be so partial and one-sided? I think your remarks at p. 693 are most unjustifiable and uncalled for. You say, "In addition to laying himself open to the grave charge of compromising the Prince of Wales, and others of his alleged supporters, who, if we must state the facts, did not make their appearance to support him. Mr. Wills' proceedings are calculated (quite unintentionally, of course), to produce a most mischievous result in the present state of affairs as between Her Majesty's Commissioners and the Royal Horticultural Society." I say I had full authority to make use of the names of at least a dozen noblemen and gentlemen, and to announce their willingness to give the matter their best support personally and by becoming guarantors. I will leave your readers to judge for themselves between us, and ask them if they think the part you have taken is fair, honest, and free from prejudice, and will content myself with quoting the last few lines of your article:—"That he will be satisfied with the efforts he has made"—I shall not—"and will comfort himself with the reflection that amongst the hundreds of names of supporters of the Exhibition of 1866 which he has been at the pains to reprint at his own cost, his own name is the only one which appears in the (self-imposed) honours of prominent black type." I will only add by the way of explanation that the reason of the slight difference in the type, imperceptible but to the eye of those seeking a cause for undue criticism, was simply to show that in 1866, although a very humble worker in the hive of horticultural industry, I was a willing supporter of a similar scheme; that the same patriotic feeling existed in my breast then as now, that the same blood coursed freely through my veins, and that I am imbued with a similar ambition now as then, namely, the maintenance of the greatness of my country, the progress and pre-eminence of horticulture amongst its industries. I trust you will in all fairness publish the above, a copy of which I have sent to each of the horticultural journals. *John Wills*.

Art in the Garden.—At p. 589 your reviewer, in speaking of my *Traité des Parcs et Jardins*, makes certain comments to which I beg leave to reply. Your reviewer charges me with having placed the Wild Service tree in the genus *Cratægus*, while I have kept the Mountain Ash, the White Beam, and the true Service tree, in *Sorbus*. In so doing I have followed the nomenclature of Linnæus, who calls the Wild

Service tree *Cratægus torminalis*, a name adopted by Smith, Jacquin, and other authors. I am in that as correct as Ehrhart, who puts it into *Pyrus*, as Crantz, who puts it into *Sorbus*, and as Decaisne, who makes De Candolle's section *Torminaria* into a separate genus. There is, therefore, no error of determination, but only a different way of looking at the same genus. I preserve therefore the Linnæan name. I may be permitted to add that, from the horticultural point of view, this name of *Cratægus* seems to be more appropriate, as it would be difficult to persuade our gardeners that the "Alisier" (*Pyrus torminalis*) is either a Pear or a Sorb. Further on I am taken to task for having placed the common Alder amongst trees of the first size, while the Willow, *Salix alba*, and *S. fragilis*, are placed in the second class. It seems that the reverse is true in the South of England. I cannot test this fact, but I assert that, in Central and Northern Europe, the Alder is a larger tree than the Willow. All foresters will, I think, be of my opinion, and I invite my critic to verify this assertion on his first visit to the Continent: it may modify his opinion. As to Lawson's Cypress, for which my critic would wish me to adopt the name of *Chamaecyparis Lawsoniana*, of Parlatore, I may reply that this author applied the name only in 1865, while the name of *Chamaecyparis Boursieri*, which I have adopted, was given by Decaisne eleven years previously (in 1854), and was adopted by Carrière. The law of priority is binding, and I have conformed to it. If I have used in the lists the synonym of *C. Lawsoniana*, it is because that name is the best known to horticulturists. I admit, nevertheless, that I ought to have put the synonym in parenthesis. I cannot give an opinion whether the *Juniperus occidentalis* of Hooker is identical with the *Chamaecyparis Boursieri* of Decaisne without ascertaining the correctness of such an assertion. According to your reviewer, the general list at p. 565 contains various ornamental species, but little known or very rare in England. My critic should have read the passage at p. 582, wherein I say that some of these species are not as generally cultivated as they should be, &c. I have taken the pains, moreover, to mark with an asterisk the species most grown in the trade. Moreover, it is not accurate to say that the following species are unknown or very rare in England and on the Continent:—*Alnus barbata*, *Betula nigra*, *Pterocarya fraxinifolia*, *Gymnocladus canadensis*, *Salix dasyclados*, *Clerodendron Bungei*, *Nandina domestica*, *Lespedeza bicolor*, &c. Any of the principal nurserymen of Europe could supply these species, and I should have given their addresses if I had not wished to prevent my book having the appearance of an advertisement. Some other species, rare indeed, and very beautiful, deserve to be mentioned, such as *Cedrela sinensis*, *Ostryopsis Davidiana*, *Xanthoceras sorbifolia*, have been liberally distributed from the Jardin des Plantes at Paris. *Solanum fastigiatum* may be had of Leroy, of Angiers. I have seen in the fine arboretum of M. Lavallée, at Segrez, the following:—*Acer insigne*, *Æsculus chinensis*, *Rhamnus libanoticus*, and *Ligustrina amurensis*, which are plants too little known and of great beauty, and which it is to be hoped the nurserymen will soon be in a position to distribute. I may here add that I have classed by mistake among trees of the first size the *Alnus viridis*, which is only a shrub of mountainous regions; I should have said *Alnus incana*, which is a fine tree for park plantations. *E. André*, 49, Rue Blanche, Paris. [The writer of the notice in question did not regard it as an "error of determination" to place the Wild Service in the genus *Cratægus*, being fully aware that Linnæus had done the same thing; but then Linnæus also referred the White Beam to *Cratægus*. The characters which separate the genera *Sorbus* and *Cratægus* are undoubtedly slender, still if these genera are admitted it would only be consistent to refer both the trees in question to the former. With regard to the relative size of the Alder and the White and Crack Willows, it was mentioned as a curious fact that on Mr. André's authority the reverse obtains on the Continent to what obtains here. It was not intended to dispute the veracity of this statement, though from the wording of the remark it would appear so. Perhaps some of the correspondents of the *Gardeners' Chronicle* could throw some light on this matter. Are there, for instance, trees of Alder in this country from 70 to 90 or 100 feet high? Respecting the correct name, according to the law of priority, of the tree generally known in this country as *Cupressus Lawsoniana*, something is said in another column. Mr. André is in error, however, in supposing that he was urged to adopt any particular name, regardless of this very necessary law. Finally, the drift of the observations on the general list of hardy trees and shrubs has been quite misunderstood. The fact that the list contains a number of ornamental species from North-eastern Asia, &c., which are either unknown or extremely rare in this country deserves the commendation implied in the enumeration of such species. It is not to be inferred that these species do not exist in botanic gardens, and perhaps, with few exceptions, in some

of the leading nurseries in this country, but they are nevertheless almost or quite unknown or unemployed by the majority of planters. Moreover, the distinct object in quoting the names was to direct attention to the merits of the trees and shrubs that bear them. Mr. André may not be aware that the cultivation of a good variety of deciduous trees and shrubs has been very much neglected in this country, in favour of even slight varieties of evergreens. The demand has no doubt ruled the production, and it is only a very few nurserymen who can afford to grow a great variety of deciduous trees, as there is practically no market for choice species.]

Properties and Qualities of Auriculas.—Your correspondent "J. S." asks for yet more information as to the "distinguishing characteristics between the alpine and show sorts" of Auriculas. "Alpines" I think is a loose term, some alpines being in themselves show sorts; but "J. S." may mean by the term the common border class as distinct from all the refined and well defined exhibited sections of the flower. Show Alpines differ from the countless border varieties in being flat, circular, bright, substantial, richly shaded flowers of medium size, inclining to large, with round centres of rich gold, or lemon to creamy yellow, and utterly free from any the slightest deposit of meal thereon. The tube is generally of the same colour as the yellow centre; and the anthers are round the mouth, with the stigma at the bottom, constituting the legitimate "thrum eye," the contrary of the "pin eye," where the stigma is awkwardly uppermost. It is impossible to define what are not show alpines, for they vary in every conceivable manner and degree from the standard properties; generally in being rough and flimsy and coarsely large, not so often failing in brilliancy of tints, and very often indeed in being dashed and dewed with sprinkled white meal upon their centres (desperate mongrels these), and, of course, also in being often pin-eyed. The show alpine is distinct enough from the green-edged, grey-edged, and white-edged Auricula, to need no further definition than has already been afforded to "J. S.," and only a very undiscerning eye could confound it with the one remaining class, the show selfs, that, like the alpine, possess no edge of pure or powdered green. The alpine proper is a shaded flower, the self has but one rich colour. The centre of the alpine is a zone of gold or lemon, and that of the self is densely overlaid with pure white meal. The foliage of the self is green, or half or fully mealed; but I do not know any show alpines of other than a green habit, though, in common border sorts, I have seen attempts at alpines with their grass mealed. *F. D. Horner, Kirkby Malzeard, Ripon.*

The Late William Mudd.—I was much pleased to see in your columns the notice of our late Curator from the pen of his old friend. But he says nothing of the work that Mudd did here. He was unable to go on with his study of lichens from the state of his eyes. The doctors told him that he must not use the microscope much, and so he had to give up the lichens. But he proved himself most efficient in the botanic garden, and has raised it to a very much higher state than it possessed before. He also gave much time to helping the students in obtaining a practical knowledge of botany, and proved himself to be a very efficient teacher. The undergraduates very much miss him. Although his manners were rough he endeared himself greatly to his pupils. In one word, we have lost a very valuable man—one who had the interest of the University and garden thoroughly at heart, and worked constantly for the advancement and benefit in all subjects of his department. *C. C. Babington, Cambridge.*

Peaches and Nectarines Blistering.—We have here some trees on a south wall, the leaves on which are all blistered, and looking as if they had been scorched with fire. I don't think there is a perfect leaf on them, while there is one tree which I took out of the peach-house early this spring that has not a blistered leaf on it. The tree that I took off the wall into the house has blistered leaves also, but not so many as those out-of-doors. I always had an idea that the blistering was brought on by the spring frosts and east winds, but I am now quite at a loss to account for it. Last year one of the Peaches under glass went wrong, the points of the leaves kept turning brown and after a time dropped off, and I find this season that they are all going, but not so bad as the one that was sickly last season. This must be some disease of some kind, can any one tell me how to prevent it, and also the blistering of the trees out-of-doors? *J. T.*

Heating by Petroleum.—Not long ago, in one of the daily papers, there was a very curious account of the extent to which, amongst the very poor in the East-end of London, who live in one room, petroleum has superseded coals for the purpose of warming the room and cooking. It said that the business of selling coals retail in small quantities had been

destroyed, by men who went about with a cask of petroleum on a wheelbarrow, which they sold by pennyworths. The statement of the poor people was, that a pennyworth of petroleum, in a sort of lamp they had, was enough to heat the room well and do their cooking for a day. Has petroleum ever been practically and successfully applied in this way, or any other, to the heating of pits, &c.? If one pennyworth will heat a room for twelve hours, two-pence would do so for twenty-four hours. This is 1s. 2d. per week—a cost at which no pit could be heated by coals. It is clear, if any such results can be attained it would be a great gain to many gardeners, small and large, and I need not apologise for asking you to get and give all the information available on the subject. *An Amateur.*

Double Pelargonium Vesta.—The double Pelargonium alluded to at p. 661 of the current volume of the *Gardeners' Chronicle* was raised and sent to Chiswick by me, and was not the production of Mr. R. Gilbert, as stated at p. 694. *Thomas Laxton, Bedford.*

Monstrous Primrose.—The accompanying illustration (fig. 106) may serve to give some idea of the Primrose lately exhibited by Mr. Cannell before the Scientific Committee of the Royal Horticultural Society. Three flowers were fused together in such a way that one calyx of eighteen segments enclosed three corollas,



FIG. 106.—MONSTROUS PRIMULA.

one separate, two united together; the calyx was petaloid or coloured like the calyx. In the drawing, in order to render the illustration clearer, the colour is not indicated. It is one of the most extraordinary malformations we have met with, and, unlike many such, is really a handsome one. We hear that the form is permanent in cultivation.

The Stapleford Roses.—I should like to add a few remarks to the subject of your leader in last week's issue of the *Gardeners' Chronicle*, at p. 692, and, if necessary, to bear testimony to the excellent qualities of the various varieties of new Roses therein enumerated; inasmuch as I have lately visited the Manor Farm Nursery, at Stapleford, near Salisbury, a place which has of late years been rendered somewhat famous for the production of new Roses—the names and merits of which I need not here mention, as they are well known to most rosarians. However, I may be permitted to refer briefly to a few of the new kinds of Teas, of various shades of colour, which, as you have already stated, have been the result of careful crossing. Moreover, the plants are, as I saw them a few weeks ago, robust growers, with a luxuriant and bold-looking foliage, and free and, as stated in your article in last week's issue, continuous bloomers. Their free-blooming quality was amply demonstrated by the condition in which the plants were at the time of my pilgrimage to Stapleford. However, those of your readers who may not have been to see Mr. Bennett's Roses—which I would advise them to do as soon as they can—must not understand me to allude to specimen plants, but to a

collection of new and choice Roses growing in pots, varying in size from small 60's to 32's, all of which were in a healthy and flourishing condition, thus redounding not only to the credit and skill of Mr. Bennett, who as a raiser and grower of new Roses is well known, but also to that of his chief man, Mr. Wood, who evidently is a successful propagator of the queen of flowers—the Rose. The following varieties are amongst some of those which took my taste most, viz., Duchess of Connaught, Beauty of Stapleford, a grand exhibition Rose; Duchess of Westminster, Michael Saunders, and Mabel Morrison—this last being spoken of as an "excellent bedder." I have refrained from describing this beautiful strain of new Roses—which, to say the least of them is, that they are considered an acquisition to our existing and already numerous and richly stocked family of Roses—in case I should not describe them accurately, which would be a blunder to be much regretted; therefore I shall leave the description to emanate from the proper quarter. However, I may remark by the way that these new Roses, taking into consideration the size and age of the plants, the smallness of the pots in which they are growing, for size, substance, colour, and perfect form of blooms, habit of plants, and richness of foliage, appear to be all that the most enthusiastic Rose-grower could desire; and which, when these "pedigree seedling" Roses are sent out, they are likely to be much sought after. *H. W. W.*

The Orchids at Henbury Hill.—I was glad to see Mr. Baines' comments on the healthy condition of these Orchids, and also on the light and airy system of culture adopted by Mr. Shore, the gardener. I can fully endorse all Mr. Baines says about the health and vigour of the plants, because when I called there at the end of last summer I found them in as good condition as Mr. Baines did later on; but what struck me most was the treatment they were receiving. The shading had been removed, although the month of August was not run out, an agreeable soft breezy air was playing about the plants, and for almost the first time in my life I really enjoyed a quiet look at them in a temperature that rather invited one to linger in than, as is too often the case, to hasten out of it. Might not some Orchid growers learn a useful lesson from this? *J. C. Clarke, Cothelstone, Taunton.*

The Cloth of Gold Rose.—I have a tree planted against a south wall in the neighbourhood of Crowthorne, Berks. This is the third year of planting, or rather, since I first planted it. Last season, without any exaggeration, it made quite 30 or 40 feet of wood, and is this year, in spite of all last winter's inclement weather, covered on several shoots with Rose-buds already. *Z. Z.*

Late Planted Potatos.—The untoward springs we have had of late years render early planted Potatos a very uncertain and profitless crop except in districts or situations more than usually favoured, where nothing in the vegetable way can be cultivated that will yield better returns. My experience of Potato growing is that all the late sorts should be planted early and the early kinds late, for this reason, the latter are through the ground so soon after being put in that they are generally cut off by the frost, and when this occurs the yield is reduced at least 20 per cent. As a rule, the end of April is quite soon enough for planting, for if warm weather sets in they come through with a rush and grow right on with the greatest rapidity and quickly form tubers, whereas those that are checked in their progress hang about long after and never really get over the check. Although the price obtained at the time of digging may no be quite so high, they pay better, as the increased quantity more than makes up the difference. If the seed of late varieties could have the room and attention bestowed on them that kidneys receive, and could be handled and planted in the same way, no doubt that they too would be all the safer and better in the store-room; but rather than have the first shoots damaged and the tubers thereby considerably weakened, the only way is to get them into the soil that they may make their growth there, as so long as they keep beneath the surface they are safe from harm and come sturdy and strong. Self-planted sets are generally the greatest producers, which shows that under more natural conditions there is less loss of vital force, as what is stored up at the time of ripening is conserved within and is only expended when called forth in the spring. For many successive years we tried the same kinds side by side in the same field, treated exactly alike, but planted at different periods, and we always found that those got in first gave us the best crops, and more free from disease. Soil, however, has to be considered, for unless moderately light and in good order it would not do to plant early as the heavy rains that fall in March bind the surface to such a degree that they have a difficulty in getting through or swelling their tubers after. Ours, although got in early, are only just showing their tops, but with the

hoes sent through to break the crust and a sprinkling of soot given, a week or two of warm weather will work wonders. *J. S.*

Absence of Fragrance in Flowers.—Having recently travelled through several parts of central and southern Spain, I was struck with the remarkable absence of fragrance in the flowers. Whilst strolling through the fine market at Barcelona I noticed several splendid bouquets of Roses, comprising Gloire de Dijon and other usually sweet-scented kinds, but they were all scentless. I placed them in water in my bedroom at the hotel, and kept them there for a few days, but no perfume was emitted. The Banksian Roses were also destitute of smell. I particularly desire to draw attention to this latter fact, because two years ago precisely at the same time of year I visited Genoa and Hyères, where these Roses existed in thousands, rendering the air far and wide redolent with their exquisite fragrance. In the gardens at Madrid and Seville this absence of smell appeared to prevail amongst all the flowers. There was, however, one exception—as one travelled through the Orange groves for a long distance by train, especially on the approach to Malaga, the perfume was overpowering. The Orange blossom appeared to be the only one, however, which had this delicious scent; that of the Violets was faint. During a lengthened residence in India I remember that scarcely any of the flowers in my garden possessed smell, but if I gathered Jasmine, Oleander, or Tuberose, and placed them in water in the house, the scent became so powerful that I invariably had headache and was obliged to eject the flowers. The sun had certainly much power at Barcelona and Madrid; its rays were of a tropical nature at Malaga and Seville, as testified by the splendour of the Bougainvilleas and Lantanas at the former place. Does solar heat dissipate the aroma of flowers? They get an abundance of it in Seville, where, I think, rain seldom falls. *J. Colebrooke, Chelsea.*

Oncidium pictum.—On a recent visit to the gardens at Hewell Grange, Bromsgrove, I saw in the plant stove there a small plant of *Oncidium pictum* carrying a fine spike of bloom, about 5 feet in length, with over 300 expanded blooms thereon, which according to my experience of this species is a fine example, and I think reflects great credit on Mr. Ward, the gardener there. *T. W. S. H.*

Muscats Setting.—Some time since, when a well-known gardener sent to South Kensington bunches of Muscat of Alexandria Grapes as examples of good setting produced by syringing, an eminent fruitist remarked that they would have set quite as well without. It is a curious fact that whilst some Grape growers seem to regard the successful setting of their Muscats as a matter to be boasted of, others not less successful but more reticent simply regard it as a matter of course that ordinary treatment may secure. To read of syringing and of the use of tufts of Pampas-grass and camel's-hair brushes, &c., provokes smiles amongst growers who prefer to rely upon common sense rather than upon nostrums that were regarded as new fifty years ago. Looking over the vineries at Heckfield the other day, where in all the houses there is a grand setting of fruit, I remarked that the Muscats were singularly even and promising, and found that the setting formula there consisted in a smart rap of the main stems three or four times a day or an occasional stroke of the hand down the bunch. It would have been impossible to secure a better result. All that is needed is to release the pollen, and the fertile organs at once become impregnated. A sudden jar of the whole branch seems to do this most successfully. It is a tradition of Heckfield, or at least it has been so since Mr. Wildsmith established the Grape-room, that it is never without Grapes. This is literally the case, as new Grapes are invariably ready ere the old Grapes are exhausted. Just now there are hanging in the Grape-room bunches of Lady Downe's, fresh, plump, and delicious, ripened last September, cut four months later (in January), and are hanging four months from cutting—that is, in May. With such superb late Grapes very early forcing is not an absolute necessity. *Z.*

The Common Arum (*A. maculatum*).—The hedges in this neighbourhood are full of the above-mentioned poisonous plant, and one fatal case has already occurred this month from eating the spadix, a poor little girl six years of age being the sufferer. The child had accompanied her mother to the Hop field, and amused herself by picking wild flowers. She was taken ill, and said she had eaten some of the "Lords and Ladies" she had found in the hedge; but medical advice was not sought for, at least I am told it was not, and the girl, after lingering a few days in great agony, died. It is really lamentable to see how ignorant country people in general are of the poisonous nature of different wild plants, and of the proper antidotes to administer; an emetic given immediately would probably have saved life. Chil-

dren are, I am told, apt to mistake the leaves of the Arum for Sorrel. It seems singular that the root of so poisonous a plant should afford good nutritive food after it has been submitted to the process of repeated washings and drying, for "Portland Sago" used to be made of the fœcula procured from this source. *Mrs. Alfred Watney.*

The Winter.—I send a list of survivals. I omit the list of losses, not only because it would be too long and painful, but because it is not easy to say in every case how far the deaths are to be credited to the cold and how far to other causes, and also because I still hope that some which at present appear to be killed may recover. Many of the plants named are seriously injured, but they are all alive:—

| | |
|-----------------------------|----------------------------|
| Abutilon vitifolium | Hibiscus grandiflorus |
| Actinidia kolomikta | Hieracium rotundifolium |
| " polygama | Hemerocallis lineata |
| Acanthopanax variegata | Hyacinthus candicans |
| Amorpha canescens | Hypericum balearicum |
| Androsace sarmentosa | Indigofera tinctoria |
| Anemone pulsatilla | Iris cretensis |
| Aristolochia sempervirens | " Kämpferi, in vars. |
| Artemisia echinoides | " tectorum |
| Arundinaria falcata | Ivesia unguicularis |
| khasiana | Ixia, in vars. |
| Asparagus verticillatus | Kniphofia caulescens |
| " racemosus | Lagerstrœmia indica |
| " amurensis | Libertia ixioides |
| Asplenium falcinellum | Lithospermum petraeum |
| munitum | Lomaria crenulata |
| Athyrium Goringianum pic- | Magnolia umbellata |
| Atrophis spinosa | " acuminata |
| Babiana, in var. | Margyricarpus setosus |
| Bambusa kumasasa | Meconopsis nepalensis |
| " Metake | Montbretia Pottii |
| " Simmonsi | Myrsine africana |
| Bellum bellidoides | Nandina domestica |
| " minutum | Nemostylis geminiflora |
| Berchemia volubilis | Olea europaea |
| Bignonia radicans major | Opuntia Rafinesquiana |
| Billardiera longiflora | " brachyantha |
| Blechnum hyacinthinum | Osmanthus ilicifolius |
| Bridgesia spicata | Oxalis variabilis |
| Bulbine annua | " cernua plena |
| Camassia Leichtlinii | Parrotia persica |
| Camellia japonica | Pelargonium Endlicherianum |
| Cantua dependens | Phloxes cashmeriana |
| Cassia marylandica | Phoenicarpa globosa |
| Chionodoxa Forbesii | Phoradendron tenax |
| Choisyia ternata | Phyllostachys aurea |
| Cistus Thuretiensis | " bambusoides |
| Clerodendron foetidum | Pistacia vera |
| Convolvulus italicus | Podocarpus chilensis |
| " stans | Primula capitata |
| Cordylone indivisa | " japonica |
| Corypha australis | " sikkimensis |
| Daphne indica rubra | Pseudotsuga trifoliata |
| Deeringia celosioides, var. | Pterostyrax hispidulum |
| Desmodium penduliflorum | Richardia aethiopica |
| Desfontainia spinosa | Rubus australis |
| Dianella atrata | Ruellia strepens |
| Diospyros kaki | Salvia Pitecheri |
| Diplopappus chrysophyllus | Saxifraga Fortunei |
| Edraianthus pumila | " peltata |
| Edwardia grandiflora | Senecio pulcher |
| Eremurus tauricus | Smilax mauritanica |
| Eryngium sertea | Solanum glaucophyllum |
| Eucomis regia | Sparaxis, in vars. |
| Eulalia japonica var. | Statice ferulacea |
| " zebrina | Struthiopteris japonica |
| Fagus betuloides | Styrax officinalis |
| Fatsia japonica | Tetranthera californica |
| Fortunaria sinensis | Tulbaghia alliacea |
| Fremontia californica | Uniola latifolia |
| Fuchsia coccinea | Veronica Traversi |
| " corallina | " pinguifolia |
| " macrostemma | Vitex agnus-castus |
| " procumbens | Viburnum Awafurki |
| " Venus vitictrix | Xanthoceras sorbifolia |
| Gladiolus purpureo-auratus | Xiphophyllum planifolium |
| Haberlea Rhodopensis | |

Henry N. Ellacombe, Bolton Vicarage.

Melon Nomenclature.—Growers of Melons who imagine they have raised some kind worthy of special consideration hardly compliment it when they give it the designation of "hybrid." I had to mention the introduction of one so named last week, but the raiser can scarcely have studied his dictionary, as if he had he would have found the term "hybrid" described as "a mongrel; a product of diverse species." If a Melon can be produced that has for one of its parents either a Cucumber or Vegetable Marrow, then a veritable hybrid, perhaps of very questionable value, is obtained, but two kinds of Melons only produce a Melon for progeny, and no more produce a hybrid than a couple of barnyard fowls can produce an eagle. If growers would but study the meaning of words they would hardly make these mistakes in plant nomenclature. *X.*

Double-flowered Gorse.—No one seeing large bushes of this in flower could fail to be struck with their splendour, so effulgent are they when the sun and light are playing fully upon them. Then in our sandy soil they are just at home and grow like weeds, but as they attain age and size they get shabby below through the foliage becoming brown, when we either shorten them well back or cut them down, but if this is done it should be immediately after they have finished blooming, as then they break again at once and reclothe themselves in time to flower the following year. The worst of this Gorse is, that it is very difficult to transplant, indeed it is almost impossible to do this successfully unless they are kept in

pots, as they only make a few small thong-like roots without a particle of fibre to them, which being the case, the shifted plants die before they have time to form fresh feeders to sustain them. The way we manage with them in working up a stock and getting them established, is to put in the cuttings under handlights which are stood in open positions among shrubs where the sun does not get at them, when if kept quite close they strike before the spring and are then ready for potting off. This is done in April, when the plants are placed in a frame for a short time to give them a start, after which they are plunged in any sunny spot in the open ground where they can be watered occasionally, and left till required for use. The best time to take the cuttings is just as the young growth is becoming a little firm, when, if slipped off with a heel at the base and carefully trimmed, scarcely one in a hundred will fail. Although the Furze will grow in almost any soil, it prefers that which is sharp and gritty, and there are generally plenty of spots of this character about most places where groups of this plant would form quite a feature. As the Gorse is one of the few things in the shrub way that rabbits will not touch, it comes in admirably for planting near the margin of drives or woodland walks, which it gives life to and sets aglow with its colour. The single kind is invaluable for sowing on poor barren land as sheep feed, but to get it up large enough to enable it to withstand the constant nibbling, it is necessary to hurdle or fence it in for a year or two till the lower leaves harden, which are then a sufficient protection to guard and keep it alive. *J. S.*

Narcissus calathinus.—In your last issue (p. 700) under head "Scientific Committee: Plants Exhibited," I note the statement that "up to this time it has only been recorded from an island off the coast of Brittany." Mr. Baker, in speaking of *N. calathinus* in *Gardeners' Chronicle*, 1869, says, after citing the Brittany (Île Drénec) habitat, "and from Portugal, gathered by Baron Pavia," with reference to *Brot. Fl. Lus.*, vol. i., p. 550. In *Red. Lil.* two forms are figured, and one of these (pl. 410), Herbert says (*Am.*, p. 308), is found "on the mountains of Gerez, near Ameranta." The large sulphur-coloured *Narcissus Bulbocodium* is very beautiful, and was introduced two or three years ago from rocky ground near the lighthouse at Biarritz by Mr. J. D. Llewellyn. *F. W. Burbidge.*

How to Destroy Ants.—If those who are troubled with ants will get their druggist to dissolve some arsenic in honey and place the mixture on pieces of slate or glass, protected from water, the ants will eat it and die. Be sure that the arsenic is properly mixed with the honey [and be sure to keep children out of the way]. *Henry Swaler.*

Something New about the Strawberry.—I have a word or two to say about the Strawberry, which I hope will not be unacceptable to the majority of your readers who are interested in the cultivation of this prized fruit. I may say that until recently I fancied that I had acquired considerable experience in the cultivation of the Strawberry, but if recent revelations with regard to the cultivation of this fruit be true I am either a long way to the front or in the rear, I don't know which. Horticultural literature is sometimes monotonous, and I confess I do not dislike a little of the grotesque being at times thrown into it, but when I read of Black Prince being a good variety to force in April, and of varieties which are notorious for their bad keeping and travelling qualities being recommended to be grown in the hottest months of the year, I begin to doubt the experience of those who supply the information. Well, while I am reasoning with myself upon this part of the subject the *Gardeners' Chronicle* for last week reaches me, and to my surprise I find a paragraph entitled "Strawberry Cultivation," which I eagerly scan, expecting to find that alpine raised from seed are likely to supersede Black Prince for forcing next year, but I was disappointed. The paragraph, which by the way has neither beginning nor end to it, informs us of a patent plan of propagating the Strawberry, which it appears has not received that recognition which its importance deserved. It is as follows:—A thick piece of turf 6 inches by 6 inches is taken from an old pasture and turned upside down and placed under a single runner, the earth having first been scraped away with a hoe immediately under the plant. Now I have heard of fowls being employed with great effect in certain garden operations. Why should not a hen with a flock of chickens do the scraping business in the case of the Strawberry? But the finishing-stroke is to come still. We are recommended not to throw away old plants, but to transfer them from one plot of the garden to another. The object is obvious, of course; the roots extract everything from the soil that is conducive to their welfare, and require fresh quarters. The curious part is, that your shrewd correspondent, "Observer," does not seem to be aware that Strawberries may be propagated by the hundred or thousand

in small pots or boxes, which, if planted out early in August, will yield a fine crop the following year; and again, forced plants, if properly managed, will not only produce a good autumn crop the same year they are forced, but will also yield an unlimited supply the year following. These facts are detailed in your columns weekly, and yet your correspondent seeks to establish a claim to a system which no one having any practical acquaintance with Strawberry cultivation would ever think of adopting. *Cultivator.*

The Weather and the Fruit Crops.—Notwithstanding the severe winter, Figs are showing plenty of fruit, at least that is the case with ours, both on walls and bushes in the open, and as they are so late it would appear next to impossible that they should now be injured by cold and fall off in the way they have done for the last year or two. Gooseberries have set well, but the bunches of Currants are very gappy, having suffered much from the frost; and as to Cherries on walls, so far as regards the dessert kinds, they will be almost a failure, as there will not be more than 10 per cent. of them swell. This is owing to the injury the stigmas received, which prevented fructification taking place, and as this has been the fault, there may be many fall off in the spring. Pears and Apples promise to be an abundant crop, which is something to be thankful for, as after all, from the long season they may be had in use, they are about the most serviceable fruit grown, the latter especially, as the general public get a share of the benefit. Plums, too, are likely to be plentiful, and these again come largely into consumption among the poor, when they can be had cheap, as is likely to be the case during the coming summer, that is, if we ever have weather deserving the name. The rains have been just the thing for Strawberries, which are throwing up plenty of flower, and all of this is sure to set now and swell off without much further assistance. Peaches and Nectarines will be thin, and Apricots few indeed, and not only are these nearly bare of fruit, but the trees are mere wrecks, having lost much of their wood. *J. S.*

Asparagus Sown under Glass and Transplanted.—Having had to take up and force rather more Asparagus than usual, and being anxious to replace it and replenish our stock as quickly as possible, I had some seed sown under glass in gentle heat early in February, the plants from which, being now about 9 inches high, are being planted, and as they are so sturdy and strong I expect to gain nearly a year's growth through having such a long season before them. I am aware that most cultivators like to form their new plantations just as the crowns are on the move, but the best beds I ever saw were made and filled with plants when they had tops at least a foot high, and it becomes a question whether that is not the proper time for moving them, for, as is well known, there are often many failures in the rows when the transplanting has been carried out too soon. With a little top and a few green leaves the large fleshy roots are encouraged to emit fibres, which they soon do, but without those aids the broken ends and injured parts caused in lifting begin to rot immediately, and in this way many plants are lost. Asparagus that has been forced and thrown out is difficult to kill, as may be seen by any castaway on the rubbish heap, where, although exposed to the drying influences of the weather, it often appears little the worse. No doubt this tenacity of life has been remarked by many, but although this may be so I never heard of any one putting in practice late planting till the instance above referred to, and as the success was so great, and the whole of the beds did so well, it would appear that we should wait for a more active state of the plants before we attempt their removal. It may be objected that to form plantations these would involve more labour and loss of time, but this would not be the case if carried out in the way I saw it done, which was, that a drill or opening was made by the side of a line with a spade, in which the roots were laid out and slightly covered with earth and then well watered, when the final filling in took place. Treated in that manner they never flagged in the least, as just at the time the weather was cloudy, and the growth they made after was something astonishing. Whether those I am trying will answer my expectations remains to be seen, but in any case I hope to give a report of them hereafter, for if we can steal a march on Time by such a simple expedient it will be much to the advantage of many. In the matter of cultivating Asparagus I believe we have a good deal to learn, for in few gardens do we find it at all equal in size to the immense heads sent over from France. The delicacy and rich flavour of these, however, is, in my opinion, quite spoiled by the blanching to which they are subjected, as instead of being tender and eatable from 4 to 6 inches or so of their length, only just the tops can be used, and even that portion, compared with such as is exposed to the full influence of sun and air, is insipid and watery, and yet there are many who still give it the preference. With such a gross-feeding plant as the Asparagus, our present

system of growing it in beds so close together is against size, for not only do the roots require more space to run in, but the tops want an increase of light and air to admit of their full spread and proper development. Planted in single rows a yard apart, in deep rich soil, they will repay for the extra ground they occupy, but although they may have so much in their favour it frequently happens that they are reduced to weakness by such persistent late cutting. This in ordinary seasons should cease by the end of May, as then time is afforded for them to recoup the loss to which they have been subjected, and to ripen the crowns properly before winter sets in. *J. S.*

"Summer Cloud."—This is the name of a new composition manufactured for shading purposes during the summer months. I have used it here, and consider that it would be impossible to speak too highly of the article, which can be put on by any labourer with a painter's brush. The appearance outside is a pleasing green, while inside it looks like a light fleecy cloud, and softens the rays of the sun nicely. The Pine, Vine, Peach, Melon, and Cucumber, rejoice in the summer sun (when we get it), but there are a host of plants, occupants of our stoves and greenhouses, which require shading, and this is the very material for the purpose, and can be laid on thick or thin, according to the desire of the gardener. I may mention that it is for "outward application," and is best put on at a temperature of 80°. *J. Rust, Eridge Castle.*

Early Peaches.—I think "J. S." must have forgotten to name the Early Beatrice in his list of Peaches at p. 663. It is the best early Peach I have come across. Last season it behaved admirably here in an unheated house, ripening long before many other sorts, and when the fruit is ripe early, the wood, as a matter of course, ripens too, and we well know the probability of well-ripened wood swelling their fruit better than that which is ill-ripened. This season Early Beatrice was started with Royal George, but has left the latter far behind, and has fruit now as red as a Cherry, while Royal George is still at his ease between the "swellings." The Early Beatrice is also doing equally well in a later house. Most certainly, as "J. S." says, Dr. Hogg is a grand Peach, good at every point, and makes a nice succession to the Early Beatrice. *A. Bradshaw, Calwich Abbey Gardens, May 27.*

Himalayan Rhododendrons.—The magnificent flowers some of these bear render them objects of great beauty, while as to perfume several of the varieties are so fragrant that a single plant in bloom is sufficient to fill a large house with sweet odour. My favourite for growing indoors is R. Edgworthii, which bears immense blossoms of a pure white colour, that are so stout in texture as to last a long time in perfection. Although rather shy flowering, as most of these Sikkim Rhododendrons are, it is perhaps more free than any, at least I have generally found it so under a certain system of cultivation, which is to grow it on well in moist heat under glass, and afterwards set it out in the open to ripen the shoots. The thing to guard against in doing this is the drying of the roots, which is sure to occur if the sun and air are allowed to play on the pot, and to avoid this the best way is, before exposing it, to drop it into another sufficiently large to admit of a little moss or some other non-conducting material of that kind being placed between. This prevents that sudden and extreme desiccation of the soil to which plants are so subject when placed out abroad, and which frequently is the cause of throwing them out of health or otherwise checking their progress. Finding R. Falconeri quite hardy with us here, I was hopeful R. Edgworthii would prove the same, and acting on this, several years back I ventured to plant several out, but they all succumbed to the frost, although the first-named has passed the late severe winter unscathed. I suppose this difference in constitution is owing to the higher altitude of the one over the other in the Himalayas, but whether this is so or not, certain it is that they differ much in their powers of withstanding the cold, and yet to look at them one would suppose that R. Falconeri would be much the tenderer of the two, owing to the large, soft, succulent-looking terminal buds and huge leaves. These measure from 1 foot to 15 inches long, and 16 inches wide, and being of a peculiarly bright pleasing green on the upper side, and a dark ferruginous hue beneath, have a very striking appearance. So noble and fine in aspect is this, that it is quite worth growing for the beauty of its foliage alone, and would make a grand-looking object on any lawn or other conspicuous situation where it could be grown as a single specimen. The one we have here has not flowered yet, but this may be owing to its being so much in the shade, and on that account not maturing its wood properly, for even the common kinds, under the same conditions, are generally spare of bloom when others in more exposed places are bristling with buds. I shall be glad

to hear whether any one has tested the hardness of R. Nuttallii or any of the others from the Himalayas, and if so, with what result, or if hybrids have been raised between them and the hardy North American kinds; for if not, there would appear to be a fine field open to get a fresh race that will not only afford us much larger blooms and a greater variety of colour, but perfume the air with their fragrance as well. The Messrs. Veitch have evidently turned R. Edgworthii to good account by crossing it with some greenhouse sorts, as they have sent out some very fine things, partaking a good deal of the character of the Sikkim parent. That bearing the name of Countess of Haddington [sent out by Mr. R. Parker] is a remarkably free flowering kind, having streaks and tinges of colour in the white, besides which it has good foliage and a nice bushy habit, which render it just the thing for conservatory decoration. *J. S.*

Foreign Correspondence.

BOSTON, MASS., May 19.—Up to May 1 the spring was three weeks behind our average, but on the 5th—the day I arrived home, after a delightful passage of ten days—warm weather set in, and now we have regained the lost time. All the Pears and Apples are in full bloom. The temperature has been 60° to 70° at night and 80° to 90° in the day, and only one cloudy, showery day for two weeks. We are sitting with our coats off and the windows all open. In fact, we are in full summer heat. My Camellias are yet full of buds and in fine bloom, and last Saturday I made a fine exhibition of eleven seedlings, and also a dozen beautiful seedling Azaleas, some of them the best I ever saw. *C. M. Hovey.*

Reports of Societies.

Royal Botanical and Horticultural, of Manchester: May 30 to June 6.—The Whitsuntide flower show of the Manchester society has become one of the chief horticultural events of the year, and on this occasion, despite the concurrent attraction of a rival exhibition in London, it was not in the least degree shorn of its usual grandeur, or sensibly curtailed in its proportions. The fact of two such exhibitions being held at the same time is in itself a convincing proof, if one were needed, that the love of horticulture is not retrogressing or dying out amongst us, and that the brotherhood of gardeners has lost none of the old indomitable spirit it has so often displayed at these peaceful encounters.

The Manchester show of the present year may be noted as remarkable for the very fine display of stove and greenhouse plants. Collections of extraordinary merit, and some examples of superior skill perhaps may have appeared on the stages on former occasions, but we may fairly say that the merit throughout this class of subjects has never before ranged at so uniformly high a standard. Another remarkably fine feature was found in the pot Roses, which, notwithstanding the giants displayed in the tents of South Kensington, were of a very high order of merit, thanks to Mr. Turner, who had reserved some of his best plants for the Northern display. Throughout the show, moreover, there was a manifest reduction in the number of the coarser looking foliage plants, and a corresponding increase in the number of flowering subjects, the consequence of which was that a much brighter and more cheerful aspect pervaded the whole scene. In one department alone did we notice a falling off in the number of exhibits and that was amongst the Orchids, but here the reduction in bulk was met by a greater amount of variety, and what we have represented as a "diminished" show was in fact sufficient to eclipse any series of competing plants which has of late years been staged in London. Dr. Ainsworth's plants were absent, but their places were well filled by those from Mr. Turner, a son we believe of the noted Orchidophilist of Pendlebury. Mr. Wrigley's plants were also wanting, but nevertheless the display was abundant, with fewer of the doubtful class of "made-up" plants, and the quality was exceedingly good.

The exhibition-house was, as usual, allotted to the collections of stove and greenhouse plants, which occupied the back portion of the interior space on both sides and at the end, and were displayed to better advantage than on former occasions, owing to the staging being almost dispensed with; these back plants were, in fact, but slightly elevated, and hence the visitors could see something of their form and proportions, without the necessity for any display of the ungainly system of tilting, which has been so generally followed, and often to a degree which is hideous and excessive. In the front of these, next the stone kerb, but protected by a light wire-fencing, stood the Orchids, as usual, and a charming fringe they made to the shrubby plants behind them. Here also were shown the collections of new plants, and some of the

Crotons and Dracaenas, one of the prettiest and most distinct groups of the latter which we have seen being set up by Mr. B. S. Williams. A large tent ranged alongside the exhibition-house, and of about the same area, contained the competing collections of Adiantums, the amateurs' sets of Dracaenas and Crotons, the alpine plants, the plants staged for effect, and a little very good fruit.

Between the house already mentioned and the great iron-framed tent was an open space, in which several beds of hardy shrubs and evergreens were prettily filled up by Messrs. John Standish & Co. The Japanese Maples formed a leading feature of these groups, and were peculiarly pleasing in this association.

In the great iron tent, the northern end of which was elevated so as to afford an opportunity of overlooking the whole of the plants, was a fine display of all the multitudinous subjects which go to make up a great show. The raised portion was backed by a row of fine Palms, while beneath the visitor was a crescent-shaped bed of Pelargoniums, and a second bed of Calceolarias and Pansies. Then came a circular bed of fine pot Roses, with a noble Cyathea dealbata in the centre high over their heads. Passing down the central avenue first came two splendid banks of Roses in pots, and then two banks of equally good tender Ferns, the sides being flanked by irregular banks devoted to mixed groups of smaller subjects, amongst which were some plants of Clematis, mostly of the lanuginosa varieties, beautiful flowers, but inferior as specimens of culture to those shown in London by Messrs. Jackman during the past week or two, some of the finest being Henryi, with large white flowers, and Gloire de St. Julian, of an exquisitely soft and delicate tint of blush lilac. Further down the tent were two opposite oblong beds filled with choice evergreens, and after them a circular bed of the same kind of subjects all filled by Messrs. John Waterer & Sons, of Bagshot, who also decorated the extreme end of the tent with a bank of well-flowered hardy Rhododendrons. The sides of the tent in this portion was also filled by irregular-shaped banks of hardy Ferns and other interesting plants. Outside on the terrace overlooking the flower-garden were numerous large specimens of evergreens, such as Hollies and Coniferous plants, from Messrs. Waterer & Sons, Osborn & Sons, and Cauldwell & Sons. Thus far we have sketched a general outline of the show; let us now give a few particulars of the most important elements of which it was composed.

STOVE AND GREENHOUSE PLANTS.—Of these there were some remarkable collections staged—so fresh, bright, well-grown, and finely flowered. In the amateur class for twenty plants, ten in flower and ten foliage, a very keen contest took place between E. Pilgrim, Esq., Cheltenham, and J. F. Greswold Williams, Esq., Henwick Grange, Worcester (Mr. E. Tudgy, gr.). Both were very fine twenties, with scarcely a weak point to be noted about either. Mr. Pilgrim's group had the most striking appearance, because the colour in the flowers was more attractive, but there were counterbalancing advantages in Mr. Tudgy's group which equalised the two, and plant cultivators were agreed that it was a wise thing to make the two collections equal. Of flowering plants, Mr. Pilgrim had Azalea Holfordiana, magnifica, and Duc de Nassau, the last singularly fine and effective; Clerodendron Balfourianum, Ixora Williamsii and Pilgrimii, the latter a fine pale-coloured seedling not yet distributed; Erica Victoria Regina, Darwinia tulipifera, Anthurium Scherzerianum, and Pimelea mirabilis; and of foliage plants, Croton Weismanni, longifolius, and undulatus, the latter in very fine condition; Gleichenia rupestris and semivestita, Cordyline indivisa, and some bold and striking Palms. Mr. Tudgy's group consisted of a remarkably fine specimen of Anthurium Scherzerianum, 4 feet 6 inches through, one of the best grown plants that has ever been staged; Clerodendron Balfourianum, Darwinia tulipifera, Erica Queen Victoria, ventricosa magnifica, ventricosa superba, Cavendishiana, Steven-sonia grandifolia, Geonoma gracilis, Gleichenia semivestita, Pritchardia pacifica, Cycas circinalis, Croton pictus, &c. John Rylands, Esq., was 3d, having a very fine piece of Alocasia Lowii, a good plant of Todea superba, Dicksonia antarctica, &c. While these groups filled up the far end and a portion of the sides of the large conservatory, the nurserymen's groups of twenty plants, ten flowering and ten foliage, were on either side of the entrance. Here there was a very keen contest between Mr. James Cypher, Cheltenham, and Messrs. E. Cole & Sons, Withington, Manchester, the 1st prize going to the former. This contained among flowering plants a magnificent Erica Cavendishiana, 5 feet high and as much through, thoroughly well finished, brilliant in colour, and so thickly studded with flowers that there was scarcely room to pack in another; Azalea Vivid, Pimelea spectabilis, Boronia pinnata, Stephanotis floribunda, Clerodendron Balfourianum, Ixora regina, and Bougainvillea glabra; and of foliage plants, Croton majesticus and undulatus, a splendid Pritchardia pacifica, Verschaffeltia splendida, Latania borbonica, Phormium tenax variegatum, Thrinax ele-

gans, &c. In Messrs. Cole & Sons' group were Azalea Stella, very fine; Duc de Nassau, Le Géant, and Louise Van Baden, Ixora coccinea, and Prince of Orange; a fine Statice profusa, Bougainvillea glabra, Gleichenia rupestris, Croton variegatus, Johannis, and Weismanni, &c. Messrs. W. & C. Cauldwell & Sons, Knutsford, were 3d. In the amateurs' class for eight stove and greenhouse plants in flower Mr. Pilgrim was 1st, with Azalea Stella, A. sinensis, Anthurium Scherzerianum, Boronia pinnata, Erica ventricosa coccinea minor, &c.; J. F. G. Williams, Esq., being 2d, and H. Samson, Esq., Bowden, 3d. There were other minor classes for plants of this character, all of which greatly assisted in making up a fine display, but do not require notice in detail.

AZALEAS were not shown so plentifully as in former years. The amateurs' class for six varieties brought no entry. In the nurserymen's class for ten specimens, Messrs. E. Cole & Sons were a long way 1st, staging some good plants, the best being Duc de Nassau, Stanleyana, Criterion, Adelaide de Nassau, Extranei, Flower of the Day, &c.; Messrs. G. & W. Yates, Manchester, were 2d.

FINE-FOLIAGED PLANTS, as is always the case, made a fine display in the large conservatory. The best group of ten plants came from Herman Samson, Esq., Bowden (Mr. Lingard, gr.), whose plants showed fine cultivation. They consisted of Cycas revoluta, Thrinax elegans, Cocos Weddelliana, Latania borbonica, Croton variegatus and Weismanni, Gleichenia rupestris, Areca Verschaffeltii, Phormium tenax variegatum and Pandanus Veitchii; 2d, J. H. Birley, Esq. (Mr. Elkin, gr.), with Croton angustifolius, variegatus, and Weismanni, Latania borbonica, Cocos Weddelliana, Phormium tenax variegatum, Cibotium regale and Cordyline indivisa; 3d, R. D. Dodgson, Esq.

CROTONS were finely shown by Mr. B. S. Williams, the Society's Gold Medal being awarded to him for an excellent group, consisting of Queen Victoria, Weismanni, Prince of Wales, Williamsii, Henryanus, majesticus, fasciatus, and albicans. There were also three or four groups shown in the amateurs' class.

DRACAENAS, consisting mostly of the newer varieties, were shown in fine condition by Mr. B. S. Williams, the Society's Gold Medal being awarded in this case also. The group contained amabilis, Goldiana, Berkleyi, Robinsoniana, recurva, Duffii, splendidly coloured; Bausei, very fine; ignea, one of a group of varieties with orange-salmon variegation, which is very effective and distinct; and one or two others. We have never seen a more effective group.

ORCHIDS were, as usual, a leading and very fine feature, and though they were less numerous than we have seen them, owing to the absence of one or two noted collections, as already mentioned, they were abundant and remarkably good. The best fifteen came from W. Turner, Esq., Wansford, Bolton, and comprised a very fine Odontoglossum vexillarium, with sixteen spikes of flowers of excellent quality; O. cirrhosum, O. citrosomum, O. Roezlii, Oncidium Marshallianum, Lælia purpurata, Saccolabium Turneri, which, with its four immense spikes of charmingly spotted flowers, has perhaps never been excelled; S. guttatum, Cattleya Mossiae superba, C. Warneri, Aerides Fieldingii, A. odoratum majus, 2d, W. Leech, Esq., Fallowfield (Mr. W. Swan, gr.), who had capital examples of Dendrobium densiflorum, D. thyrsiflorum, the delicate and beautiful Thunia Marshalliae, Oncidium macranthum, Odontoglossum Andersonianum, O. cirrhosum, Cypripedium caudatum, with ten fine flowers fully open; C. barbatum superbum, Masdevallia Veitchiana, M. Harryana, &c. 3d, George Hardy, Esq., Timperley (Mr. Hill, gr.), who had Odontoglossum Bluntii, very fine; Cypripedium caudatum, Oncidium leucochilum, Masdevallia Harryana superba, and five fine forms of Cattleya Mossiae, &c. The best nine Orchids came from R. B. Dodgson, Esq., Blackburn (Mr. Osman, gr.). This group comprised a finely bloomed example of Odontoglossum vexillarium, Dendrobium Schröderi, D. Devonianum, Aerides odoratum majus, A. virens, Cypripedium barbatum majus, C. villosum, and Masdevallia Harryana. 2d, W. Turner, Esq., with Odontoglossum vexillarium, Dendrobium Wardianum, D. Lowii, Cattleya labiata, and Masdevallia ignea as his best subjects; 3d, J. Broome, Esq., Didsbury. In the class for six Orchids Mr. J. Broome was well 1st with a nice lot, consisting of a fine Vanda teres, Cypripedium caudatum, in rare form; C. barbatum, C. Veitchii, Lælia purpurata and Odontoglossum vexillarium. 2d, R. B. Dodgson, Esq., with Dendrobium Devonianum, D. nobile, Aerides odoratum purpurascens, Odontoglossum vexillarium, &c.; 3d, G. Hodgkinson, Esq., Dunham Massey. The best specimen Orchid in the amateurs' class was a fine lot of Odontoglossum vexillarium, from W. Turner, Esq.—James Fildes, Esq., coming in 2d with Aerides Fieldingii; and W. Leech, Esq., 3d, with Trichopilia crispata.

In the nurserymen's classes for Orchids, Mr. B. S. Williams, Victoria Nursery, Holloway, was the only

one who made any display, but the plants he took from London fully sustained his reputation as an exhibitor. In the class for sixteen he was the only exhibitor, and had thoroughly good examples of Odontoglossum Pescatorei, O. Alexandrae, Dendrobium thyrsiflorum, D. densiflorum, D. nobile, Cattleya Morganæ, an exceedingly delicate and lovely form; C. labiata, Lælia Brysiana, with three well developed flower-spikes and six more to open; L. purpurata, Aerides crispum, Masdevallia Harryana splendida, M. Lindleyana, M. ignea; Cypripedium suavisimum, and C. Lowii. In the class for ten, Mr. Williams was far away ahead of his opponents with good examples of Cattleya Mendelii, Lælia princeps, Cattleya Mossiae, Dendrobium nobile, D. Bensoniae, Odontoglossum vexillarium, O. Alexandrae, Oncidium sphacelatum, with five fine spikes of bloom; Cypripedium caudatum, and Masdevallia Harryana.

PALMS, as already mentioned, were, as they always are, amongst the more prominent of decorative objects. They were shown in groups of four, there being seven competitors. The quartette from Herman Samson, Esq., was placed 1st. It consisted of a very handsome Thrinax elegantissima, 10 feet high; a fine Cocos Weddelliana, 7 feet high; Geonoma Schottiana, of about the same size, with a fresh healthy Seaforthia elegans to match—altogether four very fine plants. 2d, J. Rylands, Esq., Stretford, who had a grand plant of Latania rubra, 10 feet high; Pritchardia pacifica, 6 feet high; a dwarfish spreading Cocos Weddelliana, and a rather lumpy plant of Thrinax elegantissima. J. F. G. Williams, Esq., was 3d, with some good Palms but smaller—Pritchardia pacifica, 7 feet high; Cocos Weddelliana, 5 feet; Kentia australis, 4 feet; and a neatly grown plant of the rare Geonoma Seemannii. In a group shown by J. Broome, Esq., were good plants of Cocos Weddelliana and of Geonoma gracilis. A pair of handsome plants of Seaforthia elegans, 12 feet high, were shown by Mr. B. S. Williams, and, being placed in prominent spots, appeared to us far more effective in breaking up the plant masses than the lumpy Tree Ferns which are sometimes assigned to similar positions.

FERNS.—The finest lot of stove and greenhouse Ferns, in groups of eight, came from Herman Samson, Esq., and included some very fine Gleichenias, namely, G. Speluncæ, 10 feet across, in grand condition; G. Mendelii, 4 feet through, a well-furnished plant, remarkable for its glaucous under-surface; G. dichotoma, 6 feet through, dense, fresh and vigorous; and G. flabellata, in equally good condition, and of still larger size. The group also contained a dwarf Cibotium spectabile, Cyathea medullaris, Davallia Mooreana, and a rather discoloured example of Dicksonia antarctica. The 2d prize lot came from S. Schloss, Esq., Bowden (Mr. Beddoes, gr.), and contained three fine fresh Tree Ferns of moderate height, a splendid plant of Davallia tenuifolia, 6 feet through, and in a most perfect condition; Davallia Mooreana, good and equally large; a fine Gleichenia Speluncæ, 7 feet through; a smaller Gleichenia Mendelii, and a well-grown example of Brainea insignis, of moderate size. R. B. Dodgson, Esq., who was 3d, showed three fine Gleichenias, a good Davallia Mooreana, Cyathea Burkei, on a 5-foot stem; shorter plants of Cyathea dealbata and Dicksonia antarctica, and a fine freely-grown young example of the comparatively new Microlepia hirta cristata.

Four collections of six Adiantums were staged, and formed an interesting feature in the show. The best came from J. C. Silkenstadt, Esq., Didsbury (Mr. Humphreys, gr.), and consisted of A. assimile, farleyense, gracillimum, specially well done; decorum, Capillus-Veneris Dawsoni, and cuneatum, all fresh healthy plants, about 2½ feet over. G. Hodgkinson, Esq., Dunham Massey (Mr. Boardman, gr.), was 2d, and showed a fine A. farleyense, and a good A. macrophyllum; R. B. Dodgson, Esq., was 3d, and his group contained good plants of A. cultratum and A. tenerum.

The hardy Ferns shown were in excellent condition, owing to the cool sunless weather we have experienced. In the amateur class Mr. H. Crowe, Greenheys, was 1st, with fine dense bushy plants, comprising amongst others a very fine Lastrea Filix-mas cristata, Osmunda Claytoniana in a splendidly fertile condition, Athyrium Filix-femina Victoriae, very characteristic, A. F.-f. todeoides, fine and good; Lastrea Filix-mas Barnesii, large and finely grown; and a grand example of Osmunda regalis cristata. A. Birley, Esq. (Mr. Hesketh, gr.), was 2d, and in his group we specially noted a neatly grown Adiantum pedatum, a well-marked hardy Fern, not often seen at exhibitions; a fine Athyrium F.-f. Fieldiae, a large example of Lastrea F.-m. Barnesii, and the dwarf crowded-pinnuled A. F.-f. stipitatum. Mr. C. Rylance, Ormskirk, deservedly gained the 1st prize in the nurserymen's class, his plants ranging from 2 feet to 4 feet high, densely grown, and in first-rate condition. Amongst them were noticeable specimens of Lastrea F.-m. cristata and cristata angustata, and of Athyrium F.-f. tortile and Vernoniae. Messrs. W. & J. Birkenhead, Sale, set up a large group of choice species and varieties, British and exotic, which,

though not for competition, were of much interest to Fern-growers.

SARRACENIAS, &c.—A class was provided for the best collection of Sarracenias, Nepenthes, &c., in which a most interesting group of twenty plants, shown by J. Fildes, Esq., Chorlton-cum-Hardy, took the 1st prize. Here was a well-grown group, in which the Sarracenias were particularly noticeable for their fresh and healthy appearance, and comprised the following species and varieties:—*S. rubra*, Drummondii, Drummondii alba, flava, flava picta, flava maxima, Fildesii, variolaris, pittacina, and purpurea; *Darlingtonia californica*, and six species of *Drosera*. J. Broome, Esq., who was placed 2d, had a group of sixteen plants, many of them being Nepenthes, but the group included a good *Drosera dichotoma* and a fine plant of *D. capensis*.

NEW PLANTS, &c.—Certificates of Merit were awarded to Mr. James Anderson, Meadowbank, for *Amaryllis* (*Hippeastrum*) Mrs. Findlay, a variety with a short scape and bright scarlet flowers, having a broad central stripe of pure white down each segment and a few white pencillings near the greenish base, the segments recurved, and the three outer ones rather the largest, giving a slightly triangular outline to the flower. To the same for *Amaryllis* (*Hippeastrum*) William Allen, in which the large flowers are evenly expanded, scarlet, with a white stripe, forming a white star, which passes into pale green at the base of the perianth tube. To Messrs. R. Smith & Co., Worcester, for *Adiantum farleyense alicorne*, already described in our columns at p. 503. To Mr. B. S. Williams for each of the following subjects, shown amongst his twelve new plants:—*Dracena* Lord Derby, with erect broadish leaves, remarkable for the purplish tint of rose which pervaded the variegation; *Dracena superba*, elegant, with narrow recurving leaves, variegated with a deep rosy tint; *Dracena Robinsoniana*, a variety in which the broad erect greenish leaves are prettily streaked with reddish-brown; *Lælia purpurata Williamsii*, with purplish sepals and petals and a rich sanguineous-purple lip; *Cattleya Morganæ*, a very delicate tinted, rather small-flowered variety, intermediate between the *Mendeli* and *Mossii* types, the sepals and petals pure white, and the lip very faintly tinged with purple and yellow; *Adiantum Williamsii*, a Peruvian Fern which becomes more and more distinct-looking, and is a highly effective decorative plant, remarkable for the crimped edges of its pinnules; *Gleichenia dicarpa longipinnata*, an Australian variety, with elegantly elongated drooping pinnæ; *Croton Williamsii* and *Croton Henryanus*, two broad-leaved varieties of high merit, the first taking on a rosy variegation, the latter a bright yellow.

The group of twelve new plants shown by Mr. Williams, for which the Society's Gold Medal was awarded, included, besides the foregoing certificated subjects, the following:—*Dracena Goldieana*, *Microlepia hirta cristata*, *Aralia nobilis*, *Zamia crassifolia*, *Croton Prince of Wales*, a handsome and distinct variety, with longish drooping spirally-curved leaves, having abundant yellow variegation, suffused in age with a rich tint of orange colour; *Calyptrogonia Swartzii*, and *Kentia neoguineensis*. In the amateurs' class for six new plants the prizes were awarded to J. F. G. Williams, Esq.; R. B. Dodgson, Esq.; and J. Broome, Esq., in the order named. Mr. Williams' group was by far the best, and consisted of *Croton Andreanus*, *C. Mortii*, *Anthurium Williamsii*, with an abundant display of its ivory-white spathes, doubtless the finest plant of this novelty which has yet been seen, and fully justifying the expectations formed as to its ornamental qualities; *Dracena Goldieana*, *Bownia spectabilis serrulata*, and *Lomaria discolor bipinnatifida* under the unrecognised name of *L. gramæoides*. Mr. B. S. Williams, and Messrs. Osborn & Sons, Fulham, staged in the centre of the conservatory large groups of new and rare plants with others of a choice character; the latter having baskets of the beautiful *Gentiana acaulis* laden with large deep blue flowers.

ROSES IN POTS were shown in fine form by Mr. C. Turner, Royal Nursery, Slough, who notwithstanding the heavy drain made on his resources by the great show at South Kensington, was yet able to send to Manchester plants of the highest quality, one of them a specimen of Charles Lawson, 7 feet high and as much through, and carrying something like 300 flowers. Mr. Turner had no rival in the nurserymen's classes; his collection of twelve large Roses comprised Charles Lawson, just alluded to; Céline Forestier, very fine; Madame Lacharme, Miss Ingram, Souvenir d'un Ami, Paul Verdier, Edward Morren, a very fine pot Rose; La France, Madame Thérèse Levot, Marquis de Castellane, Beauty of Waltham, and Juno. Mr. Turner's collection of twenty small Roses in pots comprised Madame Lacharme, very fine; Vicomte Vigier, Pierre Notting, Camille Bernardin, Catharine Mermet, Avocat Durier, Céline Forestier, Souvenir d'un Ami, Fisher Holmes, Royal Standard, a fine and full globular Rose; and Duchesse de Vallombrosa. His group of thirty Roses in any-size pots

made a conspicuous feature in the annexe, arranged as a disc, having in the centre a large Tree Fern. Here we noticed John Stuart Mill, an excellent pot Rose; François Michelin, very fine; Madame Lacharme, Madame Victor Verdier, Rev. J. B. M. Camm, Camille Bernardin, Souvenir de Spa, a new rich crimson Rose well deserving attention; Dupuy Jamin, and others.

In the amateurs' class the best six Roses came from W. J. Leach, Esq. (Mr. G. Cooper, gr.), and consisted of nicely grown and fairly flowered plants of the following varieties:—Madame Thérèse Levot, Marquis de Castellane, Madame Laurent, Coquette des Blanchés, Charles Lawson, and Baroness Rothschild. W. Brockbank, Esq., Didsbury, was 2d, his best examples being Duke of Edinburgh, Baroness Rothschild, and Madame Lacharme. Messrs. J. Cranston & Co., Hereford, sent several boxes of beautiful cut Roses, Maréchal Niel and other Noisette and Tea-scented varieties being very prominent. They received, as they deserved, a large share of public attention.

CLEMATISES in pots came from Messrs. R. Smith & Co., St. John's Nursery, Worcester; though small, they were neat, fairly-flowered examples, and were necessarily conspicuous. The leading varieties were Henryi, Lady C. Nevill, Sensation, Gem, Marie Lefebvre, Gloire de St. Julien, Lawsoniana, Mrs. James Bateman, Impératrice Eugénie, Marie Van Houtte, Purpurea elegans, and Madame Grangé. With these were set some of the handsome Japanese Acers, with very nice effect.

HERBACEOUS HARDY PLANTS were represented by a large and very interesting collection of eighty plants from Messrs. James Dickson & Sons, Newton Nurseries, Chester. A few of the gems to be found in the group were *Anthericum Liliastrium*, *Gentiana acaulis*, *Narcissus Bulbocodium*, *Hoteia japonica*, *Caltha palustris flore-pleno*, *Tulipa fulgens*, *Cypripedium spectabile*, *Phlox subulata atro-purpurea*, *Dielytra spectabilis* and *Dielytra alba*, *Spiræa palmata*, *Geum coccineum flore-pleno*, *Cypripedium parviflorum*, &c. This was awarded the Society's Gold Medal. In the amateur's class for thirty-six alpine and herbaceous plants W. Brockbank, Esq., was 1st with a very good lot, comprising *Trollius asiaticus*, *Doronicum caucasicum*, *Cypripedium spectabile*, *Iberis gibraltarica*, *Aquilegia Skinneri*, *Ramondia pyrenaica*, a dwarf plant with large mauve-coloured flowers, now little known, *Lychnis alpina*, &c. *Lilium auratum* was shown in groups of three finely grown plants, but owing to the lateness of the season they were backward in opening their flowers. The best came from Mr. J. G. Adams, Ashton-on-Mersey.

PELARGONIUMS.—These brilliant subjects furnished most acceptable patches of colour. In the nurserymen's class, Mr. C. Rylance, Houghton, near Ormskirk, showed thoroughly well-finished plants, especially of the large-flowered types, as well, if not better done than we have ever before seen them from this grower. His eight show Pelargoniums consisted of Rob Roy, Perfection, Pericles, Rose Celestial, Hermit, Le Vesuve, and others. His fancy varieties were Ellen Beck, Advancer, Lucy, Ann Page, Juliet, Delicatum, Roi des Fantaisies, and Fanny Gair; his best Zonals, Jean Sisley, Acme, Vesuvius, Queen of Beauties, Coleshill, Madame Vaucher, Wellington, and Mrs. Jacoby; and his eight variegated, Golden Queen, Lady Cullum, Louisa Smith, L'Empereur, Mrs. Pollock, Queen of Hearts, Mrs. Clutton, and Prince Silverwings.

In the amateurs' classes no large-flowered or fancy Pelargoniums were produced. The best Zonal and variegated types came from Mr. F. J. Sumner. The former were somewhat old varieties, though fairly well grown, the latter large bright-looking plants. Some good plants came from E. Rogerson, Esq., Cheadle (Mr. A. Cooper, gr.), who was 2d. Louisa Smith, Miss Watson, Lady Cullum, Flambeau, Sophia Dumaresque, and Mrs. Dix, were the best golden varieties; and Mrs. Clutton, Charming Pride, Italia Unita, and Silver Ray, the best silver-edged types.

PANSIES and VIOLAS in pots made a nice feature, but it should be made indispensable that the plants be shown in the pots in which they are grown. The fancy Pansies were decidedly the showiest objects in pot plants, the show Pansies not being the best varieties that might have been selected for the purpose. Among the fancy Pansies Thomas Grainger, H. Entwistle, Mrs. Robinson, Vesta, Miss Hammond, Nelly Morran, and some others were very striking. The English Pansies fell below these in point of quality, with but very few exceptions. Of the Violas the best of the blue-flowered varieties were Holyrood, Rubra lilacina, Trojan, and Novelty; yellows, Stricta aurea and Queen of Violas; whites, White Bedder and Little Beauty. In the amateurs' class Mr. E. Pilgrim gained the 1st prizes with six pots each of English and fancy Pansies; Mr. E. Coward, Heaton Mersey, having the 1st prize for Violas. Mr. Henry Hooper, Bath, was 1st in the nurserymen's class for

twenty Pansies in pots, and for twenty Violas; Mr. W. Brownhill being 1st, and Mr. Hooper 2d, with twenty fancy Pansies.

CALCEOLARIAS were very numerous: quite a large group competed, and generally the plants were well grown and the flowers of excellent quality; indeed, for size, marking, and colour, we have rarely seen better. Messrs. J. G. Silkenstadt, W. Leech, and J. Heywood, were awarded prizes in the order of their names.

Some nice plants of **CINERARIAS** came from Mr. D. Adamson, large flowers, of good form and substance; the plants scarcely so compact in growth as we should have liked to see them.

AMARYLLISES were well shown by Mr. James Anderson, Meadowbank, the flowers of fine quality, bold and showy; and the Society's Gold Medal was awarded to the collection.

In the class for the best collection of one hundred plants in or out of flower, arranged for effect, the Society's Gold Medal was awarded to Messrs. R. P. Ker & Co., Liverpool. This group consisted of Azaleas, Rhododendrons, Palms, Ferns, and many others, all of good growth, and a bold and effective arrangement was secured.

HARDY EVERGREENS.—The opening between the conservatory and annexe gave space for a large central and four sectional groups of plants, generally of hardy evergreens, sent by Messrs. Standish & Co., Ascot. The Japanese Maples formed an important feature in these groups, and being nicely mingled with other hardy plants of Japanese origin of an interesting character, they were at once a striking and valuable feature. The Society's Gold Medal was awarded to this collection; Messrs. John Waterer & Son, Bagshot, being 2d.

RHODODENDRONS.—A huge bank of these grand plants was shown by Messrs. John Waterer & Son, which completely filled the end of the long annexe, and made a rare bank of colour. The Society's Gold Medal was awarded to this group.

FRUIT was limited in quantity, but that staged was very good. The best collection came from Lord Carington, Wycombe Abbey (Mr. Miles, gr.), and consisted of Black Hamburg and Muscat of Alexandria Grapes, Queen Pine, Elruge Nectarine, white and black Cherries, very fine James Veitch Strawberries, Figs and Melons; 2d, J. T. Sumner, Esq.; 3d, Mrs. R. Hornsby, Grantham. The best two bunches of black Grapes came from the Earl of Crawford and Balcarres (Mr. A. Jamieson, gr.), represented by well finished Black Hamburgs; Mr. J. T. Sumner being 2d with the same variety. The best white Grapes were well ripened Buckland Sweetwater, from Lord Bagot, Blithfield (Mr. T. Bannerman, gr.), Mr. James Johnson being 2d with Golden Champion. The best twelve plants of Strawberries in pots came from the gardens of the Earl of Ellesmere (Mr. Upjohn, gr.), finely grown and well ripened examples of La Grosse Sucrée. Mr. W. J. Sumner was 2d, and Mr. J. Heywood 3d.

There was a very large display of implements, boilers, garden chairs, mowing machines, greenhouses, and other horticultural appliances—objects which always attract a good share of the attention of visitors, who are thereby prompted to become purchasers.

Reading Horticultural: May 22.—The late and unkindly spring has told on early exhibitions in a marked manner, and Reading was no exception to this rule. There was an undoubted aspect of thinness, but it was compensated to a great extent in that there were many good things, clean, bright and healthy in appearance. Stove and greenhouse plants, always a leading feature at the Reading Spring Show, showed a great falling off in numbers, the only exhibitor in the class for twelve specimens being Mrs. Marsland, White Knights (Mr. W. Lees, gr.), who had a nice lot, quite good enough for the 1st prize, but wanting time to bring them to their best state. The best six came from Mr. J. F. Mould, nurseryman, Pewsey, who had a capital lot, well grown and admirably bloomed. 2d, H. A. Simonds, Esq., Cressingham (Mr. Miles, gr.). In the class for the best specimen stove and greenhouse plant in flower (amateurs) equal 1st prizes were awarded to Col. Loyd-Lindsay, M.P., Lockinge Park, Wantage (Mr. J. Atkins, gr.), and Mr. J. F. Mould; C. Eyre, Esq., Welford Park (Mr. C. Ross, gr.), coming in 2d with *Anthurium Scherzerianum*; Major Storer, Purley Park (Mr. Mortimer, gr.), being 3d with the same. The competition in this class was one of the features of the exhibition.

Orchids, though not so good as might be expected at a place like Reading, surrounded as it is with plant-growing places, were yet very attractive. The best three came from W. J. Palmer, Esq., Reading (Mr. W. Baskett, gr.), and consisted of *Dendrobium thyrsiflorum*, *Phalenopsis Schilleriana*, and an *Odontoglossum* named *chrysostomum*. G. May, jun., Esq., Reading (Mr. Pound, gr.), was 2d with Cat-

tleya Mossie, Dendrobium suavisimum, and D. crystallinum. The best specimen Orchid was a charming piece of Dendrobium nobile from Col. Loyd-Lindsay, M.P.; W. J. Palmer, Esq., being 2d, with Dendrobium Devonianum, and Major Storer 3d, with Dendrobium nobile.

Azaleas were, as usual, a very effective feature, though the larger the plants the later did they appear to be in flowering. The best nine plants came from H. A. Simonds, Esq. The class for four Azaleas brought some nice plants from Mr. Miller. Heaths were a very good feature indeed, the season considered, and here Mr. J. F. Mould—who promises to become the leading cultivator of Heaths in the West of England—was 1st with six varieties, having well-grown and densely-flowered examples of Tricolor Wilsoni, Tricolor Eppsii, Victoria Regina, insignis, Lindleyana, and profusa; Mrs. Marsland coming in 2d. Fuchsias were as good as could reasonably be expected. The six plants staged by the Hon. R. Boyle, Purley (Mr. Hope, gr.), were well grown, but only partially bloomed; in another fortnight they will be capital exhibition specimens. A 1st prize was awarded to this group, the others being passed over.

Pelargoniums, hitherto a leading feature at the Reading Spring Show, were on this occasion represented by plants that were only coming into flower, the foliage being a little weak here and there. The class for six fancy Pelargoniums brought some nicely-grown and flowered specimens from C. Ellis, Esq., Waltham Place, Maidenhead, who was the only exhibitor, and was awarded the 1st prize. The best four fancies came from Col. Clayton, Maidenhead (Mr. Burgess, gr.), Mr. Ashby being 2d.

The six Roses in pots from Mr. J. F. Mould, to which the 1st prize was awarded, were admirably grown and well bloomed, and consisted of good varieties, Mr. Baskett being 2d. In the amateur class for four plants Mr. J. Tranter, Upper Assenden, was 1st with some capitally grown plants.

In the way of foliated plants the best nine came from Mr. Store; Mr. Lees was 2d. Mr. Mortimer had the best nine stove and greenhouse Ferns; 2d, H. J. Simonds, Esq., Caversham (Mr. Bezant, gr.) The classes for four Ferns and four fine-foliated plants brought a good competition; the best group in the first case coming from Mr. J. Hope, the 2d best from Mr. W. Armitage. The best group of fine-foliated plants came from Mr. J. Atkins, the 2d best from Mr. Bezant. The best specimen foliage plant was *Latania borbonica*, from Mr. Mortimer.

Of cut flowers there were boxes of twelve bunches, distinct, Mr. Tegg coming in 1st with thoroughly good examples of *Cattleya labiata*, *Dipladenia boliviensis*, *Rhododendron Veitchii*, *Lapageria alba*, *Stephanotis floribunda*, *Begonia Bidwilli*, *Scutellaria Mocciniana*, *Azalea* Mrs. Fry, the pretty pink Zonal Mrs. Leavers, &c.; 2d, Mr. Robins, with a good lot; 3d, Mr. J. Miller. Cut Roses were nicely shown by Messrs. Tranter, Robins, Mould, and Mayo. The blooms were fresh and good, particularly the tea-scented varieties. Messrs. Phippen & Robinson's bridal bouquet commanded general admiration, while Messrs. Phippen's table decorations and Miss Adnam's three pieces in wild flowers gathered about them quite a dense circle of admirers.

Of fruit there were some rare *Violette Hâtive* Peaches from Bearwood Gardens, large and beautifully coloured: the judges regretted they could not award Mr. Tegg double the value offered, but they added the highest commendation they could give. Strawberries were grand, particularly President and Sir Charles Napier; the former, from Mr. Mortimer, left nothing to be desired. Mr. J. Ashby was 1st with black and white Grapes, having Black Hamburgh and Foster's Seedling. Mr. J. Tomlin was 2d with black, and Mr. Tegg had the same position with white.

Vegetables were very good for the season, and consisted of Potatoes, Peas, Asparagus, Cauliflower, Lettuce, Rhubarb, &c.; and there was a class for a miscellaneous collection, Mr. Lockie being 1st, and Mr. Perkins 2d. Messrs. Sutton & Sons' special prizes for the best brace of Cucumbers went to Messrs. Lockie, Howe, and Perkins. The former had Sutton's Duke of Connaught in rare form, Mr. Howe had Telegraph, and Mr. Perkins Carter's Model, which may be described as a dark-skinned Telegraph. In the class for a brace of Cucumbers, Mr. Lockie was also 1st with Duke of Connaught, as before, perfect in shape and condition.

Royal Horticultural: June 2.—As compared with the popular Whit-Monday exhibition held in the gardens at South Kensington last year, the great show which was provided for the multitude on Monday last was in all respects a very great improvement; and but for the utterly wretched weather must have proved an enormous success, for such a really splendid show of flowers was never before in Europe submitted to public inspection at such a modest entrance-fee as 2d. As it was, only 8071 persons passed through

the turnstiles, about half of the number that paid for admission last year. The large marquee, if possible, looked even brighter and gayer than it did the previous week, the wonderful display of market plants adding a glow of colour that was wanting even in that grand show. With the characteristic liberality and good feeling of their class, many of the leading exhibitors of the previous week allowed their plants to remain for the Monday show, and as the bulk of them appeared to have lost but little of their beauty, it can easily be imagined what a splendid effect Mr. Barron created with such excellent materials. The monster Roses of Mr. Turner and Messrs. Paul & Son, the Clematises of Messrs. Jackman & Son, the Roses and Japanese Acers of Messrs. Veitch & Sons, the Rhododendrons and Roses of Messrs. H. Lane & Son, the fine-foliated plants and Ferns of Mr. Rann (gr. to J. Warren, Esq., Handcross Park), the collection of fine-foliated and flowering plants of Mr. B. S. Williams, and the mixed collections of Messrs. John Laing & Co., Messrs. Cutbush & Son, and Messrs. Osborn & Sons were all and each greatly admired, while the group of succulent plants from Mr. Boller had great interest for those who have found in this interesting tribe subjects for window culture that are unrivalled for the simplicity of their requirements.

The competition in the various classes confined to London florists and growers for Covent Garden was very spirited, and the subjects staged of unequalled excellence in their way. Mr. John Wills won easily the ten-guinea cup for a group of decorative plants in or out of flower, his collection being pretty much the same as the one which gained him so much honour last week. Messrs. Hooper & Co., Covent Garden, came in 2d, and Mr. Aldous, South Kensington, 3d. The prizes for the best group of plants in flower went to Messrs. J. & J. Hayes, of Edmonton, Mr. John Reeves, of Acton, and Mr. E. Sawyer, of Edmonton; the first-named showing large well-flowered examples of show and Zonal Pelargoniums, Fuchsias, Heaths, Hydrangeas, Spiræas, Bouvardias, and Cinerarias, &c. Though not so extensive a group, Mr. Reeves had nevertheless a remarkably fine lot of plants, including Tuberose and Intermediate Stocks, *Lilium candidum*, show Pelargoniums, Fuchsias, Spiræas, Heaths, and Heliotropes, while the best of Mr. Sawyer's productions were undoubtedly the Hydrangeas and Spiræas. The best group of fine-foliated plants, including Ferns and Palms, came from Messrs. Hooper & Co. In the next class, which was for 100 show Pelargoniums, the judges awarded the prizes, in the order named, to Messrs. J. & J. Hayes, Mr. John Reeves, and Mr. W. Brown, Brent Nurseries, Hendon, but this would not have been the case had the plants been judged according to the market standard. In Covent Garden Market it is the grower who can get the most out of a 48-pot that is held in the highest reputation, and it is the ambition of every market man to outshine his rivals in this particular requirement. Had the class been judged by market men (and none know better what a market plant should be) Mr. Reeves would undoubtedly have been placed 1st, for a finer lot of plants than his, and all in the regulation pot, was not produced by any other grower. Exceedingly even in size, with an abundance of healthy foliage and a profusion of bloom that was most surprising, no wonder that they claimed the admiration of all practical men. To show what growth Mr. Reeves can get out of plants in 48's it may be mentioned that one plant measured 2 feet 9 inches through, and that another, of smaller dimensions, had foliage down to the pot, twenty-two trusses of expanded flowers, and a dozen more to follow. Though we have said so much in favour of Mr. Reeves it must not be understood that we have one word of disparagement for the Messrs. Hayes' plants, or those of Mr. Brown, which were of remarkable excellence, but not so good as those which only got the 2d prize. The Messrs. Hayes also took the highest prize in the classes for 100 Zonal Pelargoniums and 100 Fuchsias with a splendid lot of plants in each case; and they were also awarded the 1st prize for fifty pots of Musk; but if we are to understand by the word "Musk" that it means *Mimulus moschatus*, the Musk of the cottage garden, of Covent Garden, and of the costermonger's barrow, then the prizes were again awarded wrongly, the 1st and 2d being given to collections of Harrison's Musk, which is a garden hybrid, and not the Musk of commerce; and the 3d to the genuine article. For fifty pots each of Mignonette and Stocks, Mr. Reeves took the lead easily, his plants of the former showing a rare growth, but not sufficiently developed as regards the flowers; while the crimson Intermediate Stocks were simply perfection. Messrs. Ponsford & Sons had the best bridal and ball-room bouquets.

The subjects shown by artisans and others coming under the denomination of working classes, were placed in the long tent, and no doubt they had their admirers; but being for the greater part of the very poorest and meanest description, they call for no comment from us. In a London parish schoolroom, such plants! and such vegetables! might have passed

muster, but at South Kensington they were simply misplaced rubbish; and if no better can be grown in London, the less that is seen of them the better.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JUNE 4, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRIC DEDUCTIONS from Glaisher's Tables 6th Edition. | | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|--|--------------------------------|-------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Dew Point. | Degree of Humidity. Sat = 100. | | |
| May 29 | In. 29.52 | -.06 | 61.5 | 43.1 | 18.2 | 50.5 | 53.4 | 79 | W. S.W. | 1.12 |
| 30 | 29.65 | -.14 | 64.1 | 43.5 | 20.6 | 52.5 | 53.4 | 75 | W.N.W. | 0.00 |
| 31 | 29.48 | -.31 | 60.0 | 44.0 | 16.0 | 51.8 | 45.5 | 95 | S.W. | 0.01 |
| June 1 | 29.44 | -.36 | 60.1 | 40.1 | 11.0 | 52.6 | 39.4 | 84 | S.W. | 0.22 |
| 2 | 29.45 | -.35 | 55.0 | 46.0 | 9.0 | 48.9 | 7.8 | 98 | S. S.W. | 0.29 |
| 3 | 29.46 | -.34 | 59.8 | 46.7 | 13.1 | 50.4 | 6.5 | 94 | N.W. N.N.W. | 0.39 |
| 4 | 29.72 | -.08 | 64.2 | 39.8 | 24.4 | 50.0 | 7.1 | 84 | W.N.W. | 0.01 |
| Mean | 29.53 | -.26 | 60.7 | 44.6 | 16.1 | 51.0 | 5.5 | 87 | variable | sum 2.04 |

May 29.—A fine bright day. Cloudless at night. Very heavy rain and slight thunderstorm in early morning.

— 30.—A very fine bright day. Sky partially clear.

— 31.—A fine day, but dull at times, with slight rain in morning and afternoon.

June 1.—A moderately fine morning. Dull and showery rest of day. Strong wind.

— 2.—A very dull miserable day. Wet and cold. Windy (a bad day).

— 3.—A dull day, very cloudy; with frequent rain. Fine at times. Clear at night. Cold.

— 4.—A fine day, but very dull at times, with heavy clouds. Showers between 3 and 4 P.M.

Note.—The mean temperature of the air for the fifty-six days (April 10—June 4) was 45°·1, being 6° below the average of sixty years.

Errata.—In last week's Weather Table, the departure below the average of the mean temperature of forty-nine days (April 10—May 28) is given as 0°·1; it should be 6°·1.

LONDON: Barometer.—During the week ending Saturday, May 31, in the vicinity of London the reading of the barometer at the level of the sea decreased from 30.05 inches at the beginning of the week to 29.60 inches by the evening of the 27th, increased steadily to 29.86 inches by the morning of the 30th, and decreased to 29.67 inches by the end of the week. The mean reading for the week was 29.72 inches, being 0.30 inch below that of the preceding week, and 0.24 inch below the average. The mean daily readings were all below their averages.

Temperature.—The highest temperatures of the air observed by day varied from 64° on the 30th to 55½° on the 25th; the mean value for the week was 60°. The lowest temperatures of the air observed by night varied from 40½° on the 26th to 48° on the 25th; the mean value for the week was 44°. The mean daily range of temperature in the week was 16°; the greatest range in the day was 20½°, on the 30th, and the least 7½° on the 25th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—25th, 51°—4°; 26th, 48°·8,—6°·4; 27th, 49°·6,—5°·8; 28th, 50°·2,—5°·4; 29th, 50°·5,—5°·3; 30th, 52°·5,—3°·5; 31st, 51°·8,—4°·5. The mean temperature of the air for the week was 50°·6, being 5° below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 142° on the 29th, 131½° on the 28th, and 128½° on the 30th; on the 25th the reading did not rise above 76°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 37° on the 26th, 38° on the 31st, and 40° on the 30th; the mean of the seven lowest readings was 40°·3.

Wind.—The direction of the wind was variable, and its strength moderately strong. The weather during the week was very cold and wet, and the sky generally clouded.

A slight thunderstorm occurred during the early morning of the 29th.

Rain fell on six days during the week; the amount measured was 2.27 inches.

ENGLAND: Temperature.—During the week ending Saturday, May 31, the highest temperatures of the air observed by day were 71½° at Nottingham, 69½°

at Cambridge, and 68° at Sunderland; the highest temperature at Portsmouth was 60°, and at Plymouth and Liverpool was 60½°, the mean from all places was 64½°. The lowest temperatures of the air observed by night were 37° at Bradford, 40° at Leeds, 40½° at Blackheath, 40½° at Wolverhampton, and 40½° at both Cambridge and Nottingham; the lowest temperature of the air at Plymouth and Portsmouth was 44½°; the mean value from all stations was 41½°. The extreme range of temperature in the week was the greatest at Nottingham, 31°, and the least at Portsmouth, 15½°; the mean range from all places was 22½°.

The mean of the seven high day temperatures was the highest at Cambridge, 63½°, Brighton, 63°, Nottingham, 61½°, and Norwich, 60½°; and the lowest at Liverpool, 56½°, and Plymouth, 57°; the mean from all places was 59½°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 42½°, Nottingham 43°, and Blackheath and Sheffield, both 44°; and the highest at Plymouth, 47½°, and Portsmouth, 47°; the mean value from all stations was 45½°. The mean daily range of temperature in the week was the least at Plymouth, 9½°, and the greatest at Cambridge and Nottingham, both 18½°; the mean daily range of temperature from all places was 14½°.

The mean temperature of the air for the week from all stations was 50½°, being 1½° lower than the value for the corresponding week in 1878. The mean temperature was the highest at Brighton, 52½°, Cambridge 52½°, and Norwich 52°; and the lowest at Wolverhampton, 48½°, and Sheffield and Liverpool, both 49½°.

Rain.—Rain fell at Truro and Bradford on every day in the week, and on six days at most other places. The heaviest falls were at Blackheath, 2.27 inches, Bristol, 1.88 inch, Brighton, 1.49 inch, and Wolverhampton, 1.13 inch; and the least falls were at Sunderland, 0.26 inch, and Norwich, 0.30 inch; the average fall over the country was 0.96 inch.

The weather during the week was somewhat fine, though dull and showery, and the sky was cloudy.

SCOTLAND: Temperature.—During the week ending Saturday, May 31, the highest temperatures of the air observed by day varied from 63° at Perth and 62½° at Glasgow, to 53½° at Aberdeen, and the mean from all places was 60½°. The lowest temperatures of the air observed by night varied from 33° at Greenock, and 37° at Edinburgh, to 41½° at Aberdeen; the mean from all stations was 38½°. The mean range of temperature from all places was 22°.

The mean temperature of the air for the week from all stations was 48½°, being 3° lower than the value for the corresponding week in 1878. The highest was 50° at Glasgow, and the lowest was 47½° at Edinburgh, Aberdeen, and Leith.

Rain.—The amounts of rain varied from 1.56 inch at Paisley, and 1.45 inch at Dundee, to 0.78 inch at Leith, and 0.83 at Edinburgh; the average fall over the country was 1.11 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

ALFALFA: C. B. W. The fodder plant grown in the United States under the name of Alfalfa (the Spanish name of Lucerne) is *Medicago sativa*.

CRICKETS: C. D. Try Phosphorous Paste, or the mixture of arsenic and honey recommended by a correspondent in another column for destroying ants. Only pray be careful with it.

CUCUMBER: J. Clark. The specimen was smashed in transit through the post, and we could make nothing of it.

FRTILLARIA BURNETI.—In the account of this plant given last week at p. 685, for "column" read colour.

FUNGUS ON PEAR LEAVES: H. The parasite on the Pear leaves is one condition of a fungus known as *Roestelia cancellata*. It is often a great pest amongst Pear trees.

HORTICULTURAL PERIODICALS: A. Brown. The only paper solely devoted to gardening in Ireland is the *Gardener's Record*, published at 97, Middle Abbey Street, Dublin. "Horticulture" also has a column or two devoted to it in the *Irish Farmer's Gazette*, published at 23, Bachelor's Walk, Dublin.

INSECTS: G. T. Shaw. The insects are weevils. The best thing you can do now, as the insects feed at night, is to spread a sheet cautiously under the plants when they are feeding, and then give the plants a sharp tap, when they will fall down feigning death, and must be speedily collected and destroyed.

NAMES OF PLANTS: Frank Gould. 1, *Fritillaria pyrenaica*; 2, *Muscari neglectum*.—R. H. B. *Amelanchier canadensis*.—A. Story. The Bird Cherry, *Prunus Padus*.—J. G. Nelson. 1, 2, and 3, *Fritillaria pyrenaica*; 4, *Fritillaria pyrenaica* var. *lutea*; 5, *Ranunculus aconitifolius*; 6, *Stylophorum petiolatum*.—A. H. *Saxifraga decipiens*.—A. B. Binder. 1, *Listera ovata*; 2, *Pedicularis sylvatica*.—H. Coombs. The Bird Cherry, *Prunus Padus*.—T. O'G. *Francoa sonchifolia*.—Wm. Temple. *Corydalis lutea*.—Foreman. The Orchid appears to be a *Lælia*, intermediate in character between *L. Perrinii* and *L. grandis*, and may possibly be a hybrid between those species. The

other plant has been mislaid: please send it again.

—W. H. 1, an *Arisema*, probably *A. japonica*, but material not sufficient to determine further; 2, *Erinus alpinus*; 3, *Ruscus Hypophyllum*.—Alpha, Aberdeen. 1, *Stellaria Holostea*; 2, *Viola palustris*; 3, *Potentilla anserina*; 4, *Equisetum hyemale*. Is this latter a wild specimen, or grown in the garden?—C. P. *Hampworth*. 1, *Cytisus Adami*; a graft hybrid originating from the budding of *C. purpureus* on to *C. Laburnum*; 2, *Leucothoe axillaris*.—Rev. 1, *Pteris straminea*; 2, *Adiantum decorum*, large; 3, *Asplenium bulbiferum*, var.; 4, *Diplotis glutinosus*, or one of its varieties: you should have sent flowers.—G. S. 6. *Reineckia carnea variegata*.—J. Hobbs. *Tradescantia repens vittata*.—J. Urquhart. *Adiantum assimile*, *Aspidistra lurida variegata*.—G. Milne. The *Amaryliss* is a stove plant, the *Rhododendron* a greenhouse plant. We cannot name the former, as it had perished before it reached us; the latter is *R. Edgworthii*, or one of the hybrids of similar character obtained from crossing it. —J. Tail. 1, *Allium ursinum*; 2, *Caltha palustris*; 3, *Stellaria Holostea*; 4, *Cardamine pratensis*; 5, *Viola canina*; 6, a *Carex*, too young to be determined. Please not to pack your flowers in cotton-wool.—G. Munns. A *Hæmanthus*, but which we cannot say without better materials.—W. H. *Epidendrum cochleatum*, *Francoa ramosa*, *Lotus Jacobæus*. The Conifers next week.—J. Freeman. 1, *Saxifraga granulata flore-pleno*; 2, *Styrax officinale*.

ODONTOGLOSSUMS: N. German. The *O. Cervantesii* is a very large and beautiful variety, approaching to that which has been named *decorum*. The *O. Pescatorei* is a fine form, but not so remarkable as the last.

PEACHES: A. L. The leaves are badly affected with Peach-blight, and should be picked off at once.

SEEDLING POLYANTHUSES: P. R. The flowers are large, and bright in colour, but otherwise coarse, and of no value whatever as florists' flowers.

VARIOUS QUESTIONS: H. Bickerton. Your questions have no connection with horticulture, therefore we shall not attempt to answer them. The reply to your first can be got from any good dictionary; to your second from any book on geography; to your third from the *Clergy List*; and to your fourth from a lawyer; while the fifth cannot be answered until the event happens.

VINES: W. A., Leeds. The leaf is eaten up with red-spider and thrips, not scorched by the sun.—R. M. L. It is very difficult to suggest the cause of the few leaves dying off as you describe; possibly it may arise from a chill, such as cold drip falling on the leaf-stalks, but this is quite a guess.

Enquiries.

SULPHATE OF AMMONIA.—I am connected with a gas company, and manufacture a quantity of sulphate of ammonia, which is sold to chemical manure manufacturers. Will you kindly say whether the sulphate as sent out from gasworks is fit to use as a dressing for a Vine border, and if so how it should be applied, and in what quantity, and also whether it can be used as a manure for pot plants? *Sulphate*. [The fitness of any particular sample of ammonium salts for use as manure depends a great deal on its freedom from sulphocyanates. These are abundant in crude sulphate of ammonium from gasworks, and are very injurious to plants. I have no experience of the effect of ammonium salts on Vines, and would, from theoretical reasoning, rather prefer to use saltpetre; I doubt not, however, that sulphate of ammonium would, under many circumstances, prove an effective manure. Soils suitable for ammonium salts should contain some calcareous matter—chalk, for instance. As to quantity, we are again without any practical information. An application of 3 oz. of pure sulphate of ammonium to 1 square yard would be an extremely heavy agricultural dressing. I could not recommend more than this. For pots it might be applied in solution. I should not like to use a solution stronger than ½ oz. in 1 gal., but here again I have no actual experience to offer. From analogy I should advise the application of ammonia to be confined to the early stages of growth, and to cease altogether before ripening commences. R. W.]

POPULUS ALBA BOLLEANA.—Can any of your readers tell me where I can obtain *Populus alba Bolleana*, an upright variety of the White Poplar, in habit like the Lombardy? *Camjee*.

* * Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

CATALOGUES RECEIVED:—A. Riemschneider (Brandenburg-on-Havel, near Berlin), Wholesale List of Roots and Bulbs.—Messrs. Stuart, Mein & Allan (Kelso, N.B.), Catalogue of Bedding Plants, Florists' Flowers, Greenhouse and Stove Plants, &c.—Messrs. Lévêque et fils (Rue du Liégar, 69, à Ivry-sur-Seine, Paris), Catalogue of New Roses.

COMMUNICATIONS RECEIVED:—J. F. J.—F. H.—J. House (next week).—E. G.—W. T.—Dicksons & Co.—W. B. H.—H. D.—W. Dungey.—E. O.—J. G.—W. Hinds.—J. I. L.—W. C.—W. & S.—W. P. R.—A. G.—J. T. B.—W. J. B.—W. B.—I. W.—I. H.—C. W. S.—M. D. M.—A. F.

Markets.

COVENT GARDEN, June 5.

Business and prices remain about the same. James Webber, Wholesale Apple Market.

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Oranges, per 100 | 6 0-12 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Peaches, per dozen | 12 0-30 0 |
| Figs, per dozen | 10 0-15 0 | Pine-apples, per lb. | 2 0-4 0 |
| Grapes, per lb. | 3 0-6 0 | Strawberries, per lb. | 6 0-12 0 |
| Lemons, per 100 | 3 0-10 0 | | |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0- .. |
| Globe, doz. | 2 0-4 0 | Lettuces, Cabbage, | |
| Asparagus, Fr. sprue, | | per doz. | 1 6- .. |
| per bundle | 1 6- .. | Mint, green, bunch. | 0 4- .. |
| — Eng., per bundle | 5 0-6 0 | Onions, per bushel | 12 0-14 0 |
| — Fr. giant, p. bun. | 8 0-15 0 | — young, per bun. | 0 4-0 6 |
| Beans, French, p. 100 | 2 0- .. | Parsley, per lb. | 1 0-2 0 |
| — broad, per lb. | 1 0- .. | Peas, per quart | 3 6- .. |
| Beet, per doz. | 1 0-2 0 | Potatoes, new, per lb. | 0 6-0 9 |
| Cabbages, per doz. | 1 0-2 0 | Radishes, English, | |
| Carrots, per bunch | 0 6-0 9 | long, per dozen | 0 9- .. |
| — New Fr., p. bun. | 2 0- .. | — English, Turnips, | |
| Cauliflowers, per doz. | 2 0-5 0 | per dozen | 1 6- .. |
| Celery, per bundle | 1 6-2 0 | Rhubarb, doz. | 6 0-8 0 |
| Chilis, per dozen | 1 0- .. | Shallots, per lb. | 0 6- .. |
| Cucumbers, each | 0 9-1 6 | Spinach, per bushel | 2 6- .. |
| Endive, per dozen | 2 6- .. | Tomatos, per dozen | 2 6-3 0 |
| Garlic, per lb. | 0 6- .. | Turnips, new, bunch. | 1 0-1 6 |
| Herbs, per bunch | 0 2-0 4 | | |

POTATOS:—Old Potatoes getting scarce, and best samples advanced in price. Best, 160s. to 180s.; Champions, 100s. to 110s.; Rocks, 90s. to 100s. New stuff from Malta, 12s. to 14s.; Lisbons, 10s. to 12s.; Jersey Kidneys, 4d. to 5d. per lb.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-----------------------|-------------|-----------------------|-------------|
| Abutilon, 12 blooms | 0 4-1 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Narcissus, 12 bunch. | 4 0-12 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Pansy, 12 bunches | 2 0-6 0 |
| Azaleas, 12 sprays | 0 4-1 0 | Pelargoniums, 12 spr. | 0 9-1 6 |
| Bouvardias, per bun. | 1 0-4 0 | — zonal, 12 sprays | 0 4-1 0 |
| Carnations, per dozen | 1 0-3 0 | Polyanthus, 12 bunch. | 3 0-9 0 |
| Cineraria, 12 bunches | 6 0-12 0 | Primula, double, per | |
| Deutzia, 12 bunches | 4 0-12 0 | bunch | 0 9-1 6 |
| Eucharis, per doz. | 4 0-12 0 | Ranunculus, 12 bun. | 6 0-9 0 |
| Euphorbia, 12 sprays | 0 6-1 0 | Roses (indoor), doz. | 1 0-9 0 |
| Forget-me-not, 12 bs. | 3 0-9 0 | Stephanotis, 12 sprs. | 2 6-9 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Tropæolum, 12 bun. | 1 0-3 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberose, per dozen | 1 6-6 0 |
| Iris, 12 bunches | 0 6-12 0 | Tulips, 12 blooms | 0 6-1 0 |
| Ixia, 12 bunches | 6 0-18 0 | Wallflowers, 12 bun. | 4 0-6 0 |
| Lily of Val., 12 bun. | 6 0-24 0 | | |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Foliage Plants, vari- | |
| ardia æthiop., doz. | 6 0-12 0 | ous, each | 2 0-10 6 |
| Azaleas, per dozen | 18 0-60 0 | Fuchsias, per dozen | 6 0-18 0 |
| Begonias, per doz. | 6 0-18 0 | Genista, per dozen | 6 0-24 0 |
| Bouvardias, per doz. | 12 0-24 0 | Hydrangeas | 12 0-24 0 |
| Calceolarias, per doz. | 6 0-18 0 | Lobelias, per dozen | 6 0-9 0 |
| Cinerarias, per doz. | 6 0-18 0 | Mignonette, per doz. | 6 0-9 0 |
| Coleus, per dozen | 4 0-12 0 | Musk, per dozen | 4 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Dracena terminalis | 30 0-60 0 | Palms in variety, | |
| — viridis, per doz. | 18 0-24 0 | each | 2 6-21 0 |
| Erica, per dozen | 9 0-30 0 | Pelargoniums, doz. | 12 0-24 0 |
| — ventricosa, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 4 0-12 0 |
| per dozen | 24 0-42 0 | Rhodanthes, per doz. | 6 0-12 0 |
| — Willmoreana, per | | Roses, per dozen | 12 0-42 0 |
| dozen | 9 0-24 0 | Saxifraga pyramid- | |
| Euonymus, var., doz. | 6 0-18 0 | alis, per dozen | 18 0-30 0 |
| Ferns, in variety, per | | Spiræa, per dozen | 6 0-24 0 |
| dozen | 4 0-18 0 | — palmata, per doz. | 18 0-48 0 |
| Ficus elastica, each | 2 6-15 0 | Stocks, per dozen | 4 0-9 0 |

Bedding-out Plants, per dozen, from 1s. 6d. to 3s.

Monday being one of the days scheduled in the Bank Holidays Act there was an almost total abstention from business in commercial circles, and the Stock Exchange was closed.

SEEDS.

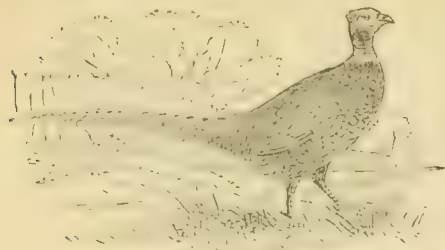
LONDON: June 4.—Scarcely anything is being done on our market in Clover seeds, and a few exceedingly quiet weeks, as is usual after the close of the season, will no doubt now be experienced. English red, though but little enquired for, is anything but plentiful, fine samples especially continuing scarce. American still keeps very firm, though there is an almost total absence of business in this article. White and Alsike remain unchanged; a few parcels of either continue to be taken for speculation, but the enquiry is slow. Trefoil is in good demand, especially the better qualities, but values are unaltered. Rape and Mustard continue in fair request at late prices, fine samples of either being difficult to meet with. Hemp and Canary sell rather more freely; blue Peas still meet with a much improved sale. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

COALS.

The market quotations for the week are as follows:—East Wylam, 18s.; Walls End—Hetton, 18s.; Hetton Lyons, 16s. 3d.; Lambton, 17s. 6d.; Original Hartlepool, 18s.; Wear, 16s. 3d.; South Hetton, 18s.; Tunstall, 16s. 3d.; Salvin's Hutton, 16s. 9d.; Tees, 17s. 9d.

Government Stock.—The closing prices for Consols on Tuesday were—for delivery, ex div., 97½ to 97½; and 97½ to 97½ for the July account. Wednesday's prices were—for the account, 97½ to 97½, and 97½ to 97½ for delivery; both ex dividend. The closing prices of Thursday (both ex div.) were—for delivery, 97½ to 97½; and 97½ to 97½ for the account.

PHEASANTRY WIREWORKS.



Gardens and Conservatories fitted up with Wirework, &c.
 Flower Stands. Garden Arches.
 Hanging Baskets. Roseries.
 Trellis Wirework. Screens.
 P. in Trainers. Summer Houses.
 Aviries, &c. Garden Fencing.
 Slate Boxes. Strained Wire Fencing.
 Tile Boxes, &c. Pheasantries, &c.

See Illustrated CATALOGUE.

R. HOLLIDAY,
 HORTICULTURAL IRON AND WIRE WORKS,
 "The Pheasantry," Beaufort Street, Chelsea,
 London, S.W.



BAYLISS, JONES & BAYLISS,

Patentees and Manufacturers of Wrought Iron
CONTINUOUS BAR FENCING,
 Iron Hurdles, Strained Wire Fencing,
 Field and Entrance Gates, Tree Guards, &c.,

VICTORIA WORKS, WOLVERHAMPTON
 and 3, Crooked Lane, King William Street, London, E.C.
Catalogues free on application.

NETTING FOR FRUIT TREES,
 SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost,
 Blight, &c., 2 yards wide, 3d. per yard, or 100 yards 20s.;
 4 yards wide, 6d. per yard, or 50 yards 20s.

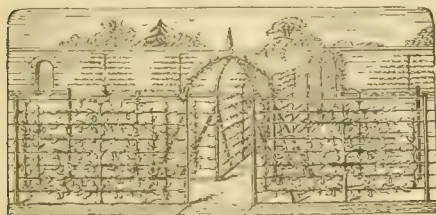
NEW TANNED NETTING, suited for any of the above purposes,
 or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards
 wide, 1s. per yard; 1/2 inch mesh, 4 yards wide, 1s. 6d. per yard.
TIFFANY, 6d. 6d. and 7s. 6d. per piece of 20 yards.

LAWN TENNIS NETS from 16s. to 25s.

EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

GARDEN NETTING
 for Sale, in small or large quantities. Suitable for Fruit
 and Wall Trees. For particulars and price apply to
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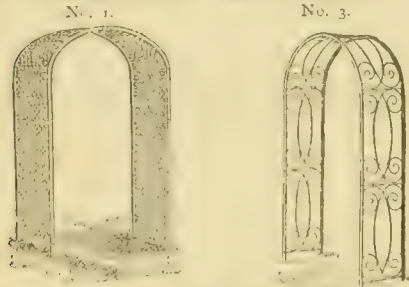
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IMPROVED ESPALIER FENCING AND
WALL TRAINERS.

Estimates given free of charge for Espalier Trainers for Fruit
 Trees, &c. The Espalier can be easily fixed, wood or stone blocks
 being unnecessary. In writing for Estimates please give exact
 lengths required, with a rough sketch showing angles, if any.

FITTINGS FOR WIRING FRUIT WALLS. Having a
 large stock, orders can be executed on receipt at reduced
 prices. Carriage Paid on Orders of 40s. value. Illustrated
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No. 1. This Arch is very strong, and suitable for training
 Creepers of any kind. Wrought Iron Frame, covered with
 stout galvanised Wire Netting, 7 feet high, 4 feet span, 2 feet
 wide, flame painted green, 15s. each.

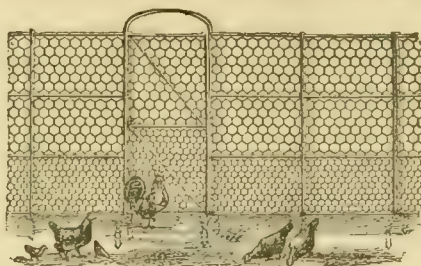
No. 3. 7 feet high, 4 feet span, 1 foot 6 inches wide, painted
 green, 15s. 6d. each.

*Orders executed on receipt. Carriage Paid
 when Orders amount to 40s.*

BOULTON & PAUL, NORWICH.

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 NEW and IMPROVED POULTRY FENCES.



This fence is a much stronger description of fencing than the
 lattice panels with loose standards, and is more portable, being
 made in lengths 6 feet long with double pronged feet. A run
 or pen can be formed of any length or shape without extra cost;
 it is easily fixed or removed; the gate can be placed in any part
 of the fence.

PRICES:—
 6 feet high, including all necessary Bolts and
 Nuts 5s. per yard.
 Doorway complete, 2 feet wide, including
 Standards and Arched Stay 13s. 6d. each.
 Angle-iron Pillars for Corners, with Cast Orna-
 ments 3s. each.
 Carriage paid on orders of 40s. value. Orders executed on receipt.

From STEPHEN MARTIN, Esq., *Roxley, Essex*.
 "Gentlemen, — I am very pleased to inform you that the
 Poultry Fencing you supplied has given every satisfaction,
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To avoid delay, cash or reference with first orders is respect-
 fully requested.

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 HOTHOUSE SHADINGS of various thicknesses, superior
 to any other yet discovered for Lightness, Strength, and
 Durability, standing, as they do, all weathers.

TIFFANY of various kinds always on hand. Netting and
 Shading in pieces 30 yards long, by 1 1/2 yard wide. Tiffany in
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NETTING, No. 1, 4d. per square yard; No. 2, 3 1/2 d.;
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HOTHOUSE SHADINGS.
FINE NETTING, 5d. per square yard; No. 6A, 8d.;
 No. 6, 9d.; No. 6, improved, 9 1/2 d.

TIFFANY, No. 1, 3s. 6d. per piece, Mineralised, 4s.;
 No. 2, 4s. 6d. per piece, Mineralised, 5s.

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EDGINGTON'S GARDEN NETTING,
 the cheapest and most durable, 1d. per square yard, or
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 imitations have fallen short of the beauty, texture, and utility of
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Tiffany and Elastic Netting (REGISTERED), with Canvas
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 42s.; 10 inches, 63s.;
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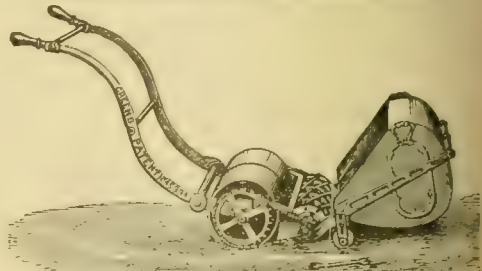
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GREEN'S
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Over those of all other Makers is universally acknowledged.
 They will Cut either Short or Long Grass,
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These advantages no other Lawn Mowers possess.



They are the simplest in construction, the easiest to work,
 the least liable to get out of order, make little noise when in use,
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The above machines have proved to be the best, and have
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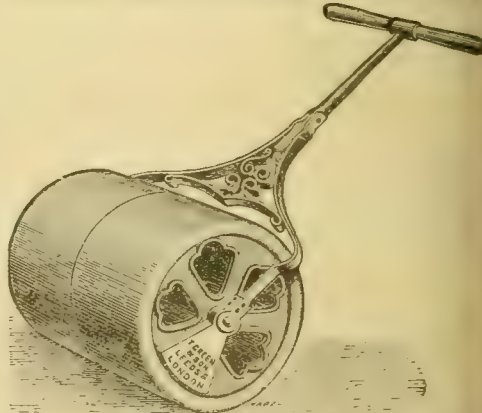
Every Lawn Mower is guaranteed to give entire satisfaction,
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 all sizes from 6 to 48 inches, is to be seen at our London estab-
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 SUITABLE FOR HAND or HORSE POWER;
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All Gearing en-
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 Long and Short
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 is the most Simple,
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 1 ANGLO-AMERICAN, 14 inches and 16 inches.
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 1 SHANKS' HORSE, 30 inches.
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Horticultural Buildings erected on Messinger & Co.'s Patent Method of Construction are very strong, most durable, light, elegant, amply ventilated, perfect efficiency for intended purpose is guaranteed, are economical in cost and maintenance; combine the peculiar advantages of Wooden and of Iron Houses, without their disadvantages.

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The Plans of Landscape Gardeners, Architects, and Others carried out.

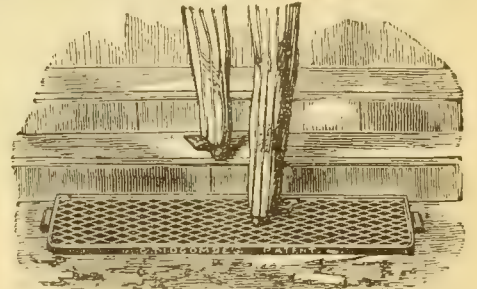
Plans and Estimates forwarded free on receipt of Particulars by Post. Estimates sent free of charge.
Ladies and Gentlemen waited upon.

Illustrated CATALOGUES of GREENHOUSES, VINERIES, HEATING APPARATUS, &c., sent free on application. Richly Illustrated CATALOGUE of HORTICULTURAL BUILDINGS and HEATING APPARATUS (the Designs taken from Works executed by M. & Co.), post-free for thirty-three stamps. Gentlemen consulting this Catalogue have the advantage of inspecting designs whose efficiency has been tested by actual experience.

GARDEN BROOMS, at 2s., 3s., 4s. and 5s. per dozen (not less than 2 dozen). Sent to any part on receipt of Post-office Order by

GEO. MANLEY AND CO., Manufacturers of every description of Brushes and Brooms, South Street, Long Lane, Borough, S.E. Established 1739.

THE GRAVEL-WALK METAL SCRAPER MATS.—They improve the appearance of Entrances, are suitable for all kinds of Gravel-walk Entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step. They are the width of an ordinary step, and being directly in the path cannot escape use, save much wear in other mats, floorcloths, and carpets, and their endurance is incalculable. Lengths, 2 feet 3 inches, price 10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.; 3 feet 8 inches, 18s.; 4 feet, 20s. All 12 inches wide.



Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to G. TIDCOMBE AND SON, Watford, Herts.

NEW SYSTEM OF GLAZING
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80 PERCENT SAVED IN PAINTING. 80 PERCENT SAVED IN REPAIRS.

No outside Painting is required. Old Roofs Reglazed. "It is suitable for Railway Stations, Mills, Weaving Sheds, &c., but is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."—Builder.

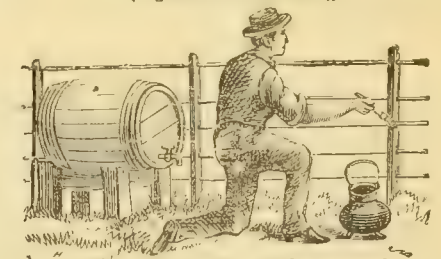
"And will, in our opinion, supersede any other similar system before the public."—Building News.

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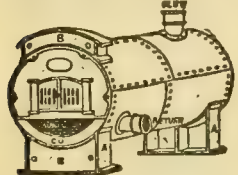
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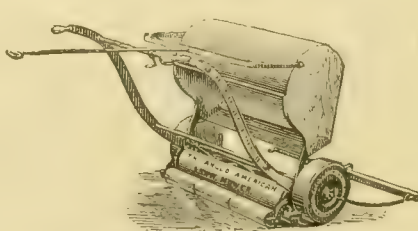
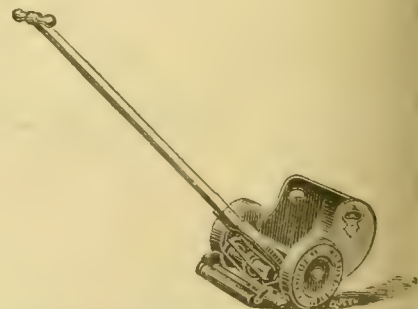
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On view mornings of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.; or of Mr. JOHN SHAW, 29, Oxford Street, Manchester—if for the country, by enclosing two stamps.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 23, at half-past 12 o'clock precisely, ODONTOGLOSSUMS from Colombia, in fine condition; *CATTLEYA LINELLII*, *ZYGOPETALUMS*, *ONCIDIUMS*, &c., from Brazil; *DENDROBIUMS*, &c., from Assam; fine Plants of *BULBOPHYLLUM BECCARII*, a consignment of *SARRACENIAS* from America; some fine specimen Plants of *GLEICHENIAS*, from 3 to 5 feet in diameter; several small collections of ORCHIDS and GREENHOUSE PLANTS; also several small importations of ORCHIDS; some fine specimen ORCHIDS and *LAPAGERIA ALBA* from Loxford Hall.

On view the morning of Sale, and Catalogues had.

Bulbophyllum Beccarii.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 23, some fine Plants of the above ORCHID, just received, in good condition, from Borneo. This wonderful species is unquestionably one of the most extraordinary Orchids of modern introduction. It has grand broadly ovate leaves, something like 18 inches long by 12 inches broad, and as "thick as a board." Its remarkable flowers are produced in dense cylindrical nodding racemes, and are of a bright light violet colour.

On view morning of Sale, and Catalogues had.

The Celebrated Collection of Plants at Dangstein.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, on the Premises, Dangstein, near Petersfield, on TUESDAY, June 24, and two following days, and TUESDAY, July 1, and following days, at half-past 12 o'clock precisely each day, this magnificent COLLECTION OF PLANTS, without the slightest reserve, comprising *Camellias* and *Azaleas*, *Palms*, *Dracenas*, *Crotons*, fine specimen *Gleichenias*, a most beautiful collection of *Filmy Ferns*, *Trichomanes radicans* in quantity, a grand plant of *Trichomanes repens*, *Hymenophyllum demissum*, &c., *Anacrostichus*, *Peperomia*, *Darlingtonia*, *Sarracenia*, *Platycerium*, &c.; also a choice assortment of Orchids, consisting of large plants of *Masdevallia towarensis*, *M. Veitchii*, *M. Harrayana*, *Odontoglossum pulchellum*, splendid plants; *Cattleyas* of sorts, *Dendrobies* of sorts, extra fine plants of *Stanhopeas* of sorts, *Angraecum sesquipedale*, *Vandas*, and many other rare and valuable plants.

On view day prior and mornings of Sale. Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Conveyances on the days of Sale will meet at Rogate Station the train from Waterloo at 7 o'clock, arriving at Rogate Station at 9.15; also 9.30 from Waterloo, arriving at Rogate Station at 11.26; and meeting 5.11 and 7.29 trains back at Rogate Station.

Rare Brazilian Orchids, &c.

MR. J. C. STEVENS has received instructions from Mr. R. Bullen, of Lewisham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 23, at half-past 12 o'clock precisely, a splendid importation of the exceedingly rare and beautiful *ONCIDIUM DASYLYLE*, just received ex R.M.S. "Tamar," from Brazil. The Collector (Mr. H. Blunt) describes it thus:—"I have just found the greatest novelty I have seen in Orchids for years. The plant grows amongst the moss-covered trees, on the coldest parts of the mountains here. Flowers thus—Lip all yellow, sepals and petals pale yellow, spotted or blotched with a chocolate colour approaching carmine. The column is a deep blue-black, very prominent and like the shape of a bee, and seems as though a black bee were resting in the centre of the flower. The plant is very free-flowering, many of the bulbs having two flower-spikes measuring from 13 to 24 inches in length, with numerous branches, covered with its lovely flowers." The plants offered are in splendid condition.

At the same time will be offered a fine importation consisting of *Miltonia Morelana* (very rare), *M. cuneata* and *M. Clowesii*, *Warcewiczella violacea*, *Oncidium crispum*, *O. grandiflorum*, *O. curtum*, *O. Marshallianum*, and *O. Forbesii*, *Sophranites grandiflora*, *Cattleya marginata*, *C. amethystina*, and *C. Leopoldii*, *Lælia purpurata* and *L. Dayana*, and many choice varieties.

On view the morning of Sale, and Catalogues had.

Hackney, E.
SHORT NOTICE.—CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by the Granville Nursery Company to SELL by AUCTION, on the Premises, 33, Wells Street, Hackney, E., on THURSDAY, June 19, at 12 o'clock, the whole of the GLASS ERECTIONS, comprising eight newly built Greenhouses, several Frames, containing 350 glazed sashes; 1000 feet of 3 and 4-inch Piping, and three Boilers; together with the stock of STOVE, GREENHOUSE and BEDDING PLANTS, including specimen white Azaleas, several large Camellias, 500 smaller Camellias, 10,000 well-grown Geraniums, autumn-struck plants; also two pairs of handsome IRON VASES, RUSTIC FLOWER-POTS, and BRACKETS, and various other effects.

May be viewed. Catalogues had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Peat.—Near Chislehurst, Kent.

4½ ACRES of VALUABLE PEAT, in Lots of 20 Perches each, to be dug and removed by the purchasers.

MR. HODSOLL will SELL by AUCTION the above at St. Mary's Cray, on JUNE 20, at 3 P.M. Catalogues of the Auctioneer, Farningham, Kent.

Kent, in the Parish of Cudham.

FREEHOLD GARDEN GROUND, 4½ Acres, most productive, in a charming situation, 3 miles from Westerham, 8 miles from Bromley, and 18 miles from London, occupying a very elevated position, with fine views, and in the centre of the great fruit-growing district. The property is readily accessible from London. The Land is of good quality, and is alike suited for the growth of Strawberries, Raspberries and Currants, or for the Erection of Residences, for which the picturesque scenery renders it most attractive, and it will be divided into lots of convenient area.

MR. JOHN LEES is instructed to SELL by AUCTION, at the Mart, London, E.C., on THURSDAY, July 10, at 12 o'clock, in lots, the above desirable FREEHOLD PROPERTY, great title free and land tax redeemed, and offering an eligible opportunity to Gentlemen, Fruit Growers, Trustees, and others desiring property for investment or occupation.

Particulars may be had of G. CARTER MORRISONS, Esq., Solicitor, Reigate; MORRISONS, 94, Cannon Street, London, E.C.; at the Mart; and of Mr. JOHN LEES, Land Agent and Auctioneer, Reigate.

TO BE DISPOSED OF, an old-established SEED BUSINESS, through death of Proprietor. First-class position, Eastern Counties.

For particulars apply to Messrs. MILLER, SON, AND STEVENS, Solicitors, Bank Chambers, Bank Plain, Norwich.

Croydon (4624).

By order of the Executrix of the late Archibald Henderson.

FOR IMMEDIATE DISPOSAL, the valuable LEASE (twenty years' unexpired) of the SION NURSERY, 6 acres in extent, held together with the Dwelling-house, Sheds, and Glass erections, at the low rental of £85 per annum; also the whole of the Stock and Utensils in Trade, Shop Fixtures, and such Greenhouses as belong to the tenant; likewise the Lease of the handsome Shop and Conservatory, occupying a conspicuous corner position in High Street, Croydon, held for a term of ninety years, unexpired from Christmas, 1879. This well known Nursery has been carried on most successfully for many years by the late proprietor, and to any one in possession of a moderate amount of capital an excellent opportunity is presented for securing a lucrative business on easy terms.

Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.

Printed List of Nurseries in the Market may be had on application.

TO be LET, CRANSTON'S NURSERIES

(of the Firm of Cranston & Company), King's Acre, Hereford. These celebrated Nurseries, so long and widely known as the largest and finest Rose Gardens in the Kingdom, have been established close upon a century, and occupy upward of 100 Acres of Land, delightfully situated and laid out with great taste and judgment. The soil, which is naturally rich, has been improved and carefully fostered year by year until it has become adapted in an extraordinary degree to the culture of the choicest varieties of Nursery Stock; all modern discoveries have been utilised, and no expense has been spared in adapting every improvement tending to the extension and economical working of the Business, the special branches of which have attained an unrivalled position and a world-wide renown. The GLASSHOUSES, WAREHOUSES, Foreman's COTTAGES, OFFICES, and BUILDINGS, most conveniently arranged, and in every way efficient for carrying on a very extensive Business. The DWELLING-HOUSE, situated in the Nurseries, is large, and replete with every convenience. As the Proprietor's object in letting is to retire from business, arrangements can be made, if desired, with the incoming Tenant, in taking to the Stock, for a considerable portion of the purchase money to remain in the Business, satisfactory security being given. For a Gentleman fond of Horticulture, or for one or two enterprising Business Men, a more favourable opportunity for entering into a thoroughly established and well-known Business has rarely, if ever, been offered.

For particulars, plan of the grounds, and order to view, apply to Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, London, E.C.; Mr. JOHN SHAW, 29, Oxford Street, Manchester; or to the Proprietor, Mr. JOHN CRANSTON, King's Acre, Hereford.

PROTHEROE AND MORRIS, HORTICULTURAL, MARKET GARDEN AND ESTATE AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. CHARLES BURLEY, HORTICULTURAL AUCTIONEER and VALUER, undertakes SALES, in any part of the country, with strict economy. Office: Brentwood, Essex.

Hardy Evergreen Fig.

FICUS MINIMA may fairly be called a hardy plant! It has survived the severe and protracted frost of last winter on our rockwork, where it was only partially protected by snow. As a Creeper it will surely become popular, for its shoots adhere to rocks or walls like Ivy, and grow quite freely under ordinary conditions. As a covering for the walls either of warm or cool greenhouses it is also excellent, from its compact dense habit. Its leaves are scarcely more than half an inch long. Price 15. *6d.* to 20. *6d.* each, 12 to 24. *6d.* per doz.

CATALOGUE of Alpine and Herbaceous Plants for 1879 on application.

JAS. BACKHOUSE AND SON, York Nurseries.

BOURNEMOUTH HORTICULTURAL SOCIETY.

Patrons:—

Viscountess Bury
Lady Cornelia Guest
Lady Caroline Morant
Lady Gervis
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Lady Wolf
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Mr. W. Stevenson
Dr. J. Roberts Thomson
Dr. Douglas
Mr. Cunningham
Mr. Swaffield
Mr. Underwood.

Honorary Secretary:—

Mr. H. Nash, the Observer Office, Bournemouth.

Honorary Treasurer:—

Mr. J. G. Shepherd, the Wilts and Dorset Bank, Bournemouth.

The THIRD EXHIBITION will be held in the Winter Gardens, Bournemouth, on THURSDAY, August 14.

A Military Band will be in attendance. Grand Promenade Concert during the evening.

The Schedule of Prizes is now ready, and may be had on application to the Hon. Secretary.

EXHIBITION of RHODODENDRONS,

Royal Botanic Gardens, Regent's Park, S.W., daily. Orders of Admission may be obtained from Fellows of the Society, or from the Exhibitors.

ANTHONY WATERER, Knap Hill, Woking, Surrey.

ROYAL AGRICULTURAL SOCIETY of ENGLAND.

President—H.R.H. THE PRINCE OF WALES, K.G.

INTERNATIONAL AGRICULTURAL EXHIBITION,

TO BE HELD IN

LONDON (KILBURN),

SEVEN DAYS ONLY,

JUNE 30 to JULY 7, 1879.

RAILWAY STATIONS.

Salisbury Road, Queen's Park, and West Kilburn (London and North-Western Railway), and

Kensal Green Station (North London Railway) adjoining.

Westbourne Park (Great Western Railway) and West End (Midland Railway), 1 mile distant.

ADMISSION.

| | June 30 | July 1 | July 2 | July 3 | July 4 | July 5 | July 6 | July 7 |
|-----------|---------|--------|--------|--------|--------|--------|--------|--------|
| MONDAY | 30 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| TUESDAY | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| WEDNESDAY | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| THURSDAY | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| FRIDAY | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| SATURDAY | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| and | | | | | | | | |
| MONDAY | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

Non-transferable Season Tickets, available for admission and re-admission on each day of the Exhibition, price 10s. 6d., may be obtained at all the principal Libraries, and at the Offices of the Royal Agricultural Society, 12, Hanover Square, W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the Relief of Decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.

President—HIS GRACE THE DUKE OF RICHMOND AND GORDON.

ALLOWANCES TO PENSIONERS.

Married £40 per annum

Male £25 "

Widows and unmarried Orphan Daughters £20 "

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 18, at 11 o'clock precisely; and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The NINETEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms, on MONDAY, June 30, at a quarter to 7 o'clock. The Right Hon. the MARQUIS OF HARTINGTON, M.P., in the Chair.

Dinner Tickets, 21s., application for which must be made to the Secretary, at the Offices of the Institution, 26, Charles Street, St. James's, London, S.W.

PARIS EXHIBITION, 1878.—

Legion of Honour. We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the peculiar merits of our exhibits at the above exhibition. See Times Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON AND SONS, The Queen's Seedsmen, Reading, London and Paris.

Hard Bedding Begonias.

RODGER, McCLELLAND AND CO. are now prepared to supply above in quantity. These were grown out-of-doors last season, have been preserved through the winter without fire, are now starting nicely into growth in the open air, and have not been under glass or coddled in any way. All are bulbs that bloomed last year. They can be supplied in assorted colours—pink and rose, magenta and carmine, crimson and scarlet, white, yellow, orange, &c.

Low prices per dozen or per 100 on application. 64, Hill Street, Newry.

NEW ENGLISH ROSES FOR 1879.

WM. PAUL & SON,
PAULS' NURSERIES, WALTHAM CROSS, HERTS,
Beg to offer the following New Roses.

Good Plants, now ready, price 7s. 6d. and 10s. 6d. each.

DUCHESS OF BEDFORD (H.P.).

First-class Certificate from the Royal Horticultural Society.
First Prize (as the best New Rose) at the National Rose Society's Crystal Palace Show.
Flowers dazzling light scarlet-crimson, surpassing in brilliancy any known Rose : large, full, and of perfect globular shape. An exceedingly free flowerer and a splendid autumnal bloomer.

"A grand new H.P."—*Gardeners' Chronicle*.

"A superb variety."—*Gardeners' Magazine*.

COUNTESS OF ROSEBERY (H.P.).

First-class Certificate from the Royal Horticultural Society.
First-class Certificate from the Royal Botanic Society.
First-class Certificate from the National Rose Society.
Flowers brilliant carmine-rose : large, full, and finely cupped. A vigorous growing variety, blooming freely all through summer and autumn.

"A grand Rose."—*The Garden*.

"The most promising of recent years."—*Journal of Horticulture*.

R. DUDLEY BAXTER (H.P.).

Flowers deep maroon-crimson, very rich in colour, and of grand effect in the garden : extra large, full, and cupped. Free, vigorous, and hardy.

THE NEW FRENCH ROSES of 1879, 30s. per dozen.

THE NEW FRENCH ROSES of 1878, 21s. per dozen.

Good Plants of the Older Roses in Pots for present planting and for greenhouse culture, 9s. to 18s. per dozen, £3 15s. to £6 per 100.

The same, of extra size, 24s. per dozen and upwards.

Priced Descriptive CATALOGUES post-free on application.



TREE FERNS and PALMS.

THE LARGEST AND BEST STOCK IN EUROPE.

ALSO MANY OTHER



MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,
Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHILSEA, LONDON, S.W.



B. S. WILLIAMS

Respectfully invites the Nobility and Gentry about to Furnish their Conservatories, Greenhouses, Stoves, Orchid-houses, &c., to an inspection of his stock of MAGNIFICENT SPECIMENS, unequalled in Europe, consisting of the choicest and rarest Exotics, ORCHIDS, TREE FERNS, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, CYCADS, BEAUCARNEAS, ARALIAS, AMARYLLIS, and all kinds of FLOWERING and FOLIAGE STOVE and GREENHOUSE PLANTS.

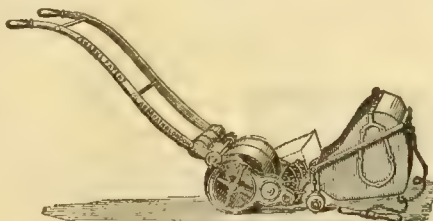
VICTORIA AND PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

HORTICULTURAL TOOLS & GARDEN FURNITURE.



DEANE & CO.,
46, King William Street, E.C.

LAWN MOWERS... .. from 25/-
GARDEN ENGINES 63/-
GARDEN BARROWS 22/6
GARDEN ROLLERS 33/-
SPADES, FORKS, SCYTHES, &c.
SYRINGES and PUMPS.
GARDEN SEATS and CHAIRS.
FLOWER STANDS and VASES.
IRON HURDLES and FENCING.
WIRE NETTING, ARCHES, &c.
HOT-WATER APPARATUS.



Shanks', Green's, Archimedeian, &c.

Deane's New Illustrated Horticultural CATALOGUE for 1879, gratis and post-free.

Established A.D. 1700.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

To Noblemen's and Gentlemen's Gardeners.



Special Notice.

Royal Horticultural Society.

Messrs. SUTTON & SONS' PRIZES

For 6 dishes of Peas
(½ peck of each),

viz. :—

First Prize..... Silver Medal and £2 2s.

Second Prize..... Bronze Medal and £1 1s.

Originally offered for Competition at the Great Summer Show,
It will be Competed for at the Rose and Pelargonium
Show, July 8 next.

And the restriction as to varieties will be withdrawn.
SUTTON AND SONS, The Queen's Seedsmen, READING.



OSBORN & SONS

Are now distributing the following New Varieties of

ABUTILONS.

ADMIRATION—bright pink.

FIREBALL—rich scarlet.

LEO—buff.

PEACH—peach coloured.

THE GEM—rich magenta.

YELLOW PRINCE—pale yellow.

Price 3s. 6d. each; the set for 20s.

The usual discount to the Trade.

Also a large General Collection, for particulars
of which see List, post-free.

THE FULHAM NURSERIES, LONDON, S.W.

ENGLISH PEDIGREE SEEDLING ROSES

BEAUTY OF STAPLEFORD.

DUKE OF CONNAUGHT.

DUCHESS OF CONNAUGHT.

DUCHESS OF WESTMINSTER.

HONOURABLE GEORGE BANCROFT.

JEAN SISLEY.

MICHAEL SAUNDERS.

PEARL.

VISCOUNTESS FALMOUTH.

Are now being distributed. Price, 10s. 6d. each; the set, £4 4s.

Descriptive LIST gratis and post-free.

H. BENNETT, Manor Farm Nursery, Stapleford, Salisbury

CHOICE FLOWER SEEDS.

FOR PRESENT
SOWING.



FOR PRESENT
SOWING.

Post-free at prices quoted.

Per Packet.

AURICULA, choicest Alpine, from a fine collection of s. d.
named flowers 1s. and 2 6

BEGONIA, Tuberous-rooted Hybrid, mixed 1 6

CALCEOLARIA, Daniels' Superb, mixed 2s. 6d. and 5 0

CARNATIONS and PICOTEE, from finest stage
flowers 1s. 6d. and 2 6

CINERARIA HYBRIDA, Daniels' superb strain,
.. .. 1s. and 2 6

COLEUS, from newest sorts 1 6

CYCLAMEN PERSICUM, very choice 1 6

HOLLYHOCK, choicest double 1 0

PRIMULA, Daniels' superb red 1s. and 2 6

" " " white 1s. and 2 6

" " " mixed 1s. and 2 6

STOCK, East Lothian, scarlet, white, purple, or mixed 1 0

" Brompton Giant, scarlet, white, purple, or mixed 1 0

SWEET WILLIAM, Daniels' superb Auricula-eyed .. 1 0

WALLFLOWER, Double German 1 0

DANIELS BROTHERS,

ROYAL NORFOLK SEED ESTABLISHMENT,
NORWICH.



CALADIUMS.

A choice selection of New and Beautiful Varieties of the
above now being distributed.

For particulars and price, &c., apply to

OSBORN & SONS,

THE FULHAM NURSERIES, LONDON, S.W.

New Ferns.
M. R. WILLIAM BULL
 is now sending out the following :—
DOODIA ASPERA MULTIFIDA.—A handsome, crested, new Greenhouse Fern, of neat and dwarf habit, with prettily arched fronds, rendered drooping by the tassellation at their apex; the young fronds are prettily tinted with pink. This was one of the twelve New Plants with which Mr. W. B. gained the First Prize at the International Horticultural Exhibition held at Ghent in 1878. Price, 7s. 6d. each; stronger plants 15s. and a guinea each.
LASTREA ARISTATA VARIEGATA.—One of the most charming of Greenhouse Variegated Ferns. It has the same kind of firm leathery fronds as the type, and like it is of a rich, dark, full green colour, which sets off the distinct variegation to much advantage. The variegation consists of a band of pale yellowish-green, which runs down the centre of the pinnae, and includes the midrib or rachis. It was one of the twelve New Plants with which Mr. W. B. gained the First Prize at the Provincial Show of the Royal Horticultural Society, held at Preston in 1878. Price, 7s. 6d. each.
 Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade.
RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE have fine samples of the above Seeds suitable for sowing purposes, which they will be glad to submit with quotations on application. Seed Growing Establishment, Wisbech.

F. AND A. SMITH'S SPECIALITIES IN SEEDS.
 The large quantity of Seed sold annually in bulk and packet to regular customers is sufficient guarantee of the excellence of our Strains of CINERARIAS, CALCEOLARIAS, and PRIMULAS, &c. 1s., 2s. 6d., and 5s. packets. Price by weight to the Trade on application.
 The Nurseries, West Dulwich, S.E.

Bamboos, Grasses, and Palms.
RODGER, MCCLELLAND AND CO. beg to offer the undernoted in nice plants :—
ARUNDINARIA FALCATA (true), 9s. per doz., 60s. per 100.
BAMBUSA METAKE, 12s. per dozen.
AUREA (strong), 30s. per dozen.
GYMNOTHRIX LATIFOLIA, 4s. per dozen, 20s. per 100.
DRACÆNA AUSTRALIS, 8s. per dozen, 50s. per 100.
CHAMÆROPS FORTUNEII, 18s. to 30s. per dozen.
THAMNOCALAMUS FALCONERII, 8s. per dozen, 50s. per 100.
SPATHIFLORUS, 12s. per dozen.
PHENOCARPA GLOBOSA, 24s. per dozen.
 64, Hill Street, Newry.

Lilies of the Valley—for the Trade.
E. H. KRELAGE AND SON, NURSEYMEN,
 SREDEMMEN, and FLORISTS, Haarlem, Holland, are now booking Orders for Lily of the Valley, clumps or spikes, for forcing, to be delivered in October or November next. As usually the stock, of superior quality, is unequal to the ordered quantity, early orders are desirable. E. H. K. & Son are well-known to supply a superior stock of these articles. Special prices are given by correspondence.

GERANIUMS, FUCHSIAS, and LOBELIAS.
MADAME AMELIE BALTET.—The best double white Geranium out: well rooted cuttings, from store pots, 4s. per dozen, 6d. each; good plants, in 4's, now in bloom, 2s. each.
WONDERFUL.—Scarlet double bedding Geranium, 12s. per 100, 2s. per dozen; plants in bloom, in 6's, 3s. 6d. per doz.
MADAME THIBAUT.—The counterpart of Wonderful, in pink, 12s. per 100, 2s. per dozen; plants, in 4's, 6s. per doz.
FUCHSIAS.—Good mixed sorts, 6s. per 100; 100 in 10 named varieties, 10s.
LOBELIA.—Emperor William and Bluestone, 2s. 6d. per 100, 1s. per 100. 100 Lobelias or Fuchsias (rooted cuttings only), free by post, 6d.; 1 doz. Geraniums, 2d.; for cash with order.
 J. L. WATSON, Manor Road, Gravesend.

FORTY THOUSAND Dwarf, Tea-scented, and other ROSES, in pots, at 15s. to 18s. per dozen, or 15s. per 100.
 Extra fine Tea-scented ROSES, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen. Address
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

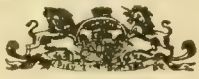
THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.
 No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 12.
 No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.
A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

TO FLORISTS and the TRADE.—
SPIRÆA JAPONICA, 9d. per dozen sprays.
PELAGONIUM, 9d. per dozen sprays.
GERANIUM, Scarlet, 4s. per dozen bunches.
GARDENIAS, 2s. per dozen.
ROSES, 3s. per dozen.
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First-class Certificate Royal Horticultural Society, 1877.

Deep rose with crimson shading; perfectly imbricated, round, globular form, like a well arranged ball, a grand autumnal Rose, and perhaps the finest shape yet raised; a strong, compact habited plant, making a neat standard and dwarf. Exhibited both in 1877 and 1878, it was much admired. Strong plants, single plant, 7s. 6d. each.

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Also splendid plants in pots of

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An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites infesting Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—*From Mr. D. THOMSON, Gardener to His Grace the Duke of Buccleuch, Drumlanrig Castle.*—"I duly received the jar of your Insect 'Annihilator' and sprayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied it to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into a reddish-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems 'done for' in about ten minutes, after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis, Dracenas, Marantas, and Crotons, and not one of these are in the least injured." *Sold in Bottles, containing one pint at 1s. 6d., 1 quart at 2s. 6d., and 2 quarts at 4s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each.*

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BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton. Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each. Fresh SPHAGNUM, 10s. 6d. per bag. **WALKER AND CO.**, Farnborough Station, Hants.

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THE LIFE OF FLOWERS.

For Stimulating and Quickening the Growth of Plants, and producing a Rapid and High Development of Blossom.

IMPORTANT TESTIMONIAL.

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"Since that time I have tried it on various kinds of plants, and I must admit that its effect upon them has very much exceeded my expectations. To apply a stimulating manure to a collection of plants of any kind, and to find that these plants succeed well, and at once to ascribe this result to the application, is an assumption not altogether justified, at all events it is not a fair trial as to the effect of the fertiliser, as it might of course be assumed that the plants might have done equally well in the absence of the application.

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"I am, gentlemen, yours respectfully,

"Messrs. PRENTICE BROS.

"P. GRIEVE."

Directions for Use.

One teaspoonful of the Florvita to be added to each gallon of water used.

The Plants should be watered with it three times a week or more.

Samples, post-paid, 1s. 2d.

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EWING'S MILDEW COMPOSITION, in bottles, 1s. 6d. and 3s. each; one-gallon cans (to make 104 gallons of mixture for syringing), 12s. each; two gallon cans, 20s. each. Mildew or Red Spider are also effectually prevented or destroyed by merely painting the hot pipes with the composition mixed with whitewash; no direct application to the foliage is then necessary.

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Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it. Sold Retail by Seedsman in Boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

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THE
GARDENERS' CHRONICLE

For Saturday, JULY 12, 1879, will contain

A COLOURED PLATE

OF

"GARDEN TULIPS,"

By FITCH. ALSO A

FULL SPECIAL REPORT

OF

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AT

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"Most striking and magnificent in appearance."—*Gardeners' Chronicle*.
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| Ruby King | .. 5 0 | Superb White | 5 0 and 2 6 |
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"The Primulas from your seed I have never seen equalled."—Mr. A. BIRT, *Radborough*.

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| Perfection | | 5s. and 2s. 6d. per packet. |
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"The Calceolarias of Messrs. Sutton & Sons' Nurseries, Reading, are just now beautifully in bloom, and should be seen by all who take an interest in this class of plant. The strain is one of the finest, being the result of years of careful selection. Many of the individual flowers measures $2\frac{1}{2}$ inches across, and are perfect in shape and colour."

"Your Calceolarias were really beautiful, and took first prize at Gosport Show."—Mr. N. WATERS, *Gr. to Sir E. Commerell*.

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| Giant Hybrid | | 2s. 6d. per packet. |

"Our Cinerarias this year were the admiration of every one."—Mr. E. LEWIS, *Gr. to J. H. Cadman, Esq.*

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From Mr. J. B. WARD, *Lower Edmonton, April 8*:-

"Gloxinias from your seed, raised last spring, just coming into flower, are perfectly marvellous. The flowers are 3 to $3\frac{1}{2}$ inches in diameter, and the colour of the bloom is quite equal to your plates."

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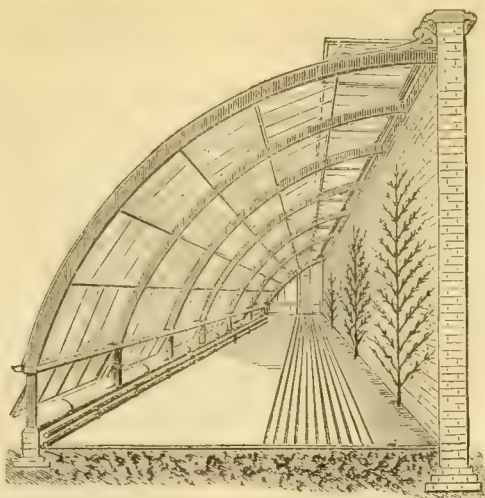
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CURVILINEAR PEACH HOUSE,
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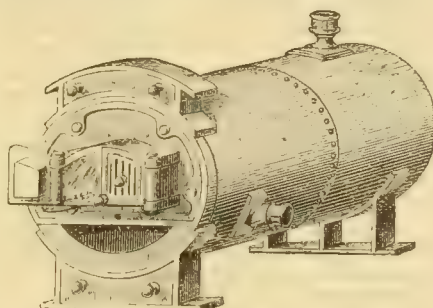
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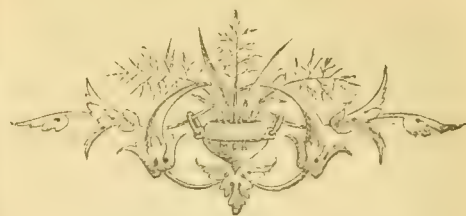
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Structures, and the Heating thereof.*

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Horticultural Building Works,
BANBURY.



SATURDAY, JUNE 14, 1879.

MENTMORE TOWERS.

A LANDSCAPE of unusual interest lies around this splendid mansion. In the midst of the butter-making pastures between this spot and Wendover a little stream may be seen to rise. As it flows on it passes Aylesbury, skirts Winchendon Park, takes the drainage from the hills on the north side of the Vale—the chalky Chilterns on the south do not yield much water—and flows on to Thame, Reading, Windsor, and London Bridge. Standing on that coign of vantage, the roof of Mentmore Towers, and looking across the Vale of Aylesbury through which this branch of the Thames flows lazily, and grows from a runnel to a brook and stream of blended waters, I could not but recall the subject which engaged the pen of Sir J. B. Burke in his *Vicissitudes of Families*. There are several parks and country houses visible from the high roof, and fortune has not always favoured their owners. Winchendon lies below within a few miles. It was one of the Buckinghamshire homes of the extinct Dukes of Wharton, who spent £100,000 on his other place at Woburn, where a dovecot alone remains of all his princely buildings. Heartwell, in the very centre of the Vale, near Aylesbury, was the scene of another grievous case of family misfortune—that of Louis XVIII., who kept his little court here during several years, and partitioned the apartments into sleeping hutches for his suite.

A short distance across the hills, beyond the county town, is Stow with as painful a history as the author of a book on family vicissitudes requires; and further to the right, between Stow in the north-west corner of the county and Olney in the north-east corner, is Gayhurst, which offers another example of the same description, in the misfortunes of its former owners. It belonged at an early period to the Digbys. Sir Everard Digby got himself beheaded over the Gunpowder Plot piece of folly; his son Sir Kenelm has been one of England's favourites for his learning, accomplishments and valour. He smoked out the Algerine pirates, as admiral of a small squadron, was imprisoned by Parliament for being Royalist when Bucks generally went the other way, outlived the troubles of the times and sat in the Council of the newly formed Royal Society; but his promising son Kenelm was one of the victims of the Civil War, and his other son leaving daughters only, Gayhurst knew the old name no longer. It belongs now to Lord Carington, of Wycombe Abbey, and its vicissitudes, I trust, are over. Beyond it is Olney, the home of Cowper, where "Ouse's silent tide" flows through the meadows, and occurrences, according to that melancholy poet, were "as rare as Cucumbers at Christmas." There is no need to travel so far afield in search of family vicissitudes: Ashridge Park, eight miles south by east of Mentmore, has been the witness of vicissitudes from the time when the Princess Elizabeth waited there uncertain between the crown or the scaffold, to the later time of the Duke of Bridgewater, the unfaltering patron of the Bridgewater Canal. And there have been family vicissitudes much nearer Mentmore. Six members of the house of Rothschild came to reside in this part of Bucks—Baron Meyer at Mentmore, Sir Antony at Aston Clinton, Sir

Nathaniel at Tring Park, Baron Lionel at Ascott, and Baron Ferdinand at Winchenden. A not uncommon fate of great families has overtaken the first and second named of these several branches of the family—they have died without heirs male. A numerous progeny is a blessing which peasants may attain, but they resemble that most invaluable of human possessions, health, which old Abernethy said "wealth cannot command, nor state nor rank bestow," and which "kings would fondly purchase with their diadems." Sir Antony has been succeeded at Ashton Clinton by Mr. Flower, the husband of his only child; and all the world must remember that last year the Premier led the heiress of Mentmore Towers to the altar, and gave her in marriage to the Earl of Rosebery.

The six towers of this great house—designed by Paxton, and built of a light grey Ancaster stone—first began to glitter in the sun, over 30 miles of surrounding country, in 1853. The site was admirably chosen on a small detached hill, well raised above the grassy vale, which is dotted here and there with dairies of red, white, or roan cows. The cows here are, as Artemus Ward would say, "a circumstance;" they are a "feature" of the country which must not be omitted from this brief description. The drive from Cheddington passes through enclosures; the noblest breed of cows in the world graze on the best of turf. The cows are magnificent; and the carriage drive the same. The present approach, commencing at the railway, $1\frac{1}{2}$ mile from the house, replaces a narrow lane, which was well enough thirty years since, as a road to the small village of Mentmore. But when the late Baron Meyer de Rothschild built Mentmore Towers his architect and landscape gardener, Sir Joseph Paxton, widened the lane into a broad road, with fit margins and suitable clumps of trees and shrubs. Everything is large; the road is 9 yards wide, the margins of grass 200 yards or thereabouts, the clumps contain half an acre, more or less; the cows are shorthorns, the largest of the breeds of cattle, and they are the largest of their kind. The best and biggest of them are worth £40 each at market, and one gigantic animal has given £50 worth of milk yearly during three years in succession, and will weigh, when she comes to the shambles, 140 stone. So a Mentmore cow is worth, in her prime, £40 for milk and butter, and, in her old age, £40 for beef.

The all-round view from the roof of the house includes the whole of this interesting district, the well-hedged pastures of the famous Vale, with its boundaries of hills and the soft waving line of the Chilterns, from the green heights of Ivinghoe to the western corner, where the turfy ramparts turn southwards by Kimble Parva into Oxfordshire. The house is a square block, with additional buildings surrounding a quadrangle on the north side. It is terraced on two sides; the principal approach and entrance occupy a third side, and a road passes the fourth front down the slope to an ornamental wood. If you follow this road almost to the level ground below you will find nothing to remind you that the site is modern, and that the road was made by Sir Joseph Paxton as recently as 1853. It has all the appearance of a natural highway, and all the shrubs and trees seem to have been the work of Nature. Turning round the house stands high above you, and it might have stood there since the first enclosure of the Royal Oak at Boscobel. There is nothing new-looking to vex the eye. Below the terraces, on the two best fronts, there are an Italian garden and a garden of fountains; and lower still, in full view from where you stand, are the steep slopes by which the lower level is reached; these are laid down in Laurel instead of grass. This planting of a wall of

Laurel is a good device; it changes the hue, and interposes a darker green between the house and park below.

The terraces are broad and their ornaments, and those of the formal gardens, are few and magnificent. The annual scrubbing of stained nymphs and other statuary, and of discoloured Floras and Pomonas, need not be a long affair when the ornaments are composed of noble instead of base materials. Except in the case of some wrought-iron gates with a history attached to them, the ornaments are all of bronze or marble. The Lion of St. Mark, and the late Baron's coat of arms, are of bronze, and "King Tom," the most distinguished horse of the Mentmore racing stud, is in bronze. He stands in the midst of plumes of Pampas-grass on the carriage drive, at the angle where the road divides for Leighton Buzzard and Cheddington. I believe he is worth £1700 in bronze, and was worth ten times as much in horse-flesh when his high and eager look and matchless form were attributes of the best horse of his day, instead of being only a reproduction by the sculptor.

The approach, like "King Tom," is a work of art. The little village of Mentmore, and its church and tower, are close by on the right hand on high ground, and yet they do not intrude. The road is partly excavated along the side of the hill, and the soil was used to raise the higher side, where a broad and beautiful bank of evergreens and deciduous trees, with tall Chinese Junipers in front, in dress parade, entirely shut out the view in that direction, and it shuts out the cold winds too. By means of skilful planting the same desirable results are obtained in all the immediate precincts of the house. I suppose this is not a dumb church, but the clappers of its bells were still during my visit, and the tower from which their music must be uttered is excluded, as if by magic. The same effect has been produced in the pleasure-grounds, where privacy has been secured by the exercise of the same consummate skill. In the rosery and sub-tropical gardens, and in the adjacent shrubberies, you know the great house must be close at hand, but you may walk and wander and never once catch sight of it, till presently you emerge upon the broad approach, and there it is before you.

The road to the principal entrance is just the proper breadth, not too broad, and—trust Sir Joseph Paxton—not too narrow. There is no need to mention the width, because any reader of this column who may meditate a second Mentmore will look (before he turns the first sod) at the first and pre-eminent Mentmore, planned by the genius of a Paxton, and created by the wealth of a Rothschild. Never, never lay out grounds without first visiting some place or other which may be somewhat similar in size and circumstances to what you have in view. I was asked lately to pay a visit and give some hints. I found the entrance-drive as narrow as a pack-horse road, and so hedged and ditched in perpetuity that "hints" would have been useless. The patch of lawn in front was straitened and bounded by raised borders on either side. There was no room for "hints" in that direction. A question was asked: "What creepers would you plant against the north wall?" "Ivies, in varieties," I said. "But they are such common things," was the reply. Ivy common! Why, it ornaments the castle as well as the cottage. People who venture upon forming their own grounds should look around first, and assist their natural genius by an examination of the best models.

A short account of the house and gardens at Mentmore may fill another column. *H. E.*

CONFIRMATION FRUIT TREES.—In some districts of Prussia the custom has become established by horticultural societies of giving, under certain conditions, a fruit tree to each person confirmed. This year, in a place called Grünberg, eighty persons have applied for the privilege—a proof, says the *Vossische Zeitung*, that this excellent custom is taking root amongst the people.

New Garden Plants.

CYPRIPEDIUM AINSWORTHII, *n. hybr.**

This is a cross between *Cypripedium Sedeni* and *C. Roezlii*. The flower may well be compared to that of the father plant, but it is larger, the purple colour is darker, and the lip is very distinct, far broader, spreading, the square short horns outside the retuse crenate mouth of the sac. The superior part of lip (the inflexed side laciniae) is pallid sulphur-yellow, with a great number of small, nearly contiguous spots on the base inside. Staminate nearly square, sulphur coloured, with a dark purple hairy border outside. Petals rather broad, purple with green mid-vein, and a pallid area around near the base; there are the usual groups of hairs at the base of the petals. Upper sepal pallid, whitish or yellowish-green with pallid purple border. Inferior sepal very wide, ventricose, with a reflexed margin, shorter than lip. Leaf 0.43 m. long by 0.025 m. wide. It is a product of the zealous endeavours of Mr. E. Mitchell, gardener to Dr. Ainsworth, Cliff Point, Broughton, Manchester, to whom it is dedicated. It appears to remain in flower a long while, since I had the first flower-shoot in 1878, and I get now (Feb. 14), through Mr. B. S. Williams' kindness, fresh materials.

Since writing these remarks Mr. Mitchell's last letter, including a sketch of the plant, has come to hand. It shows a branched inflorescence, which is a most remarkable instance, observed first in *Cypripedium Lindleyanum* of Schomburgk. *H. G. Rehb. f.*

ORNITHOGALUM (HELIOCHARMOS) ARMENI-
ACUM, *Baker, n. sp.†*

This is a well-marked new species of the group of *O. umbellatum*, distinguished by its numerous enrolled, subulate, hairy leaves. It was discovered in Armenia by Kotschy, and is now in cultivation with Herr Leichtlin at Baden Baden, from whom I have just received the specimen from which this description was drawn up, and who has sent a living bulb for the Kew collection.

Bulb ovoid, about 1 inch in diameter, without any accessory bulblets, the outer tunics pale and very thin. Leaves 12–15 to a bulb, contemporary with the flowers in May, subulate, with a deeply channelled centre marked with a distinct white keel, half a foot long, under a line in diameter, grey-green, glabrous on the face, ciliated on the back, principally on the much incurved margins. Scape terete, glabrous, 2–3 inches long. Flowers 6–8, in a dense corymb, with erecto-patent outer pedicels, above 1 inch long; bracts large, lanceolate acuminate. Perianth $\frac{1}{4}$ inch long; segments lanceolate, pure white, with a broad green keel. Stamens half as long as the perianth; filaments sub-equal, lanceolate, $\frac{1}{4}$ inch long; anthers pale yellow. Ovary oblong; style half as long as the ovary; stigma capitate. *J. G. Baker.*

NEW COLEUS.

THOSE who have visited the summer metropolitan exhibitions will have seen that Mr. Bull has broken new ground in the case of the genus *Coleus*, and that we may expect some very remarkable varieties. By a judicious use of some new forms, possibly new species, imported from the islands of the South Pacific, new blood has been introduced, and novel colours and markings obtained which will very much revive the interest taken in these gay-looking plants. The accompanying illustration (fig. 107), from Mr. Bull's new catalogue, fails to do justice to the beauty of these novelties for want of colours, but the descriptions in some degree supply these deficiencies:—

Aurora, yellowish-green, with purplish-rose colour in the centre; bright and telling.

Firefly, crimson, suffused with purple, or sometimes bright violet-rose, with yellowish-green beaded margin; showy and effective.

Glow, dark velvety crimson, the central portion bright rosy-carmine, shaded with magenta, and narrowly bordered with green; bright and novel.

Harlequin, yellow and green, marbled irregularly with various shades of purple bronze and chocolate; grotesque-looking and very handsome.

* *Cypripedium Ainsworthii*, *n. hybr.*—Folii lineariligulatis acuminatis; pedunculo breviter velutino apice plurifloro; bracteis triangulari spatheae ovaria velutina subaequantibus (?); sepalis impari oblongo obtuse acuto undulato; sepalis laterali-bus in unum corpus cochleariforme apice integrum seu minutissime bidentatum coarctis; labelli cornubus laterali-bus argute compressis, subquadratis, extrorsis, limbo medio antico obsolete retuseque crenato, sacco obtuso brevi transverso; staminodio pentagulo levi, lateribus barbellato.—*Selenipedium Ainsworthii*. Dom. E. Mitchell efficit ex C. Sedeni et Roezlii. *H. G. Rehb. f.*

† *Ornithogalum (Heliocharmos) armeniacum*, *Baker, n. sp.*—Bulbo ovoido solitario tunis exterioribus tenerrimis albidis; foliis 12–15 synanthiis subulatis albo-vittatis margine praesertim ciliatis; scapo glabro erecto 2–3 pollicari, floribus paucis in corymbum confertum dispositis; pedicellis ascendentibus; bracteis magnis lanceolatis; perianthii segmentis lanceolatis albis late viridi carinatis; genitalibus perianthio duplo brevioribus; filamentis lanceolatis subaequalibus.

ECONOMY OF FUEL IN HORTICULTURAL ESTABLISHMENTS.*

THE winter of 1878-79 will long be memorable for its extreme severity. Frost set in about the end of October, and lasted with little or no intermission until the middle of March, or, indeed, I may safely say till the beginning of May, ranging from the freezing-point down to several degrees below zero. This has been found to be very trying on horticultural establishments imperfectly heated. But as good often comes out of evil, it may lead to a better considera-

ridiculously small boiler to heat that quantity. A very great deal is said and much more written about some boilers requiring a small amount of coal as compared with others, but my own experience is that ninety-nine per cent. of the evidence put forward in support of this is of little or no value.

Take one case. Most of those present will recollect the interest that was excited in this neighbourhood about Wright's boiler. Among the first put in was one at Parson's Green, said at the time to have 3200 feet of 4-inch pipe upon it, but it was found out afterwards that this was a mistake,

this is the extreme looseness of the arguments used. Granted, for instance, that, say, these two oval flued boilers were heating 2200 feet of 4-inch pipe, with, say, 3 tons of coal per week; and granted that Wright's could heat the same piping with 2 tons, it does not at all necessarily follow that Wright's is the best boiler—not even that it is a better or as good a boiler as the oval flue. Recollect I am not saying it is not a better boiler—I pronounce no opinion on that point; but I say that the fact of two oval flues using 3 tons, and Wright's using only 2 tons, does not prove that that particular shape of boiler is better than the oval flue.

This may appear paradoxical, but I think I can make it sufficiently plain. Now, it is a fact that these two oval flued boilers at Parson's Green were given out by the makers to heat only 1400 feet, or 700 feet of pipe each, and consequently they were overloaded to the extent of 800 feet, or 400 feet each boiler; therefore the boilers were unfit for the work. What followed was the usual well-known result—that, where there is too little boiler-power more fuel is consumed in attempting to force it over its power than would be necessary were the size of boiler in proper proportion to the work to be done. This is a well-known fact in connection with steam-boilers, and many a man has discovered when too late that £50 or £100 saved on the original cost of a steam-boiler is swallowed up in one year's extra consumption of fuel. Wright's boiler, on the other hand, at Parson's Green was stated to be capable of heating about 4800 feet of piping, and consequently was scarcely half loaded, hence the advantage; but were any one to reverse the process, and get two Wright's boilers given out to heat 700 feet each, loaded to 2200 feet against an oval flued boiler given out to heat 4800, the result would be exactly reversed, which, according to the reasoning used, would bring out the conclusion that at one time the oval flue is the best boiler out, and Wright's the worst; and in the other case that Wright's is the best and the oval flue the worst! To make this point as plain as possible let me draw your attention to a case I had to do with last winter.

At The Glen, Innerleithen, there are a number of houses containing some 1200 feet of piping, separate from the other ranges. These were heated up to the end of January last by means of two cast-iron saddle-boilers 2½ feet long each, placed end to end, thus, as it were, forming one boiler 5 feet long. The flows from each were joined together, forming the arterial flow-pipe, and the returns were treated in the same manner. There was very considerable difficulty in keeping up the heat at all times, and more especially so in December and January last. The consumption of coal was enormous, and one of the young men had to be up all night to keep the fire going "full swing." It happened, no doubt owing to this forced work, that one of the boilers gave way, and when our services were called into request we decided to put in one boiler in place of the two to serve the whole.

A plain saddle-boiler was chosen, 6 feet long, about 2½ feet wide, and some 20 inches high, with three cross tubes. Now mark the result. During the whole of February, which was nearly as severe as January, the consumption of coal was a very little more than half what it was before, and when the fire was made up at 9 or 10 o'clock at night it never required to be looked at until 7 or 8 next morning. If one were to follow the absurd reasoning of those who put forward the puffs alluded to, it would be in this wise:—

1. The saddle-boiler is the worst and most extravagant boiler made, because I burned double the coal, and had less satisfaction with two than I had in than with the one new boiler since put in their place; and

2. The saddle-boiler is the best boiler in creation, because I put in one that uses only half the coal, and does better work than other two boilers which were taken out.

We thus establish the beautiful proposition that the saddle-boiler is "the best" and also the "worst" boiler in existence!—a proposition, both points of which may be wrong, but both points of which it is impossible can be right. Therefore, in looking for economy in fuel, although it is perfectly right and indeed very desirable to consider the shape or form of boiler, I am very strongly of opinion that no such extraordinary difference between the consumption of coal, in particular cases, is to be attributed to the particular make of any boiler, but rather to side issues, which are very often entirely ignored, or hidden by extreme laudations of some form of boiler



FIG. 107.—MR. BULL'S NEW VARIETIES OF COLEUS. (SEE P. 748.)

tion of the question of the relation a heating apparatus should bear to the work to be performed. I think I may safely say that in estimating the proper quantity of piping required to heat hothouses as well as the proper size of boiler to heat a certain quantity of piping, hot-water engineers as well as gardeners have been very much going upon a rule-of-thumb practice, sometimes, but very rarely, putting in too large a quantity of piping and too large a boiler, but in much more numerous instances putting in a ridiculously small quantity of piping and a

less than 2200 feet being the amount of 4-inch pipe heated by it.

The statements put forward were to the effect that these 2200 feet were formerly heated by two oval flued boilers, but that on these being taken out and Wright's put in the consumption of coal was reduced to nearly one-half, and consequently Wright's boiler was asserted to be the best boiler ever invented. Now this is not at all an isolated case. I have seen such statements repeatedly put forward on behalf of other boilers; and, in fact, you can hardly take up a gardening periodical without stumbling on some such extraordinary eulogy of some particular boiler or other. What I wish to point out in connection with

* Read at the meeting of the Scottish Horticultural Association on May 6, by Mr. A. D. Mackenzie, of Messrs. Mackenzie & Moncur, Horticultural Builders, Edinburgh.

put forward by an imperfectly informed inventor (so-called).

From the many shifting elements which require to be taken into account, it is very difficult, in fact impossible, to come to any really definite conclusion upon the exact quantity of coal necessary to heat a certain quantity of piping in every description of hot-house.

1. There is the relation of the quantity of piping to the cubical contents of the structure to be heated, and temperature to be kept up.

2. The shape and situation, as well as the airtightness of the building.

3. The relative size of the boiler to the quantity of piping.

4. The building-in of the boiler, form and size of flues and chimney.

5. As a consequence of these, the draught of the furnace, which is a most important item; and last, but not least, the character of the stoking.

I have here returns received from fourteen large establishments, giving, 1, kind and size of boiler; 2, quantity of piping on each; 3, average temperature; and, 4, consumption of coal for the two months of December and January last. From these returns I find that, in these fourteen establishments, it took 317 tons of coal to keep up an average temperature of 51°, the quantity of piping being 32,000 feet, and the number of boilers twenty, comprising plain saddles, cruciforms, terminal saddles, Weeks' tubular and Wright's flame impact.

Now I find, from a return got from Mr. Shearer, Merchiston, that in the sixty-two days of December and January there were altogether 292° of frost registered by him, the observations being taken at 7 o'clock each morning, which gives us nearly 5° for each of the sixty-two days, or a temperature of 27° Fahr.—the difference between this and average temperature of the places given is 24°. Therefore we find that it takes 317 tons of coal to keep up a temperature of 24° above the external atmosphere in these houses, heated by 32,000 feet of 4-inch piping for sixty-two days, which give nearly 15 lb. of coal per hour for every 1000 feet of 4-inch pipe heated. From very careful calculations made by Hood, he comes to the conclusion that to maintain a temperature of 75° in a room, with the external air at 30°, the consumption of coals should be nearly 4 lb. per hour for every 100 feet of 4-inch pipe, or nearly 40 lb. per hour for every 1000 feet, to raise the inside temperature 45° above the outside. In the returns before me, however, we have much more favourable results. In fact, I consider that 15 lb. per hour per 1000 with a difference of 27° between the outside and inside temperature is exceedingly moderate. Therefore, any proposal put forward, as we often find, sometimes on behalf of one kind of boiler and sometimes on behalf of another, supported as they are sure to be by numerous certificates, to reduce the consumption of coal from, say 75 to 90 per cent., appears to me, to say the least of it, suspiciously like the ointment, pills, and other nostrums so lavishly advertised for the cure of all diseases that flesh is heir to.

No doubt men of very high standing tell us that a very large percentage of the total heat of combustion is entirely lost, but they don't look for reformation here so much in a mechanical as in a chemical direction. It is a curious commentary on these extraordinary saving boilers, that while we are deluged with vague and undefined general statements about the small quantity of coal required compared with others, we do not find any record of a series of clear and definite experiments having been carried out, such as has been done by the comparative trials of steam-boilers in repeated instances. Therefore, until we are furnished with these, we are justified in regarding what is put forward as advertising puffs to gull the unwary, "springs to catch woodcocks."

My own decided conviction is, that we are to look more for economy in fuel at present to the well-balanced proportions and careful construction and management of the whole apparatus:—1, by putting in a liberal quantity of piping; 2, by using a boiler much larger than is generally supposed to be necessary; 3, by the proper and careful construction of the furnace flues and chimney; and, 4, by careful and discriminate firing. On the first point I would recommend for conservatories and greenhouses 1 foot of 4-inch pipe to every fifty cubic feet of space, more or less according to circumstances, but better always to err on the safe side by putting in plenty of pipes. For vineries, say 1 foot of 4-inch

pipe for every 40 feet, or if early, for every 30 feet; and for stoves, 1 foot of pipe for every 20 feet. This is only of course a rough approximation, but an experienced man can be at no loss taking these figures for a basis. In reference to the most economical size of boiler for heating a given number of feet of 4-inch piping, I would very strongly recommend a margin of 33 per cent., or at least 25 per cent., being allowed more than the actual requirements, according to the standard Halifax Tables.

The "Terminal Saddle," with flue through its crown, I believe to be on the whole as good a boiler as any. We have put in hundreds of them, and in every instance with satisfactory results. In certain cases with a powerful draught a "Witley Court," "Gold Medal," "Climax," or some others of the more complex forms, may be used with probable advantage, but we must not lose sight of the fact that a multiplication of flues at the best is but of very doubtful benefit, and that it is the direct heating surface we must principally depend upon.

The careful construction of the furnace and flues is of immense importance. The furnace of a hot-water apparatus should always be large and roomy, to allow sufficient fuel to be put on to last eight or ten hours without attention, and for the same reason the flues should be wide and deep, with abundance of facilities for cleaning. Nothing I think gives more trouble in connection with a boiler than a narrow contracted gullet, which will almost close up with soot in a single night. The chimney should be as high as practicable, —the higher the better, insuring as this does a better draught and better combustion.

The firing or stoking of the fire has much to do with the economical working of an apparatus. A thin fire should always be put on first when heat is wanted quickly. Care should be taken that the whole of the bars are covered, so as not to admit a large volume of cold air into the back of the furnace without being mixed with the gases from the fuel. When the heat is well raised by a thin and sharp fire, all the red embers should be pushed well back and the fresh coal put on in front, thus making the products of combustion pass over the highly heated surface, and raising their temperature to the point of ignition. This is the only way an approach can be made to the consumption of the smoke, or rather the non-production of it.

In conclusion, I would strongly impress upon all concerned the important fact that much of the success and economy of an apparatus must depend upon the careful and thoughtful attention of the person in charge; and I should advise all stokers to give their most serious consideration to this most necessary matter, so as to thoroughly qualify themselves for the proper discharge of this most important duty.

M. EDOUARD SPACH.

THIS industrious botanist, whose death we lately announced, was born at Strasbourg in 1801. He was assistant to Mirbel, and subsequently (nominally up to his death) one of the curators of the herbarium of the Museum of Natural History in Paris.

His principal publication is the *Histoire Naturelle des Végétaux*, fifteen volumes 8vo, including one volume of 152 plates—1834 to 1848. This work is usually cited as the *Suites à Buffon*, and it embodies a vast amount of research, but it is marred by an excessive multiplication of genera and species. Thus, for example, *Helianthemum glomeratum*, a common Mexican shrub, having trimorphic flowers, furnished him with material for three genera! This characteristic of the author is ludicrously exaggerated in the humorous and sarcastic work by I. S. de Gosse, of which we give a free translation without hope of imitating the raciness of the original.

"M. Spach is assistant to M. de Mirbel; he is well acquainted with flowering plants, he knows their names and their synonyms, and has crammed his memory with all the knotty points of botanical nomenclature. M. Spach knows how to draw up a diagnosis, but his descriptions are enough to horrify M. Gay, who never allows a hair, a fold, or a marking to escape him. Everything is measured, named, renamed even, and hence the pleasing custom of creating names and making genera. Carried away by this terrible monomania, M. Spach would think himself wanting in his duty to himself if every morning before breakfast, before even removing his nightcap, he did not create two new genera, three subgenera, and six species. He proposes to publish a memoir of the necessity of giving distinct names to the

two sexes of dioecious plants. In the case of monœcious plants let us take, for example, *Corylus*; M. Spach would call the male *Corylus*, the female *Coryla*, and the two together *Corylum*."

This is followed by a diverting classification of Carrots, which Spach conceives during one of his morning walks. Arriving in hot haste he unfolds it to Mirbel in a French in which the t's and d's, and the b's and p's, &c., are interchanged. At first too excited to get beyond exclamations, he at length cools down sufficiently to say that he has made a little discovery, and has made a scientific classification of Carrots, giving a distinct name to the plant in each stage of its growth, thus—*Daucus juvenilis*, *Daucus crassus*, and so forth. But this is not all: Carrots have to be distinguished and named accordingly as they grow, separately in beds or when dug up, according as the foliage is removed, the root exposed for sale, cut up by the cook, boiled, masticated, swallowed, digested, and so on. A specific adjective is given to the *Daucus* according to each of these varied circumstances. Finally M. Spach proposes an altogether new name for the Carrot, because he finds the last syllable of *Daucus* coarse and equivocal, and so he proposes to name it "*Micromacroglucoxanthoerythro-leucorhizos*"—a name to which exception is naturally taken on account of its length, but Spach replies that the name is valuable as teaching the young learner Greek, and further impressing on his mind the fact that the Carrot is a root small or large, yellow or red, sugary, and so forth. Not to spoil the point of this playful sally by a lame translation we add the original:—

"*Spach*.—Ché âvé vait ine dou bétite tégouverde—ché âvé glassé les garottes.

"*Mirbel*.—Quoi! tu as classé les carottes!

"—Foui! et engore une glassivication soignée!

"—Conte-moi ça!

"—Foici: Ché mé bromenais tans les champs et ché révlégissais à la podanique. Foilà qué j'abercrois dé garottes et ché mé tis: Goman! tant de podanistes sélépres n'ont-ils bas aberçu que ces garottes bassent par tivers édats afant t'arrifer au put ternie té leur fie! et goman n'ont d'îls ba tonné tes noms à jagun te ces édats! Goman! fichtre! les bété et les gros garottes s'abélent douchours garottes! Le brocédé il est pête. Ché me to tunc: Spachtih, mon bété mignon, toi zeul, il édre gapable té vaire zela. Or, foici ce que ché âvre vait:—

"Les bétis garottes pien chéunes et choli, afec leur bétite quéé, toive s'abeler *Daucus juvenilis*.

"Les crosses garottes pien totues *Daucus crassus*.

"Les garottes gonsidérées tans leur édat t'isolement, *Daucus solitarius*.

"Les garottes arragées par le culdivadeur, *Daucus separatus*.

"Les garottes mises en potte, *Daucus aggregatus*.

"Les garottes tont la fruidière il a goubé le dède, *Daucus decollatus*.

"Guand la bétite lésume il est mise en fente, *Daucus venalis*.

"Guand la guisinière il brendre les garottes et les mède tans son banier, *Daucus incarceratus*.

"Guand il dire les garottes de son banier pour les mède en réserfe, *Daucus liberatus*.

"Guand il brand le garotte et s'abrède à le mède tans le bot, *Daucus condemnatus*.

"Guand il le mède tans le bot et le vand en gadre, *Daucus quadripartitus*.

"Mais s'il s'achit de vaire in bête à la mode et de le gouben en bétis ronds, *Daucus circumscissus seu rotundatus*.

"Guand il édre guite et brêt à serfir, *Daucus coctus*.

"Ché bas barler tes *Daucus ustus*, pour goloré la pouillon, des *Daucus masticatus*, *ingurgitatus*, *chylificatus*, &c., mais ché médrai in peu té réserfe tans cesi, barocéqué, les garottes teviennent un beu blus tificiles à garactérisé tans cet édat et beufent être gonvontus afec audre josc."

Then follows a classification of the various kinds of Carrot in the slang applications of the word; concluding:—

"*Spach*.—A brobos, bour gobléler ma bétite infention, che tonné un noufeau nom à la garotte, barocéqué ché drouvé le nom de *Daucus* flaine, bolissonne et immoral.

"*Mirbel*.—En quoi mon Dieu! ce nom peut-il te déplaire?

"—En goi! Fou bas teviné?

"—Ma foi non.

"—(.1 part) Fiju pête! (*Haut*) le ternier silape est crosier et brête à tés eguivogues.

"—Quel nom as-tu donc crée?

"—Pien choli!

(M. Spach tire de sa poche un rouleau de papier)—
" "*Micromacroglucoxanthoerythroleucorhizos*."

"— Ce nom est un peu long.

"— Foui, mé il abrév' le grec au bête enfant et il tire rien que ce édre un racine bête ou crosse, chaine on rouché et sugrée—ba moyen te ba le regonaitre !

"— Et tu te proposes de publier cette nouvelle idée ?

"— Pien sur, ché le méré tans mon éticion Roret* tes 'véchédaux Vanerokame."

"M. de Mirbel sourit. M. Spach s'incline et sort. Hier de son invention, il va la colporter partout et la communiquer à son éditeur. Celui-ci pénétré de reconnaissance, le fait embrasser par son garçon de magasin."

RHODODENDRONS.

THE hardier varieties of Rhododendrons are, as I write these lines, dazzling my eyes with crimson of every hue, to say nothing of the purples and the whites, and cry out against any preference for the tenderer sorts. Barclayanum, and Brayanum, and Blandyanum, and Lady Eleanor Cathcart, and Mrs. Holford, and Mrs. Clutton, and a host of my own seedlings, deprecate partiality; but the Messrs. Waterer and others have done so much to popularise these plants, and they are so universally cultivated, that I have preferred to give precedence to the less familiar, and even more glorious, scented species. All sorts and kinds should, however, be kept clearly in view by the hybridist, and by those who wish to enjoy Rhododendrons in all their fulness.

I remember reading, many years ago, of a Miss Walker, of Drumsheugh, near Edinburgh, who by combining hardy and tender sorts in her cool conservatory, managed to have one Rhododendron at least in bloom there all the year round. Her list included fifty species and varieties. Miss Walker, I am told, is dead, and her residence swept away and the site built over; but her example is well worthy of note by Rhododendron growers. Since her time what additions have been made to the genus! In prolonging the Rhododendron season into the dull autumnal and winter months, many have been the acquisitions, and none perhaps more brilliant or more complete than Messrs. Veitch's new strain, which may be seen at Chelsea, and of which more anon.

But Miss Walker's list deserves a few more words. First in it stands R. Nobleanum, in many varieties, blooming from October till April. In January R. atrovirens (one of the parents of that most useful early hybrid R. præcox, *alias* Early Gem) appears upon the scene; then R. ciliatum, of which there are lilac (see Sir J. D. Hooker's *Himalayan Rhododendrons*), blush, and pure white varieties; then R. arboreum, and a succession of hardy kinds till we reach R. glaucum, so curious with its aromatic leaves, and so comely with its pink or dappled bells. Between the two, R. ciliatum and R. glaucum, Mr. Davies, of Ormskirk, has raised a hybrid, blushing and elegant, and fairly hardy. "Apple-blossom," a name I do not understand, comes next; and then R. formosum, which (sometimes called Gibsoni) resembles a scented white Azalea, but often is streaked or tinged with pink. R. javanicum takes us to another race of Rhododendrons, and into quite another region, which, however, our great English botanist now regards as the central birthplace of the genus, the Malayan Archipelago. This splendid species, with its large truss of bright orange flowers, is not often seen. Last year it bloomed finely at Kew, and I have seen at Messrs. Veitch's multitudes of young plants. In vain I have tried to cross it with the hardy varieties, though it has been mated with nearer relations, as will appear presently; but last year, I am told, it refused to cross either way with R. jasminiflorum. R. Edgworthii, the pollen-parent of R. Princess Alice, and R. Dalhousiæ, the pollen-parent of R. Countess of Haddington, bloomed with Miss Walker in May; and their large white scented blossoms must have been noble company for the crimson and the purple of Brayanum and Sir Isaac Newton and others in the list. R. Jenkinsii opened in June and lasted till the end of July. The dwarf and curious R. anthopogon bloomed through August; and R. Maddeni, which very nearly resembles Jenkinsii, kept up the succession till October 18. Such is the abbreviated record of a year of Rhododendrons.

Some may perhaps think this a narrow and monotonous view of floral culture; and yet, with the largest love for many plants, it may be well, even for an amateur, to devote primary attention to one or two,

as Mr. Radclyffe to his Roses, his Strawberries, and his Peaches, or Mr. Wilson to his Lilies. Having a few groups of plants under constant and minute attention, it is wonderful how familiar one grows with habits and peculiarities. With some botanical knowledge (and all horticulturists should, if possible, be botanists), amateurs may, by careful and recorded observation, offer much assistance to science. The days have gone by when, as Dean Herbert relates, naturalists frowned on hybridisers. Both have found that the more they learn of Nature the more, it seems, remains to be learnt; and Rhododendrons offer to both a large field for observation and experiment. New species come pouring in apace from all climates and from many parts. Your pages recorded, the other day, a whole new series of Rhododendrons from the Malayan Archipelago and New Guinea; while, to go to the other extreme, Regel's *Gartenflora*, vol. xxvi., figures and describes an alpine novelty from the Baikal Mountains, a species "zwischen R. lapponicum und R. davuricum."

The variety and the range of the Rhododendrons are indeed wonderful. You may bring them from a tropical climate, or from the snow-line, where R. nivale patiently waits days and weeks, in storm and fog, for one sunny hour, in which its pollen may do its work. They bear flowers, some of them, as large as *Magnolia grandiflora*, and others more tiny than a Buttercup; some are trees, others like the humblest herb; some are evergreen, other deciduous, and others again half-and-half. Their leaves are nearly as various as their names, and I have often amused my guests by a study of their foliage, from R. Falconeri down to R. lepidotum. And yet not only does the botanist know their close alliance, but the hybridiser is constantly discovering strange likings and antipathies among them, which may some day lead to the disclosure of new truths.

Miss Walker's list, though sufficiently tempting, gives a very imperfect indication of the materials for culture now available. I saw, for instance, at Messrs. Veitch's, a beautiful hybrid raised by Mr. Luscombe, between R. Fortunei and R. Thomsoni, yet neither of these noble species appear in the list. Again, no collection would now be tolerable without R. Griffithii *alias* (?) Aucklandii, whose splendid open cup-like corolla and minute stamens offer so striking a contrast to the trumpet-shaped calophyllum, with its large and numerous stamens, streaming with pollen, though both are strongly scented. About a month ago a hybrid at the Lawson Company's nurseries, raised by Mr. Scott between this R. Griffithii and the hardy late variety John Waterer, was shown to me, and it seemed worthy, I thought, of both parents. I have been hybridising in the same line, and I would say that no Rhododendron grower would now be worthy of the name if he or she did not possess the various species, for instance, named above.

I have prosed on, I find, at so great a length, that I must reserve for another paper my notes on the Chelsea strain, instead of tacking it on to the end of this. J. H. M.

EXPERIMENTS IN CROSS-BREEDING PLANTS OF THE SAME VARIETY.*

EARLY in the spring of 1877 the writer received the first review of Darwin's book on *The Effects of Cross and Self-Fertilisation of Plants*. The book seemed to be a most instructive production, one which has not been excelled in importance to the farmer by any work in this or in any age; but, in the words of the *Gardeners' Chronicle*, "it is certain that these practical results will be a long time filtering into the minds of those who will eventually profit most by them." If the results are so valuable—and if it will take a long time to reach the farmers—this "filtering" process cannot begin too soon, nor be too continuously kept before them. The writer lost no time in trying similar experiments on several of our cultivated plants, as Apples, Onions, Indian Corn, and Beans.

Experiments with Indian Corn.—Yellow Dent corn was obtained from two men in different portions

of Michigan. In one case the corn had been kept ten years or more on the same farm, and in the other case fifteen years or more on the same farm. In both cases the corn was much alike. The two lots of corn were planted in alternate rows in a plot by itself. The tops of one set of rows were all cut off, thus securing a perfect cross on those stocks. Seed from this cross was saved and planted to compare with corn not so crossed. The yield from the crossed seed exceeded the yield of that not crossed as 153 exceeds 100.

Crossing Black Wax Beans.—There were eight short rows, 2 feet apart, with the plants finally thinned on July 10 to five plants about 15 inches apart in the row. The seed for half the rows (alternating) is called "old stock," and was raised in the garden the previous year from seeds which descended from those raised on the place for nine years or more.

The "crossed stock" was obtained as follows:—In 1877, some seeds of the same variety of Beans were purchased of Jas. Vick. These were planted in a drill evenly mixed with seeds of the old stock. These grew and looked alike, but the flowers were intercrossed by bees. Seeds of this crop are termed "crossed stock."

On May 31, 1878, fifteen seeds were planted in each of the eight rows. The plants from the crossed seeds were generally much the largest, and, as will be seen, kept green the longest.

| | | | | | |
|---|----|----|----|----|------|
| In ten days after planting, seeds of the old stock came up in each row as follows | 4 | 7 | 7 | 9 | = 27 |
| In ten days the crossed stock came as follows | 12 | 10 | 6 | 11 | = 39 |
| In seventeen days the old stock came as follows | 7 | 11 | 10 | 10 | = 38 |
| In seventeen days the crossed stock came as follows | 12 | 13 | 10 | 14 | = 49 |

On July 22 the pods fit for cooking on each plant numbered as follows. The pods on the two lots of plants were about alike in size:—

| | | | | | | | |
|---------------------|----|----|------|------|----|----|-------|
| Old stock .. | .. | 36 | 1 | dead | 7 | 13 | = 57 |
| Crossed stock | .. | .. | dead | 0 | 0 | 41 | = 41 |
| Old stock | .. | 0 | 0 | 8 | 11 | 0 | = 19 |
| Crossed stock | .. | 6 | 22 | 31 | 0 | 17 | = 79 |
| Old stock | .. | 33 | 0 | 0 | 0 | 0 | = 33 |
| Crossed stock | .. | 41 | 37 | 21 | 31 | 0 | = 130 |
| Old stock | .. | 0 | 0 | 0 | 0 | 2 | = 2 |
| Crossed stock | .. | 16 | 29 | 31 | 26 | 2 | = 103 |
| Total old stock .. | .. | .. | .. | .. | .. | .. | = 18 |
| Total crossed stock | .. | .. | .. | .. | .. | .. | = 353 |

This variety is greatly raised for the purpose of supplying an early crop of Beans to eat pods and all while young. The difference will be seen to be over three to one in favour of the crossed stock.

On August 9 the pods fit for cooking or past that condition were as follows:—

| | | | | | | | |
|---------------------|----|------|----|------|----|--------|-------|
| Old stock.. | .. | 52 | 60 | dead | 43 | 45 | = 200 |
| Crossed stock | .. | dead | 24 | 16 | 51 | 83 | = 174 |
| Old stock.. | .. | 38 | 46 | 44 | 71 | = 236 | |
| Crossed stock | .. | 35 | 57 | 58 | 69 | = 276 | |
| Old stock.. | .. | 39 | 34 | 30 | 47 | = 237 | |
| Crossed stock | .. | 63 | 48 | 11 | 66 | = 249 | |
| Old stock.. | .. | 38 | 46 | 54 | 33 | = 210 | |
| Crossed stock | .. | 38 | 90 | 52 | 88 | = 340 | |
| Total old stock | .. | .. | .. | .. | .. | = 883 | |
| Total crossed stock | .. | .. | .. | .. | .. | = 1043 | |

On or before September 16 all were harvested. The pods on each plant numbered as follows:—

| | | | | | | |
|---------------------|------|-----|------|-----|-----|--------|
| Old stock | 60 | 62 | dead | 45 | 39 | = 206 |
| Crossed stock | dead | 160 | 54 | 29 | 139 | = 382 |
| Old stock | 45 | 48 | 36* | 71 | 37 | = 237 |
| Crossed stock | 36 | 145 | 91 | 72 | 51 | = 395 |
| Old stock | 45 | 35 | 37 | 38 | 35† | = 190 |
| Crossed stock | 103 | 68 | 55 | 128 | 75 | = 429 |
| Old stock | 33 | 39 | 48 | 28 | 40 | = 185 |
| Crossed stock | 136 | 159 | 58 | 172 | 128 | = 653 |
| Total old stock | .. | .. | .. | .. | .. | = 818 |
| Total crossed stock | .. | .. | .. | .. | .. | = 1859 |

On comparing the table for August 9 with that for September 16 it will be seen that some plants of the old stock had lost part of their fruit. This was on account of the decay of 101 pods. The table also shows that two branches were broken and had died before maturing. These contained seventy-three pods.

Adding 101 and 73 to 818, we have 992 pods of the old, against 1859 of the crossed. In harvesting, all those pods badly damaged were rejected. The Beans of the old stock weighed 29.77 ounces avoirdupois, those of the crossed stock weighed 70.33 ounces avoirdupois, or nearly in the proportion of 100 to 236.

The difference would be a little less if we allow for the broken plants and decayed pods on the old stock. One plant of the old and one plant of the crossed stock died early and produced no fruit.

* This plant contained a dead branch with twenty-one immature pods.

† This plant contained a dead branch with fifty-two immature pods.

Six lots of fifty Beans each were taken at random from the old stock and weighed as follows :—

| | | | |
|---------------------|-------------|--------------------------|-------------|
| 50 seeds | 231 grains. | 50 seeds | 260 grains. |
| 50 seeds | 262 grains. | 50 seeds | 259 grains. |
| 50 seeds | 275 grains. | 50 seeds | 284 grains. |
| Total, 1616 grains. | | Average, 269 1/3 grains. | |

The same number of seeds was taken from the cross-l stock and weighed as follows :—

| | | | |
|---------------------|-------------|--------------------------|-------------|
| 50 seeds | 225 grains. | 50 seeds | 210 grains. |
| 50 seeds | 219 grains. | 50 seeds | 210 grains. |
| 50 seeds | 200 grains. | 50 seeds | 220 grains. |
| Total, 1273 grains. | | Average, 213 1/6 grains. | |

The average weights of an equal number of Beans from each stock were nearly as 100 to 79 in favour of the old stock. *W. J. Beal.*

WILHELM SCHIMPER.

WE learn from the *Botanische Zeitung* that Wilhelm Schimper, who has greatly enriched European museums and herbaria with specimens of the fauna and flora of Abyssinia, died at Adoa last October. Schimper first travelled under the auspices of the German Botanical Reiseverein, or *Unio itineraria*. In July, 1831, he went to the south of France, chiefly in the neighbourhood of Cette and Montpellier, and thence the following autumn to Algiers. There he fell ill, and in consequence was obliged to return to Europe; and in 1834 he started on an expedition to Egypt and Arabia. The principal result of this journey was the exploration of the flora of Sinai, where Schimper, beset by obstacles and difficulties, collected several hundred species of plants. In 1836 he was sent to Abyssinia, and he landed at Massowa in January, 1837. From 1837 to 1840 he was engaged collecting specimens of natural history in that country. At the end of 1840 he started on his return journey to Europe, but, falling ill in Arabia, he was taken back to Mokha. To recruit his health he crossed again to Abyssinia, and gained the favour of King Ubié, who presented him with the province of Antitscho. Subsequently he married a native lady, and settled down in the country, employing his leisure time in collecting, as heretofore, principally for the directorate of the Paris Garden of Plants. He appears to have lived peaceably and happily enough until, in 1855, King Theodore waged war with Ubié. At that time Schimper was in Gallas Land, and when he returned he found his dwelling in Debra Eski, where he had built a small fortress and church for Ubié, destroyed, together with all his collections. The victorious Theodore also annexed his province, and Schimper withdrew to Adoa. Afterwards he was compelled, with his family, to follow Theodore to Magdala, where he remained until it was surrendered to the English in 1868. Since then he had been living at Adoa in rather needy circumstances, engaged upon geological collections, and the formation of a geological map of the country. A son, who had spent ten years in Europe to complete his education (latterly through the munificence of the Grand Duke of Baden), was on his way home when he heard of his father's death.

SPIRÆAS.

SPIRÆA ALBA (fig. 109).—This fine North American shrubby Spiræa has been cultivated in this country for nearly a century, though no good figure of it has hitherto been published. Botanically, perhaps, it should not rank higher than a variety of *salicifolia*, but from a horticultural standpoint it is one of the most distinct and desirable of the shrubby kinds of Spiræa. Moreover, it is perfectly hardy. It is characterised by having large branching panicles of white flowers, the lateral branches forming an angle of 75° to 90° with the main axis, rarely going off at so acute an angle as represented in the accompanying engraving. The bark of the young branches is bright red, contrasting well with the flowers. Aiton, *Hortus Kewensis*, ed. 2, vol. iii., p. 254, calls it *S. salicifolia* var. *β paniculata*, with the diagnosis "foliis lanceolatis, racemis paniculatis divaricatis, cortice ramorum rubro." *S. latifolia* appears to be only a broad-leaved state of *alba*. Watson, *Dendrologia Britannica*, ii., t. 133, gives a very poor representation of our plant, the entire inflorescence being no larger than the usual size of a single lateral branch. It is often much larger than here represented. The true *S. alba* is certainly one of the best of the shrubby kinds with white flowers.

SPIRÆA DECUMBENS (fig. 108).—A dwarf trailing shrub, with white flowers, suitable for covering rocks and banks. Its natural habit is on limestone or chalk in the Tyrol. Under cultivation it is a free-blooming plant, and is well worthy of a place in the situations named.

PLANT PORTRAITS.

BEGONIA NELLIE MAY, *Floral Mag.*, t. 338.—A seedling raised at Chiswick by Mr. Barron. Good habit, flowers of good size and form, soft rosy-pink.

BURBIDGEA NITIDA, Hook. f.; *Botanical Magazine*, t. 6403.—A Bornean plant allied to *Hedychium*, but which forms an entirely new genus, appropriately dedicated to Mr. Burbidge, who has been travelling in Borneo for Messrs. Veitch, the possessors of the plant. The habit is that of *Hedychium*, but the orange-coloured flowers have a different structure.

FL. U.S., ii. 10.—A yellow-flowered Aster-like Composite, with long linear leaves.

HIBISCUS COCCINEUS, Walp.; Meehan, *Native Fl. and Ferns U.S.*, ii. 1.—*H. speciosus*, Aiton.—The most gorgeous of all the plants indigenous to the United States. Florida.

HIBISCUS ROSEUS, *Revue Horticole*, January 1, 1879.—Hardy perennial, with large, handsome rose-coloured flowers.

HYDRANGÆA THOMAS HOGG, *Garden*, January 18, 1879.—A pure white *Hydrangæa* of great beauty. Exhibited by Messrs. Veitch & Sons.

IPOMÆA LEPTOPHYLLA, Torrey; Meehan, *Nat. Fl. U.S.*, ii. 7.—Remarkable for its root, which descends 6—7 feet below the surface, and serves as an esculent. Leaves linear; flowers large, purplish, very handsome, like those of a *Convolvulus*.

LANTANA, *Revue de l'Horticulture Belge*, January, 1879.—Five fine named varieties.

LELIA PUMILA, Rchb. f., var. *MIRABILIS*, E.



FIG. 108.—*SPIRÆA DECUMBENS*.

CALLIRHOE INVOLUCRATA, Gray; Meehan, *Nat. Fl. U.S.*, ii. 2.—A spreading malvaceous plant, with purplish flowers like a *Portulaca*. Used in America as an edging plant.

CAMPANULA ROTUNDIFOLIA, Linn.; Meehan, *Nat. Fl. U.S.*, ii. 3.—Indigenous to the Eastern States of North America as well as to Europe.

× *CATTELEYA MITCHELLII*, *Floral Mag.*, t. 337.—A cross between *C. quadricolor* (New Granada), and *C. guttata* Leopoldi (Brazil), raised by Mr. Mitchell, gr. to Dr. Ainsworth. Sepals and petals purplish-violet; lip purple, with orange disc.

ESCALONIA FLORIBUNDA, H.B.K.; *Botanical Magazine*, t. 6404.—A noble hardy or half-hardy shrub, with dense panicle of white flowers. (See *Gardeners' Chronicle*, 1873, p. 979.)

FRITILLARIA KARELINI, Baker; *Botanical Magazine*, t. 6406.—A remarkable and handsome species, with racemose bell-shaped pale purple-spotted flowers. Oural to Afghanistan. Mr. G. Maw.

HELENIUM TENUIFOLIUM, Nuttall; Meehan, *Nat.*

Morr.; *Belg. Horticole*, t. 17, 1878.—A fine variety of *L. pumila*, with flowers 5 inches across.

LILIUM AVENACEUM, Fischer; Elwes, *Mon. Lil.*, part 6.—Kamtschatka. Small orange-red spotted flowers, segments somewhat reflexed; bulbs globose, with narrow pointed jointed scales.

LILIUM CONCOLOR, Salisbury; Elwes, *Mon. Lil.*, part 6.—Bulbs globose, often tufted, scales ovate lanceolate; leaves linear lanceolate; flowers shallow funnel-shaped, stellately spreading, orange-red, with fine spots.

LILIUM MARITIMUM, Kellogg; Elwes, *Mon. Lil.*, part 6.—Leaves linear oblong, crowded; flowers racemose, on very long erect stalks, funnel-shaped, orange-red with large dark spots. Californian coast.

LILIUM MAXIMOWICZII, Regel; Elwes, *Mon. Lil.*, part 6, and vars. *pseudo-tigrinum*, Bakeri and Regeli.—Var. *pseudo-tigrinum* is considered to be the *L. tigrinum* Lishmanni and the *L. jucundum* of Bull Cat. Japan. Flowers spotted orange-red, with recurved segments; bulbs globose.

LILIUM MEDEOLOIDES, Gray; Elwes, *Mon. Lil.*

part 6.—Japan. Small funnel-shaped, erect, orange spotted flowers.

LILIUM MONADELPHIUM; Elwes, *Mon. Lil.*, part 6.—A tall growing species with whorled lanceolate leaves, and racemes of yellow bell-shaped flowers having recurved segments.

LILIUM NEPALENSE, Don; Elwes, *Mon. Lil.*, part 6.—Leaves ovate oblong, acuminate; flowers pendulous, trumpet-shaped, yellow. Nepal.

LILIUM OXYPETALUM, Baker; Elwes, *Mon. Lil.*,

—A Californian species with elongated, partly rhizomatous bulbs, verticillate linear lanceolate leaves; flowers on short stalks, trumpet-shaped, pale yellow.

LOASA WALLISII, Hort.; *Gartenflora*, 1878, t. 958.

—A beautiful species, but with stinging hairs clothing its ternate leaves; petals spreading, white. Scales yellow, margined with red. Loasaceæ. Native of Columbia.

LOPEZIA GRANDIFLORA, *Revue Horticole*, February 1, 1879.—Under-shrub, with lanceolate serrate leaves.

slender pinkish corolla tube, and a flat 5-lobed spreading limb. Solanaceous annual. Native of the Argentine Republic.

OUVIRANDRA HILDEBRANDTHII, Hort. Berol., *Monatsschrift d. Vereines zur Beford. des Gartenbaues*, Berlin, 1879, t. 1.—A botanical curiosity, more correctly referred to *Aponogeton*. See *Gardeners' Chronicle*, 1879, p. 149.

PEAR BEURRÉ GIFFARD, *Bulletin d'Arboriculture*, January, 1879.—One of the best summer Pears. It originated at Angers in 1825.

PERNETTYA MUCRONATA, vars., *Floral Mag.*, t. 339.—Three vars., with scarlet, purple and violet berries respectively, the two latter raised by Mr. L. Davis, Oglesgrove Nursery, County Down, Ireland. Remarkably pretty hardy shrubs.

PINE-APPLE LADY BEATRICE LAMBTON, *Florist and Pomologist*, January, 1879.—A life-sized life-like representation of a noble fruit.

RHODODENDRON LEPIDOTUM, Wall.; *Garden*, January 11, 1879.—A Himalayan species, growing at great altitudes and quite hardy in Britain. The leaves are narrow, more or less lanceolate, clothed on both surfaces with scales; flowers about 1 inch in diameter, variable in colour, purplish in the variety figured.

ROSA LUCIDA, Ehrhart; Meehan, *Nat. Fl. U.S.*, ii. 9.—A lovely, fragrant wild Rose, with glossy leaves, straight prickles, rose-coloured flowers, and small, globose, red fruit.

Notices of Books.

Dickens' Dictionary of London, 1879; an *Unconventional Handbook*. 26, Wellington Street, Strand.

On the whole an admirable handbook for London and its environs, in which the respective articles are arranged alphabetically, from "A 1" to "Zoological Gardens." The articles are written in a fresh, unconventional style, very different from that of the ordinary guidebook. That great variety and comprehensiveness should characterise such a book is only what might be expected, but the present work surpasses all reasonable expectations on this head; thus, it is not surprising to find a paragraph devoted to the "Aëronautical Club"; but articles—and a very sensible one devoted to "advertising" and the best way of doing it, and to the "removal of ashes"—are something more than might have been looked for. Inequality of treatment is almost unavoidable; thus, the "Albert Memorial" receives less space by half than the "Alhambra Theatre"; "Black-eyes" and "Boxing" have to our thinking more than their due relative space, but such inequalities are not only unavoidable, but they are gauged very differently by different people. The article on "Societies," both literary and scientific, appears to us to be very incomplete, but this is perhaps to be accounted for by the reticence of the officials: thus the Royal Society, with its great historic associations, has two lines devoted to it, the Royal Botanic a whole column! while we have failed to find any mention at all of the Linnean.

The list of tradesmen is restricted to those who supply the Royal Family, but this list again seems incomplete; thus among the nurserymen and florists we miss the names of some of our most prominent nurserymen, and of those fairly entitled, as we believe, to be included in the list given at p. 257.

We mention these matters as they have occurred to us in turning over the pages by no means in disparagement of this most useful work, but because we believe a real service will be rendered by pointing out deficiencies and suggesting improvements. We think so highly of the volume that we strongly advise every Londoner and every one in the provinces who can afford 1s., and who feels the slightest interest in the metropolis, to purchase this volume—we assure them they will get their shilling's worth.

Asa Gray's Botanical Text-Book.

We notice with much pleasure the publication of the sixth edition of Professor Gray's valuable Botanical Text-Book. This is the best treatise on the morphology of flowering plants in the language, and we have no doubt the new edition will not be inferior to those that have preceded it. The sections upon vegetable histology and physiology are to be entrusted to Professor Goodale, that on cryptogamous botany to Professor Farlow, while a fourth volume, to include

part 6; *Fritillaria oxypetala* of Royle.—Bulbs elongate ovoid, scales oblong lanceolate. Leaves linear; flowers small, shallow, funnel-shaped, lilac. North-west Himalaya.

LILIUM PARDALINUM, Elwes, *Mon. Lil.*, part 6.—A very handsome Californian species, with globose thick-scaled bulbs, verticillate lanceolate leaves, racemose flowers, each on a long decurved ascending stalk; segments yellow externally, orange-red within at the tips, the basal portion being yellowish-brown, marked with large reddish spots.

LILIUM PARRYI, Watson; Elwes, *Mon. Lil.*, part 6.

Flowers in close racemes, orange-red. Mexico. Warm greenhouse.

MARSILEA QUADRIFOLIA, L.; Meehan, *Nat. Fl. U.S.*, ii. 4.—Rare in the United States, but more common in Europe.

NEPETA SPICATA, Benth.; *Botanical Magazine*, t. 6405.—A Labiate, with cordate crenate leaves, and flowers in terminal spikes. Corolla purple, lip white. Himalayas. Introduced by Mr. Anderson-Henry.

NICOTIANA NOCTIFLORA, Hook.; *Botanical Magazine*, 2785; *Gartenflora*, 1878, t. 957.—Leaves lanceolate, viscid; flowers paniced, each with a long



FIG. 109.—SPIRÆA ALBA. (SEE P. 752.)

a sketch of the natural orders of phænogamous plants and of their special morphology, &c., Dr. Gray rather "hopes than expects" himself to draw up. May accomplishment prove as satisfactory to the author as it is sure to do to his fellow botanists; meanwhile anticipation is tempered by the fact that, so far as the present instalment is concerned, we have full fruition. We shall take occasion to allude to this work on another occasion.

Kjækkenhaveplanterne, &c. Af J. A. Dybdahl. Kjøbenhavn : G. E. Gad. Pp. 658.

A work on kitchen gardening in the Danish language, with numerous woodcuts. The plants are arranged according to their natural orders, with descriptions and cultural directions. Records of experiments and trials of various vegetables, the seeds of which were received from various seedsmen, are also given. We regret that our almost complete ignorance of the language in which it is written prevents us from saying more, than that to all appearance this is a well-arranged and comprehensive book.

The Forests of Northern Europe.

Dr. J. C. Brown has republished the series of articles on forestry in Scandinavia and Russia originally issued in the *Journal of Forestry* (Rider, Bartholomew Close, E.C.). The articles are very readable, and contain much valuable information. In Denmark, says the author, may be studied the remains of forests of prehistoric times; in Norway, luxuriant forests managed by each proprietor as seemeth good in his own eyes; in Sweden, sustained systematic endeavours to regulate the management of forests in accordance with the latest deliverances of modern science; in Finland *sartage* disappearing before the most advanced forest economy; and in Russia, *jardinage* in the north merging into more scientific management in central Russia, and *reboisement*, or silviculture, in the south.

— *Greenhouse Favourites.*—Under this title we have before us the first part of a new work published by Messrs. Groombridge & Sons. It is of quarto size, with two coloured plates and several woodcuts. The present part is entirely devoted to the *Camellia*, of which "*Giardino Santarelli*" and "*Matteo Molino*" are figured.

BOOKS RECEIVED.—*Town and Window Gardening.* By Catherine M. Buckton.—*The Villa Gardener Manual.*—*A Year in a Lancashire Garden.*

Forestry.

THE changed circumstances of agriculture have for several years, and specially in that of 1878, been introducing quite a revolution in farming. Necessity, as has truly been said, is the mother of invention; hence, when our national system of education has very mercifully relieved the boys and girls of tender years from the task of herding in the fields, and our American neighbours threaten to undersell us in the beef market, it behoves us, as true Britons, to cast about us, and see by what means we are to maintain our ground. The statistics published annually by the Board of Trade show, amongst other things, that we as a nation are annually cultivating less and less land, and growing more grass and pasture, consequently growing less grain, and keeping more sheep and cattle.

In 1878, according to the return of the Board of Trade, there were 101,519 acres more pasture than in 1877—an unprecedentedly large increase. That livestock, principally sheep and cattle, are now what the farmer is turning his attention to is evident. From the report referred to we learn there are 351,065 more sheep than in the previous year, and 40,195 more cattle. In making these quotations it is with the object of showing that, in order to keep abreast with this new enterprise, fencing must be done upon a scale hitherto unknown; and fortunately to this end "the iron age" has handsomely contributed by supplying wire and other iron materials remarkably cheap.

Besides wire fences, quickset and other hedges, there are others still, and in several respects better fences for sheep and cattle, consisting of stone dykes.

Of stone dykes there are several descriptions, but the two to which I wish to refer are what are termed "double" and "rickle" dykes. To some the term rickle dyke may be unknown, and the subject itself equally unintelligible. In some parts of Scotland, as Banffshire, it is the most common of all fences, and is adopted for the following amongst other reasons. The ground in many districts is literally studded with what are called boulder-stones of endless shape, size, and quality, and varying from a few stones weight to that of many tons. Such stones are usually of a roundish, or ungainly shape, without a flat side, and almost impossible to break except by means of powder or dynamite. The boulders in the land are so obstructive to the plough that their removal, in some way or other, is quite imperative, and it may be well understood how gladly the tenant hails any means or method by which he can get rid of such cumberers; while from the nature and description of the stones, it will appear evident that few, if any, better purposes can be effected by them than building dykes, of which the following is a specification found practicable and efficient, and such as is adopted upon some of the Seafield estates:—

"Specification for the Erection of a Rickle Dyke on the farm of K., in the parish of F.

"The line of dyke will be pointed out by the employer or his inspector, and must be strictly adhered to.

"Foundations.—The foundations to be cleared to the breadth of 3 feet by at least 4 inches deep, or until a satisfactory foundation is obtained. When the dyke is to be built along the side of a ditch the foundation track must be cleared to the said breadth of 3 feet, quite level across, until a solid and safe foundation is reached, and at such distance from the edge of the ditch as the inspector may consider necessary for securing the stability of the dyke.

"Building.—When the materials are of unequal dimensions, and a disproportion of small stones, in that case the foundation course will be laid in the form of a double dyke, 3 feet broad, and carried up in a substantial manner to such height as will leave a sufficient quantity of stones of a proper size to breadth, and make up the dyke to the required height, the thickness gradually decreasing as the dyke rises in height. The stones to be all put close together, and laid in such a form as the upper bed of each shall not be less than 14 inches across the dyke, and their under-beds of a proportionately greater breadth. No stones to be laid on the top, or level of the dyke, under 14 inches across by 12 inches deep, all firmly keyed together. No pinnings, or small round stones, to be applied for filling up or levelling in the single dyke, but the stones to be all well selected to suit the spaces. When the materials are of such dimensions as may be considered sufficient to raise the dyke to the specified height and thickness, the stones must be all laid across, or on their flattest beds, and not less than 30 inches wide, and carried up to the specified height, and in all respects duly proportional. No stones to be set up on their ends unless they stand fully 30 inches at the base, and have all the proportions of beds, &c., previously specified. Stones of large dimensions, such as are practicable to be drawn on a sledge by four horses, to be set up securely at each side of all the openings to the fields, and extreme ends of dykes, and to stand the full height of the dyke.

"Height.—The dyke, when finished, to stand fully 4 feet from the highest surface of the ground adjoining, and where hollows are passed through additional thickness to be given in proportion to the height required.

"The employer to lay down all materials, and the contractor to perform all workmanship.

"The whole work to be finished on or before the 1st day of A., 1879, to the entire satisfaction of A. B., under a penalty of £ for each day the work shall remain unfinished."

The above specification will, of course, require certain modifications or alterations for different localities, &c.

The prices paid for building such rickle dykes, exclusive of holing stones, dragging, &c., is at the present time, on this estate, about 4d. per lineal yard; and when the whole work is done by contract, including holing stones, dragging, &c., the cost is from about 1s. to 1s. 6d. per yard. In my next paper I shall describe and specify double dykes as built here. C. Y. Michie, Cullen House, Cullen, Banffshire, June 7.

Apiary.

EARLY SWARMING.—Your correspondent writing on bees at p. 722, says that we have not heard of a single swarm of bees in this cold month. It may interest your correspondent to know that the bees are busy in the north of Yorkshire; on May 29 I got three large swarms, and another on June 2, but, what was the most provoking, the three first swarms came

out within a few minutes of each other, and were all in the air together—what a sight!—consequently they all settled together in one mass. The first thought was, what were we to do with them? Fortunately I had a very large hive made to put a first and second swarm into, with the intention of their filling a cap with honey, but now I had three first swarms to contend with. However, they were put into this large hive, and now, to give them more room, I have placed a good-sized cap on the hive, and hope they will do me justice by filling it with honey. All this one might have done with, but yesterday being a holy-day, and just as the parson was going into the pulpit to preach his sermon, the second swarms of those unchristian bees came out in strict rotation, as they had done before, and settled in one mass among the young branches of the Laurels. The same process had to be gone through as with the three first swarms, only under greater difficulties. William Culverwell, Thorpe Perrow.

Garden Operations.

FLOWER GARDEN, ETC.

From this time forward a considerable amount of attention should be given to the propagation of the various kinds of plants required for spring gardening. This will be a continuous kind of operation, and must be attended to according as cuttings become ready. All the sorts which can only be propagated by cuttings, such as *Alyssum*, *Arabis*, *Aubrietias*, *Iberis*, &c., will require the aid of glass to ensure the rooting process, but should have free exposure as soon as it is found that they can stand exposure to the open air without flagging; others, again, must be increased by division of the roots, and for all these matters to be done well implies a good space of reserve ground. For example, *Polyanthus* and *Primula*, which are again becoming most deservedly fashionable, may be increased now to any extent by dividing the old stools and planting them in rows in the reserve garden. The varieties of these plants are now becoming so numerous, and many of them so beautiful, that it is desirable in propagating to select only those plants which have a good habit of growth and a decided and clear marking of colour, and to eliminate all such as are straggling in growth and muddled and imperfect in colour and marking. For border purposes the old distinctions of pin-eyed and thrum-eyed, considered to be so important in show varieties, need not be regarded where habit and markings are so decided as to render them desirable for retention. The yellow hose-in-hose, or double Cowslip, is a very showy and desirable old sort to propagate largely, and now is the time. *Primula amoena*, a variety hitherto cultivated under glass, is as hardy as our common *Primrose*, and the colour comes much deeper and finer in the open air than under glass; it comes in exceedingly well amongst alpine plants on rockeries. The *Primula japonica* is also very hardy, and proves an excellent border flower in cool ground, and also among alpine. Now is the time to take up and replant the roots of *Gentiana acaulis*, where, through long standing, the stools have become straggling and weak. When it becomes necessary it should be taken up, a portion of the effete soil removed and its place supplied with some good compost consisting of loam, peat, leaf-mould, and sand. This should be pressed down rather firm, and the best plants selected and replanted in double, single, or treble rows, as the case may require—the latter, however, to be preferred as they are most effective in masses, and single rows take some years to spread into an effective mass. The late almost continuous rains will have kept the soil in such a saturated state as greatly to retard the bedding operations; patience appears to be the best resource, but we must not fail to make the most of every favourable opportunity, as it is bad policy to move the earth about when it is in a state resembling mortar. Those who have paid the strictest attention to drainage will derive very great advantage from it in seasons like the present. There is one consolation we may derive from the moist weather, viz., that it is a fine time to plant out the many varieties of annuals which have been undergoing the process of preparation; for that purpose we usually calculate upon commencing these as soon as the bedding-out is completed, but wherever they are ready advantage should be at once taken of the opportunity. *Helichrysums*, for example, are very much benefited by being planted early, they will then furnish their useful flowers in great abundance; the *Zinnias* also, both elegans and Haageana, should be planted early. Seedling plants of *Salvia patens* planted in a bed and pegged down for a time, will make a magnificent bed by-and-by; after these African and French *Marigolds*, and the different varieties of *Asters* will claim attention, together with German and Ten-week Stocks, but these should not all be planted at once, as with most of the sorts

later plantings will ensure a longer season of flowering. Many other varieties of annuals suggest themselves as being indispensable for the autumn display, such as *Dianthus*, *Phlox*, *Tropeolum*, of which *speciosum* and *pentaphyllum* are very desirable for trelliswork, and mixed with the climbing *Nasturtium* and *Convolvulus major* are very effective. As the leaves of the different varieties of *Anemones* indicate the ripening process by turning colour they should be lifted and laid out to dry previous to storing. These are very showy plants, and have this season bloomed with more than usual abundance; in particular a bed of the old double scarlet has been very effective and much admired. The layering of *Picotees*, *Cloves*, and *Carnations* should be attended to, and cuttings of choice double *Wallflowers* inserted in light sandy soil under handlights or large-sized propagating glasses. *Roses* are rather late, but have broken strongly, to which the long-continued rainy weather has no doubt very much contributed. This does not obviate the necessity for stimulation, which may either be applied in a liquid state, or the surface mulched with some rich decomposed manure the soluble parts of which will be washed down by the rains, and will probably be more permanently beneficial than mere liquid applications. The plants should be frequently looked over for the destruction of the worm in the bud. *John Cox, Redleaf.*

HARDY FRUIT GARDEN.

The thinning out of the young growth upon fruit trees can hardly receive too much attention now that they have made sufficient foliage to admit of that being done without detriment to the crop. The objects to be kept in view in performing this operation are the even distribution of sap to all parts of the tree, and the removal of such growth as would be likely to interfere with the proper development of the essential parts of the tree, and also of the crop. It will therefore be advisable to cut out all over-growth shoots at once, following on with a regular and systematic thinning of the most crowded parts, removing all weakly and ill-placed growth, and endeavouring to reduce the whole to what may be termed a strong medium growth, or, in other words, a strong fruit-bearing condition. In laying-in young wood to fill up blank places in old trees, it will be well to avoid the too common error of starting more shoots than are necessary, whereby the healthy extension of the new growth is interfered with, and a certain amount of labour lost. The breastwood upon wall trees will require to be shortened a little at a time, beginning at the top of the tree and working downwards, and all suckers should be cut away as soon as they can be got hold of. Persevere with the destruction of insects, and see that the mulching over newly planted trees is not being too much knocked about by the birds. Pears seem to have set thickly, and would be benefited by going over them and gently shaking the clusters, so as to clear away what remains of the blossoms, &c. Gooseberry and Currant bushes are much improved by shortening back the growth of the current year, whereby innumerable insects are got rid of and light and air are let into the bushes; indeed it is almost impossible to get good clean fruit unless this summer pruning is done early and effectually. Care must be taken, however, not to overdo the thing, and the infested parts should be put into a basket as they are taken off in preference to throwing them upon the ground, their ultimate destination being the fire. Apricots have set thickly and will require a good deal of thinning, especially upon such trees as are at all in a weakly condition from any cause. Nectarines are rather thin as a crop, but Peaches are plentiful enough here, though the trees do not look like being able to mature a heavy crop, hence the necessity for early and somewhat severe thinning, and possibly a little help in the way of liquid-manure later on. *F. Harrison, Knowsley.*

FRUIT HOUSES.

FIGS.—Pot Figs, in the ordinary acceptance of the term, do not, as a rule, last long in bearing, neither do they produce a great number of fruit at one time, but when they attain 6 to 10 feet in height and get thoroughly established in 18 to 20-inch pots, they well repay the many years' patience and labour that may have been bestowed upon them. The trees at this place, now 9 feet high, have been in bearing since the middle of April, and we expect to gather the last of the first crop within the next week. Trees of this kind when plunged and top-dressed may be grown for years without being potted; they rarely cast their fruit, and the second crop is considerably advanced by the time the first is over. Directions laid down for the management of early trees will apply to successions, with the exception of heat and moisture, which may be increased now the days have nearly reached their greatest length, although summer weather is not yet upon us. When syringing in the early house can be resumed the trees should have a thorough cleansing to free them from dust and insects. A good syringe

answers better than the garden engine, as every part of the trees can be reached by the operation, and if scale, to which the Fig is subject, has gained a footing some insecticides should be used with a moderately hard brush for keeping it off the leaves. As the season advances attend to tying and stopping, carefully guard against laying in too much wood, and let ripening fruit have full exposure to the influence of sun and light. Trees growing in inside borders will take immense quantities of water at frequent intervals, and the mulching of good rotten manure, by being kept constantly moist, will draw a plentiful supply of feeders to the surface. Ventilate houses in all stages freely through the early part of the day in order to secure firm short-jointed growth, and close about 3 P.M. with sun-heat, when it can be had, in preference to keeping open later, and then having to turn on the fire. *W. Coleman, Eastnor.*

MELONS.—In establishments where the supply from other sources is not equal to the demand for these, in some places, much-sought-after cooling summer fruits, the supply, as your practical readers are aware, can be considerably augmented by planting Melons in frames just vacated by bedding and other plants. Presuming, therefore, that the seed has been sown as advised in a former Calendar, the plants will now be ready for planting. The frames can be placed on a south, west, or even an east border, with a barrow-load of soil, consisting of three parts loam and one of road scrapings; and should the loam be of a stiff or adhesive nature a little lime rubble or charcoal may be added, and, as I have already stated, a barrow-load put in the centre of each light. In planting, the soil, being moderately dry, should be pressed firmly round each plant, also when the hillocks necessitate the addition of more soil it should be well trodden all over the bed, especially along the sides and ends of the frame, to prevent its coming away from the woodwork. Moreover, the Melon delights in a firm but not too adhesive soil. Should the weather be bright and sunny, which up to the present time has been wet, cloudy, and cold, at the time of planting shade the plants during a few hours for a few days until they have taken hold of the soil, after which they can be exposed to the full rays of the sun. Plants growing in these frames will require little if any water to the roots other than what they receive at the time of planting to settle the soil round about them, not forgetting that there is no bottom heat in these frames other than that imparted to the border by the sun. However, the plants will require to be syringed every afternoon during bright and warm weather, putting a little air on at about half-past seven in the morning, and shutting up at from half-past three to four o'clock, with plenty of atmospheric moisture, in the afternoon. The time of putting on and taking off air must, of course, be regulated according to the aspect in which the houses, pits, or frames are situate. Other departments will require the usual and necessary attendance, such as stopping, tying, thinning, and otherwise regulating of the shoots, &c. The houses in which the fruits are approaching maturity should be ventilated freely, and a dry and moderately warm atmosphere maintained, and water withheld from the roots, otherwise the flavour would be deteriorated. The fruits should be placed on a piece of tile and fully exposed to the sun. In houses in which the fruits have set and are swelling off their fruits, ply the syringe freely both ways twice a day during favourable weather (when we get it), as a means of encouraging growth as well as preventing and keeping down red-spider and other troublesome insects. And should green or black fly put in an appearance, dust the plants while damp with Pooley's tobacco-powder in the afternoon, after which ventilate more freely for a couple of succeeding days. The plants so treated should be well syringed the morning immediately succeeding its application. *H. W. Ward, Longford Castle.*

CUCUMBERS.—The thinning of shoots, the stopping of laterals, and the removal of all superfluous fruit while in a young state, as also the picking off of all decayed portions of wood and leaf forthwith, are items which, as a matter of course, require almost daily attention. Maintain as nearly as possible a steady bottom-heat and an equable temperature, so that the fruits may not receive any check while swelling, which would probably result in the production of unsightly fruits, which, moreover, would be tough instead of being crisp. Give liberal and frequent supplies of manure-water to plants in full bearing, and ply the syringe freely through the plants twice a day during favourable weather, putting on and taking off air as advised in the Melon Calendar. Keep the plants free of insect enemies. *H. W. Ward.*

PLANT HOUSES.

PLANT STOVES.—The shading necessary for these structures, in cases where they contain a mixed collection of flowering and fine-foliaged plants, is anything but favourable to the growth and well-being of bulbous-rooted subjects, especially *Amaryllis*, which,

like most of the others, require the greater portion of what solar heat and light we get to enable them to ripen and become sufficiently mature to carry a fine head of bloom. Acceptable as these gorgeously beautiful flowers are at any time of the year, they are doubly valuable during winter and early spring, a season at which they may be easily had, if they receive the necessary attention at once, as the great point with these is to push them on now, so as to get plenty of foliage. Although tolerably gross feeders, *Amaryllis* do not require much root-room, but do best in 6 or 8-inch pots, with good yellow loam that has plenty of fibre. This should be thrust or rammed in somewhat firmly, taking care when doing so not to bruise or injure the large fleshy roots, every one of which is of the greatest importance to their welfare. The potting complete, no place suits them better for their summer quarters than an ordinary pit or frame of sufficient depth to afford them a brisk bottom-heat by means of fermenting materials, plunged in which and kept syringed and shut up early they will be just at home and grow away with great freedom. Many stove plants, such as *Allamandas*, *Clerodendron Balfourianum*, *Bougainvillea glabra*, *Crotons* and others come in admirably for conservatory decoration, and last much longer in such a temperature than they do in one that is higher; but to enable them to bear the change, they require gradual hardening by subjecting them to more air before finally removing them to the places assigned. These should be where they will not be exposed to draughts from having the ventilators or sashes open immediately against them, otherwise they are sure to flag and suffer, as also if kept wetter than is requisite at the root, for although many tender plants will bear a good deal of cold, an excess of water at the same time soon tells seriously on them by causing the minute fibres to perish. All winter-flowering stuff, such as *Euphorbias*, *Thysacanthus*, *Sericographis*, *Eranthemums*, *Plumbagos*, &c., will now require attention by way of shifting them on as they fill their pots, and copious syringing should be given every afternoon, which will not only assist in keeping them clean but will greatly expedite their growth.

CONSERVATORY.—Now that roof climbers are in a state of activity, the borders in which they are planted should have a thorough soaking, but before giving them this it is advisable to examine them closely to see if there is any shrinkage of the soil from the sides—a frequent occurrence after sharp firing during such a winter as the past, and which fissures, if allowed to remain unfilled, drain away the water at such a rate that the roots receive little or no benefit from it. In cases where the borders are of limited extent, liquid manure will be of great assistance, the least offensive of which is such as is made from guano and soot, the two combined being powerful fertilisers and such as most plants like. A tablespoonful or so of the former is quite enough to make four gallons, as it is better to use it frequently than to apply strong doses, but with soot there is no danger of overdoing it so long as the water containing it is drawn off clear. A large tub or other vessel, with a tap near the bottom, will afford it in this desirable state and always ready to hand when wanted.

GREENHOUSES.—Many of the plants used for the autumn and winter embellishment of greenhouses do far better planted out in prepared beds and lifted and potted again in September. *Callas* never flower with anything like the freedom they do when so treated, and the same may be said of *Spiraeas*, *Eupatoriums*, *Salvias*, and *Chrysanthemums*, all of which may, with care, be taken up and potted without causing a check sufficient to retard or injure them. The two first-named being half aquatic in their nature, are easiest managed by having shallow trenches to grow in, as there they can, when the weather is dry, be flooded with water or sewage, which, with the surface of the ground mulched, will serve them for some time. *Chrysanthemums*, too, may be grown to great perfection in the same way, and are not a tithe of the trouble and labour as when confined to pots the whole season, for with such a limited root-run it is a difficult matter to keep them sufficiently moist to maintain the foliage in health, and unless this is done they present a very shabby appearance. In preparing for the planting of any or all of the above-named, the ground should be broken up and some rotten manure worked in so as to give them a good start, and in turning them out the soil cannot well be pressed too firmly around. *J. Sheppard, Woolverstone.*

A NEW IPOMOEÆ.—The *Berliner Monatschrift* for March contains a description and coloured plate of a new *Ipomoea* collected in Eastern Africa by J. M. Hildebrandt. It is a perennial species, having a woody rootstock, which throws up annual stems about a yard high, bearing velvety oval leaves and large white flowers with a rosy-purple centre. It is stated to be an ornamental species, and has received the name of *I. decora*.

THE Gardeners' Chronicle.

SATURDAY, JUNE 14, 1879.

APPOINTMENTS FOR THE ENSUING WEEK

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| MONDAY, June 16 | Coventry and Warwick Horticultural Society's Show. Sale of Orchids, at Stevens' Rooms. Royal Oxfordshire Horticultural Society's Show. |
| TUESDAY, June 17 | Sale of Mr. O. O. Wrigley's Orchids, at Stevens' Rooms. Royal Botanic Society's Show. York Floral Fête (three days). |
| WEDNESDAY, June 18 | Lee and Blackheath Horticultural Society's Summer Show. Sale of Mr. Wrigley's Orchids continued. Kingston and Surbiton Horticultural Society's Show. |
| THURSDAY, June 19 | Linnean Society's Meeting at 8 P.M. Chertsey Horticultural Society's Show. Sale of Mr. Wrigley's Orchids continued. |
| FRIDAY, June 20 | Sale of Mr. Wrigley's Orchids continued. |

THE announcement of the death of Dr. MOORE of GLASNEVIN will be felt as a personal sorrow by a very large number of those in this country and abroad who are interested in horticulture and botany. Dr. MOORE died on the 9th inst., from the effects of diabetes, from which he had been suffering for some time, though he was only taken seriously ill a few days before his death. In many ways he was a representative man—a geologist, a botanist, a gardener, an administrator. He was all these, and he held high rank in all these departments. As a friend, we cannot, of course, say much in these columns, but no fear of showing undue partiality need deter us from saying the truth—that our friend was one of the most simple-minded, generous-hearted, right-loving of men. We never heard that he had an enemy; it is difficult to conceive he ever could have had one. In 1871, in concluding a brief notice of his career, we wrote—"A more thorough horticulturist and a better friend it would be difficult to find;" and truly it would be. Glasnevin, with which garden he was associated for forty years, will remain his best monument. "If any one asks what he has done there" (says a Dublin journal, whose words we most cordially endorse), "we must reply—'everything.'" To serve, as it were, the purpose of an index, we reproduce the following particulars of his *Curriculum Vitæ*, the substantial facts of which, at our request, he furnished us with a few years ago:—

"In more senses than one the subject of this notice may be called a representative man. Dr. MOORE forms one of a brilliant galaxy of botanists and gardeners, who have constituted an era in gardening. Not to speak of botanists past and present, with whom Dr. MOORE has been more or less associated, the names of the following, among many of Dr. MOORE's horticultural compeers, will prove the correctness of our assertion:—Messrs. McNAB, of Edinburgh; MURRAY, of Glasgow; CUNNINGHAM, of Comely Bank, Edinburgh; AITON and SMITH, of Kew; PAXTON; CAMERON, of Birmingham; the SHEPHERDS, of Liverpool; the BAXTERS, of Oxford; MARNOCK, of Regent's Park, and many others known to fame.

"Dr. MOORE's career is a specially instructive one for young gardeners. Born at Dundee, DAVID MOORE was early apprenticed to the late Mr. HOWE, then gardener to the Earl of CAMPERDOWN, at Camperdown, near Dundee, whose garden was one of the most complete at that time of day. After occupying for some time the post of foreman in that establishment, the young aspirant passed some time in the nurseries of the late Mr. JAMES CUNNINGHAM, of Comely Bank, Edinburgh, famous at that time for the extent and variety of its collections. From this establishment, in the year 1823, Mr. MOORE proceeded to Ireland, in the capacity of assistant to the late Dr. MACKAY, the director of the Botanic Gardens of the University of Dublin. Five years later we find Mr. MOORE engaged on the Geological Survey of Ireland, a position which afforded him the opportunity of visiting a large portion of Ireland, and enabled him to make numerous botanical discoveries.

"In 1838, Mr. MOORE became the curator of the Royal Dublin Society's Botanic Garden, Glasnevin, an office he continues to fill, in a manner which has been as beneficial to the garden as it has been honourable to himself. During this lengthened period Mr. MOORE's

contributions to various branches of science have been numerous and important. We cannot here enumerate a tithe of these publications, but we may state in general terms that they have reference to vegetable physiology in general, the growth of wood, the description of plants new to the flora, especially cryptogamous plants, the grasses best suited for agricultural and other purposes, and last, not least, the valuable *Cybele Hibernica*, in conjunction with Mr. A. G. MORE, and which is replete with interesting observations on the climate of Ireland and its relations to vegetation: a portion of this appeared in the report of the London Botanical Congress in 1866.

"Among new plants, the introduction of which is due to Dr. MOORE, we may cite *Gynierium argenteum*—the Pampas-grass, *Franciscea latifolia*, *Lilium giganteum*, *L. Wallichianum*, various Water Lilies, Passion-flowers, &c. Dr. MOORE was also one of the first, if not the first, to raise foreign orchidaceous plants from seeds (see *Gardeners' Chronicle*, 1849, p. 549). Dr. MOORE's travels on the Continent in search of plants, and while engaged on scientific missions, have been numerous—the details of many of them have been given in our own columns. Dr. MOORE formed one of the representatives of British horticulture in Paris during the Exhibition of 1867, and also in St. Petersburg in 1869. In fact, there is scarcely a country in Europe which Dr. MOORE has not visited in the cause of horticulture and botany. Dr. MOORE's services to science were appropriately recognised in 1865 by the University of Zurich, which conferred on him, at the instance of the well-known geologist, HEER, the degree of Doctor of Philosophy.

"From this hasty and condensed sketch it may be seen how Dr. MOORE has risen through all the ranks of gardening to his present position. No one who knows him personally, or even by repute, will grudge him his well-earned honours, for a more thorough horticulturist and a better friend it would be difficult to find."

To this account we may now add that Dr. MOORE was the first to raise hybrid *Sarracenias*, and that to the last he was animated by that love of science and that zealous discharge of his difficult duties which won for him the respect of all with whom he came into contact, and the warm affection of his friends. Those with whom he was associated, and especially those who served under him, speak of Dr. MOORE in terms of deep gratitude and firm affection, and we know in our own experience how anxious he was to promote the welfare of his subordinates, and what interest he took in their career when they passed from his supervision. Of his zeal we may give one minor illustration: not only did he take over to the Florence Exhibition in 1874 the hybrid *Sarracenia* \times S. Moorei, which he raised between *S. flava* and *S. Drummondii*, but a plant of *Ouvirandra fenestralis*, which he succeeded in bringing over from Dublin in good condition by folding the delicate lacelike leaves over a Banana leaf, and then investing the whole with damp moss. Dr. MOORE's brother, Mr. CHARLES MOORE, the Curator of the Sydney Botanic Garden, is scarcely less widely known among horticulturists. The mention of his name recalls the singular coincidence, that at the Florence Congress, to which we have just referred, the two brothers, the one starting from Dublin, the other from Sydney, met, though neither was aware of the intentions of the other.

Dr. MOORE leaves a widow, who will receive the deep sympathy of all who knew her husband, and of all who have the privilege of knowing herself. Seven children also are left, to whom their father's memory will be an abiding satisfaction, to whom their father's single-minded earnestness will prove the best example. Of these children the eldest son gives good promise of honouring his father's memory in his own career. After passing some time in Hanover, and subsequently undergoing an examination for the Indian Forest Service with much credit, Mr. F. W. MOORE proceeded to gain practical knowledge in VAN HOUTTE's nurseries, at Ghent. Thence he went to Leyden, where he studied under Professor SURINGAR, until recalled to Ireland to take charge of the Botanic Garden of the University of Dublin—a position

in which he has already shown that his father's teaching and example, and the excellent training that wise father bestowed on him, have borne good fruit.

— THE SUPERINTENDENTS OF THE LONDON PARKS.—Lord HENRY GORDON LENNOX, M.P., late First Commissioner of Works, pays the following well-merited compliment to the Superintendents of the Public Parks in the current number of *Time*:—"I wish here to bear testimony to the energy and ability with which generally these superintendents perform their duties; conduct on their part all the more worthy of praise, seeing that they are placed under the somewhat discouraging condition of receiving only a moderate salary, to which no increase has been made for twenty years, and with little or no chance of promotion. Besides this, the superintendents of our parks are not, like private gardeners, allowed to compete at prize shows, and therefore they are not, like their rivals, able to receive medals or other recognition of their skill."

— GARDEN SUPERINTENDENT AT THE CRYSTAL PALACE.—We understand that Mr. THOMSON's successor at the Crystal Palace is Mr. HEAD, late Superintendent of the gardens at Calcutta belonging to the Agri-Horticultural Society, and previously foreman in the flower garden department at Kew.

— THE PROSPECTIVE FRUIT CROP.—Readers will be surprised to learn at this season that "Pears are falling;" at least, such are the latest advices from the market orchard districts, as well as from Chiswick. Unfortunately, however, the announcement does not relate to the price, but rather to the condition of the crop. There has been during the past few days a remarkable thinning of the young fruit; so much so, indeed, that in many gardens but few are left, and none at Chiswick, except on Hessele and one or two other sorts. We are assured that the Pear crop, in spite of the wonderful bloom, promises to be but a small one. Plums, generally a tender fruit, on the other hand, have set abundantly, and if the delicate period of stoning is passed over safely, there will be a large crop. Apples were much cut by frost, the effects of which are now more visible, but there will be a crop. Cherries are in medium quantity; Gooseberries and black Currants thin, but red Currants fairly abundant. Such is the latest bulletin issued from the fruit orchards west of London.

— MR. MORRIS AND THE JAMAICA BOTANIC GARDENS.—We learn from *The Colonies and India* that Mr. MORRIS, the Assistant Director of the Royal Botanical Gardens at Peradeniya, has been offered the chief direction of the Botanic Gardens in Jamaica. His services in connection with the investigations as to the possible cure of Coffee-leaf disease have been deemed to be of so much value that efforts were being made to retain his services in Ceylon, and to compensate him for the resignation of the promotion offered to him in the West Indian colony.

— LARGE BUNCHES OF GRAPES.—We hear that Mr. ROBERTS, gr. to the Countess of CHARLEVILLE, at Charleville Forest, has again two large bunches of Grosse Guillaume to show his visitors. At the present time they both give indication of being eventually quite as large, if not larger, than any of the monster clusters these generous Vines have already produced.

— SUCCULENT PLANTS.—Mr. J. T. PEACOCK has favoured us with a printed list of the plants included in his rich collection of Succulents at Sudbury House, Hammersmith, and which, as a catalogue of distinct specimens in actual cultivation, must prove of service to collectors and cultivators of these singular subjects. With characteristic liberality, Mr. PEACOCK proposes to distribute 5000 copies of his catalogue, and we are requested to state that he will be pleased to send a copy to any one who may choose to send him a properly directed and stamped (halfpenny) wrapper.

— TESTACELLA.—In a recent note upon this mollusk, we should have stated that it is the only British slug which has an external shell. All our other slugs have shells, covered by the thick oval

shield which protects certain vital organs near the head of the animal when contracted. In the large black slug this calcareous covering is rudimentary, and consists of white granules not united into a thin plate.

— SOME NEW, OR LITTLE KNOWN, WILLOWS. — Dr. CARL BOLLE (*Berliner Monatsschrift*) directs attention to the merits of *Salix uralensis*, *S. rosmarinifolia*, and *S. rigida pendula*. The last he states is a noble and handsome novelty, and a valuable ad-

ensis is described as a very useful Willow on account of the pliability and toughness of its slender branches, which are suitable for the finest basket-work. Professor KOCH refers to this in his *Dendrologie* as a variety of *S. helix*.

— CARRIER PIGEONS AND GARDENING. — We read in the *Hamburger Gartenzeitung* that carrier pigeons have been employed in the establishment of Messrs. WEBER & Co., nurserymen, at Wiesbaden, during the last four years to convey messages between

— *MECONOPSIS NEPALENSIS*. — This is one of the grandest, if not the grandest, of herbaceous plants. Imagine a stately panicle of nodding bell-shaped pale primrose-coloured flowers, each 2—3 inches in diameter, thrust up from amidst a tuft of bold pinnately lobed leaves, thinly clothed with light reddish-brown or golden hairs. The plant is a native of the central and eastern parts of the Himalaya, at a height of from 10,000 to 11,000 feet. Seeds were sent from Sikkim by Sir JOSEPH HOOKER, and the plant has lately been reintroduced by Mr. ELWES, on



THE LATE DR. MOORE, OF GLASNEVIN.

dition to our choice of Weeping Willows. It was accidentally discovered amongst a number of cuttings of typical *S. rigida*, creeping along on the ground instead of growing erect, and the happy finder, Mr. JOSEPH WREDE, lost no time in grafting it on stems of *Salix pyramidalis*. This happened four or five years ago, and the results have exceeded expectations, the new Weeping Willow being only of moderately strong growth, and therefore suitable for small gardens. *S. rosmarinifolia* is of course better known; but, as Mr. BOLLE observes, it is much rarer than it ought to be. It certainly is one of the handsomest, if not the handsomest species of a genus rich in beautiful forms. Its proper name is *S. incana*. *S. ural-*

the shop and nursery. All orders for cut flowers, plants, &c., are sent by pigeons, and with rare exceptions arrive at their destination. When a pigeon arrives at the nursery with orders, another is liberated there to carry the news of its arrival to the shop. In this way the pigeons do good service, and save the firm a considerable outlay, as otherwise this work must be performed by persons.

— THE GREAT WHITSUNTIDE SHOW AT MANCHESTER. — We learn from headquarters that the exhibition which closed on the 6th inst. was by far the most successful ever held there. About 60,000 persons visited the show during the week.

whose rockwork, near Cirencester, we lately saw it in full majesty. Its hardiness, after such a winter, cannot be questioned, but it would probably be impatient of stagnant moisture at the root. The present plant is well figured in HOOKER's *Illustrations of Himalayan Plants*.

— POTATO PROSPECTS. — It is pleasant to report that generally the Potato growths are looking well. We have heard of acres of seed that have rotted in the ground because too early planted, but these are very exceptional cases, as planting has, as a rule, been later than usual this season. Later planted, later in coming up, and the season altogether later,

are facts, however, that in spite of the present appearance of the crop must lead to uneasiness and grave doubts as to the ultimate results. No one will willingly meet trouble half-way, but thoughtful men, especially among gardeners, must ever be considerate of the future far more than of the present, and therefore the possibility of an early appearance of the disease—early as its appearance last year for instance—must lead to a very short season's growth, as, no matter how genial and growing the weather may then prove, if the dreaded fungus presents itself in the Potato leafage all hope of further growth in the plant is past. We do not yet sufficiently understand the actual life-history of the fungus to be enabled to say whether the resting-spores will inevitably germinate at a certain time of the year, or whether they will await the required moisture and temperature. It is just possible that these germinate at one specific period annually, but their action upon the Potato plant is affected by the nature of the weather then prevailing. Should the prognosticated hot weather come it may serve as a powerful check to the development of the fungus, or at least to its effects upon the Potato plant. Drought may check the growth of the later kinds—it can hardly now affect the earlier sorts—but growth arrested by drought is a far less evil than growth arrested by disease. We must hope for the best, but if the summer warmth and drought is much longer in coming it may arrive only in time to find that the destructive *Peronospora* has already run its course.

— *MAGNOLIA SOULANGEANA*.—The old *Magnolia conspicua*, or Yulan, has given us several varieties, and, like itself, they take a high rank amongst deciduous flowering trees and shrubs which are reputedly hardy. None of them, however, compare as hardy trees, all points being considered, with the variety named *Soulangeana*, itself now no bantling. Its merit is, speaking generally, that whereas *M. conspicua* produces its flowers just too soon to escape their being damaged by spring frosts, *M. Soulangeana* on the other hand is more tardy and blossoms so as usually to escape any material injury, while at the same time the leaves are more advanced, and thus the tree has not the naked aspect of its female parent. It is reputedly a chance hybrid, having been raised from a plant of *M. conspicua*, which stood near one of *M. purpurea*, and it is this combination with the later blooming *M. purpurea* which has no doubt tended to retard the flowering of *M. Soulangeana* till the more convenient time when frosts, if not departed, have become innocuous. For its individual flowers, we should put the variety named *Lennei* at the head of the list, but we are now speaking of the plant as a hardy flowering tree. A remarkably fine example has recently left its impress on our mental vision. On the lawn at the Knap Hill Nursery is a noble tree 20 feet high, and probably double that in the spread of its branches, which when we saw it some two or three weeks ago was literally smothered with its hundreds of thousands of flowers, the fallen petals of which had completely hidden the grass from view. The same tree was found after an interval of about ten days still decorated with thousands of flowers, which, with their delicate tinge of purple on the exterior, were, to say the least, extremely beautiful.

— *PRESENTATION TO A GARDENER*.—Mr. WILLIAM PAIN, who is about to leave his situation, has been presented by his employer, B. E. C. CHAMBERS, Esq., of High Green, Sheffield, with a valuable gold watch, in recognition of the good service he has rendered as head gardener during his stay at High Green.

— *MARKET PEAS*.—Those sowings that have not suffered from wet or slugs are now looking remarkably well. It is only the earliest sown wrinkled marrows that have greatly suffered, and of these the Hundredfold has proved the tenderest and most susceptible of cold. Generally, therefore, the Pea crop is looking well, and having been by the heavy rains thoroughly established, a large produce may be looked for. In West Middlesex the earliest pickings this season are not looked for before the last week of the month, and no considerable gatherings can be obtained earlier than July. Owing to the fluctuating nature of the season and the late period of maturation the blues—Harrison's Glory especially—will follow so closely upon the whites, that the latter will have but a short market. Our Pea season is too limited. A

month at the most, and then for the general public all is over until another summer again brings its fleeting crop of succulent food.

— *LASTREA MARGINALIS* VAR. *CRISTATA*.—Mr. LATHAM sends us, from the Birmingham Botanic Gardens, specimens of a cristate variety of the American *Lastrea marginalis*, received from Canada a few years since, and which has proved constant under cultivation. The fronds are very neatly crested at the tip of each of the pinnae, while the apex of the frond is doubly forked as well as crested. The variety is, as Mr. LATHAM remarks, one well worth growing.

— *GARDENING IN THE WEST-END PARKS*.—In the current number of *Time* Lord HENRY GORDON LENNOX, M.P., writing about public parks and pleasure-grounds, gives some statistics with reference to the western group of parks, which we may reproduce for the information of our readers. "It represents an area of 749 acres, distributed as follows:—Hyde Park, 360 acres; Kensington Gardens, 274 acres; St. James' Park, 60 acres; and Green Park, 55 acres. These are under the able superintendence of Mr. GIBSON, who is assisted by a staff of 130 persons, of whom three are foremen, twenty are gardeners, and 107 labourers, whilst order is maintained by about one hundred constables. . . . Within the last few years there have been two annual displays—in the spring a show of bulbs, and in the summer of bedding and foliage plants. . . . Some idea of the magnitude of the display may be formed from the fact that in Hyde Park and Hamilton Place Gardens (which are also kept up by the Office of Works) there were planted this Spring 15,500 Hyacinths, 20,700 Tulips, 32,300 Crocuses, and over 10,000 miscellaneous bulbs. . . . As soon as the display of bulbs is over, preparations are made for the summer exhibition, the like of which for taste in design and brilliancy of colour is not to be seen in any other capital. . . . Last year there were raised for and planted out in this group of parks no less than 320,000 bedding and foliage plants, in the following proportion:—*Pelargoniums*, 73,623; *Lobelias*, 48,265; *Alternantheras*, 38,830; subtropical and foliage plants, 21,952; and of various bedding plants, 136,137; . . . the whole of the stock being raised and grown in a space of less than 3 acres, situated under the back windows of the fine old palace of Kensington. Such a result is most creditable to Mr. GIBSON and his staff, who have all their work cut out for them in keeping, as they should be kept, the rides, roads, and walks, which in all amount to over 50 miles."

— *DICKSONIA ANTARCTICA*.—We understand M. AUGUSTE VAN GEERT, the well-known nurseryman of Ghent, has received an importation of *Dicksonia antarctica*, which includes, it is believed, some of the largest specimens that have ever been introduced into Europe. Some of these large stems measure from 22 to 24 feet in length, and 5½ to 7 feet in circumference near the base, and are perfectly straight and ready to start. The average of their age is supposed to be a couple of centuries at the least. This, however, is a more difficult matter to ascertain than was thought until now, if we consider how much younger the Californian giants have grown of late.

— *CONTINENTAL EXHIBITIONS*.—The *Société Royale d'Agriculture et de Botanique* of Louvain will hold an exhibition of Roses on the 29th inst.; and the Rose Show promoted by the *Cercle des Roséristes* of Anvers will be held in that town on July 6. At Ghent, on the 22d inst., there is to be an exhibition of Strawberries under the auspices of the *Cercle d'Arboriculture*.

— *DENDROBIUM FALCONERI*.—We are pleased to hear that specimens of *Dendrobium Falconeri* in Mr. LEECH's collection, at Oakley, Fallowfield, Manchester, are just now a blaze of bloom. Their treatment has been somewhat remarkable considering what a stewing temperature was at one time thought necessary for them. Mr. SWAN informs us that after Christmas he stood the plants amongst the Azaleas, keeping them very cool and dry, and in that position they remained till the early part of April, when he took them back into the *Dendrobium*-house, where they soon showed flower, and came gradually on, and now on two plants there are over a hundred

blossoms each, and several smaller plants are bringing to maturity from twenty to thirty blossoms each. Altogether they make a most effective and charming display, and one that Mr. LEECH and his gardener are well pleased with. Many of the flowers measure 4 inches across.

— *GIANT TREES*.—At a recent meeting of the Horticultural Society of Berlin, one of the members described two very large trees—the "King's" Oak at Pausin, which was 76 feet high, and its trunk 30 feet in circumference; and a specimen of *Pinus sylvestris*, 85 feet, and the trunk about 16 feet in circumference. The former has since been wrecked by a storm.

— *ORCHIDS IN FLOWER*.—The following Orchids were in flower in Mr. J. T. PEACOCK's collection at Sudbury House, Hammersmith, on June 11. Mr. PEACOCK is making large additions to his collection, which promises, like his Cacti and Succulents, to become a notable one:—

| | |
|-------------------------------|---------------------------------|
| <i>Aerides odoratum</i> | <i>Masdevallia Harryana</i> |
| " <i>Lindleyanum</i> | " <i>cerulescens</i> |
| <i>Batemannia Bartii</i> | " <i>Davisii</i> |
| <i>Brassia verrucosa</i> | " <i>ochthodes</i> |
| <i>Cattleya citrina</i> | " <i>myristigma</i> |
| " <i>Mossii</i> | <i>Odontoglossum Bluntii</i> |
| " <i>Aclandiae</i> | " <i>Alexandrae</i> |
| " <i>Menjeli</i> | " <i>Cervantesii</i> |
| " <i>Warneri</i> | " <i>cordatum</i> |
| <i>Cypripedium villosum</i> | " <i>vexillarium</i> |
| " <i>venustum</i> | " <i>Rosii</i> |
| " <i>pardinum</i> | " <i>citrosimum</i> |
| " <i>niveum</i> | " <i>Pescatorei</i> |
| " <i>longifolium</i> | " <i>Uro-Skinneri</i> |
| " <i>Roezlii</i> | " <i>Reichenheimii</i> |
| <i>Dendrobium tortile</i> | " <i>cirrhosum</i> |
| " <i>Dalhausianum</i> | " <i>nebulosum</i> |
| " <i>Devonianum</i> | <i>Oncidium rostrans</i> |
| " <i>suavissimum</i> | " <i>stellatum</i> |
| <i>Epidermum nemorale</i> | " <i>ampullarium</i> |
| " <i>vitellinum</i> | " <i>Papilio</i> |
| " <i>atropurpureum</i> | " <i>Kramerianum</i> |
| " <i>cochleatum</i> | <i>Phalaenopsis grandiflora</i> |
| <i>Laelia purpurata</i> | " <i>Luddemanniana</i> |
| <i>Lycaste cruenta</i> | <i>Pleione Hookeriana</i> |
| " <i>aromatica</i> | <i>Saccolabium ampullaceum</i> |
| <i>Masdevallia Peristeria</i> | <i>Sobralia macrantha</i> |
| " <i>igneae</i> | <i>Thunia alba</i> |

— *CAMASSIA LEICHTLINII*.—One of the finest hardy bulbous plants throwing up from a tuft of linear leaves tall racemes of pale, primrose-coloured flowers, like those of an *Asphodel*, but larger. We lately saw the plant in full beauty in Mr. ELWES' garden, near Cirencester, where it was thriving in a warm border, sheltered by a high wall.

— *ORNITHOGALUM LACTEUM* is one of the noblest of its class, producing a tall pyramidal raceme of snow-white flowers. The plant is quite hardy with Mr. ELWES at Cirencester.

— *NATIONAL ROSE SOCIETY*.—A meeting of the General Committee was held at the Horticultural Club on Tuesday, when some brief hints on the culture of Roses were agreed to. These will be circulated amongst the members and the different societies which have affiliated themselves with the National Society. The arrangements for the Crystal Palace Exhibition were also made.

— *ERANTHEMUM TUBERCULATUM*.—Of this there is a nice plant in the Victoria-house at Kew. It is one of the most beautiful and lovely of the large variety in cultivation, and, unlike the majority, is of excellent habit. It is very distinct, and claims a place in the most select collection. With little or no pinching the plant assumes a roundish outline; it branches freely into slender twigs, tuberculated, as the name denotes, and bears a dense evergreen foliage of small oval leaves. The flowers are pure white, nearly 1½ inch across, with a slender tube of the same length. We have had flowers with the stems in water in a dry room for nearly twenty-four hours, and as they are now quite fresh it is safe to assume considerable value for cut purposes. It is a native of New Caledonia.

— *DRIED TROPICAL FLOWERS*.—*The Colonies and India* states that an opening for female labour—or, rather, for light employment for women and children—in the colonies may be found just now in the preparation of many kinds of grasses and flowers such as exist in such profusion in the tropical and sub-tropical possessions of England. The so-called "everlasting flowers" of a few years ago, poor in variety and effect, comprising but two or three different kinds, are being superseded by graceful

grasses and delicate flowers from South Africa, India, Italy, and other countries. A beautiful and effective large white flower has lately been introduced from Cape Colony, where it is prepared by simply drying in the sun. Other kinds of flowers may be desiccated by suspending them head downwards in a jar, which is then carefully filled with hot, dry sand, and subjecting them to a continuous gentle heat. By this means they retain not only their natural forms, but frequently their colour as well. A little experience would soon show what kinds of flowers lent themselves without injury to this treatment, and careful experiments in this direction would enable the colonies to send to other parts of the world, less highly favoured with rare forms of plant life, many novel and beautiful kinds of flowers in a state of perfect preservation. The stately grasses of South Africa, New Zealand, and India could, many of them, be still more easily prepared, and would no doubt speedily become very popular. The former, with which the specimens recently imported have been received in this country, should encourage the colonists to send us a still greater variety of these interesting and characteristic samples of their native flora.

— **ODONTOGLOSSUM VEXILLARIUM.** — Two varieties of this fine Orchid, of surpassing beauty, are blooming this week in the York Nurseries. They are named respectively *O. vexillarium marginatum* and *O. vexillarium rubrum*. The former has a deep rose labellum, margined with clear white; nearly white petals (slightly shaded with rose in the middle), and white-edged sepals, deeply shaded with rose colour. The play of colour on the flowers of this variety is lovely in the extreme. The latter variety has, as its name implies, very deep rose (almost crimson) flowers, surpassing in the depth of colouring any yet seen in the establishment. The blossoms of both are of large size.

— **PROPOSED INTERNATIONAL EXHIBITION OF 1880.** — A meeting of the International Committee, presided over by Sir DANIEL COOPER, Bart. (the Treasurer of the Exhibition of 1866), and which, as there appears to be some misconception concerning its origin, it may be well to state sprang out of a large meeting of representative horticulturists, convened by the Royal Horticultural Society during the past year, and attended by delegates from the Royal Botanic Society, was held on Tuesday last. The business of the meeting was to receive a deputation from Mr. WILLS' meeting (of May 27) in the Royal Albert Hall, and which was charged with the task of laying before the committee the resolutions passed on that occasion. These resolutions were accordingly read and supported by statements made by Mr. WILLS, who strongly urged the committee to reconsider their expressed opinion that the present is not an opportune season for attempting to prosecute so great an undertaking. The deputation, having stated their case, retired, and the matter was further considered by the committee, who, while unanimously concurring in the desirability of holding such an exhibition on the largest possible scale, when circumstances are propitious, eventually decided, by eight votes to two, to adhere to their original determination as to the inadvisability of attempting to hold such an exhibition in 1880. Mr. WILLS then moved that the committee should forthwith be dissolved, but the Chairman ruled that as the meeting was convened for one purpose only, Mr. WILLS' motion could not then be entertained.

— **POSOQUERIA LONGIFLORA.** — This is conspicuously ornamental in the Victoria-house at Kew. The flowers are striking, in clusters of about twelve, and attract attention from the great length of the narrow tube, measuring over 5 inches, and surmounted by a spreading starry limb of 2 inches across. The colour is white. A whiff of the perfume is not unpleasant, but more than this is somewhat overpowering. The branches are few, and of considerable length, but with large leaves of dark colour and leathery texture, oblong in shape, the plant presents at all seasons a noble aspect. A native of Guiana.

— **SCOTTISH HORTICULTURAL ASSOCIATION.** — This Association offers prizes of £3, £2, and £1, for competition by under gardeners, members of the Association, for the best three herbariums of British

plants collected between May, 1879, and February, 1880. The collections are to be arranged according to the natural system, and the name of each plant, its habitat, and date of collection, is to be stated on the paper on which the specimen is preserved. Attention will be paid to the condition of the specimen, and the mode in which the plants are preserved and mounted, as well as to the number of species collected. The herbarium must be sent to the Secretary, Mr. ALEX. MILNE, Leith Walk Nursery, carriage paid, on or before February 21, 1880, with the motto of the competitor, and accompanied by a written declaration to the effect that the plants in the collection have been gathered by himself in the localities mentioned within the stated period.

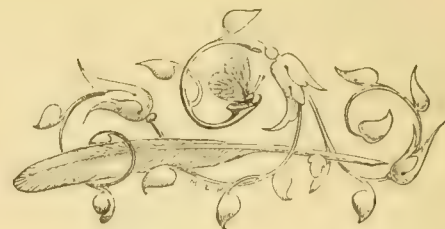
— **THE GREAT SUMMER SHOW AT SOUTH KENSINGTON.** — We desire to correct an error in our report of this show (given in a previous number), by stating that Messrs. JOHN LAING & Co., Stanstead Park, Forest Hill, were the exhibitors of the fine collection of stove and greenhouse plants which stood on the right flank of Messrs. TURNER'S Roses, and not Messrs. CUTBUSH & SONS, as was inadvertently stated by our reporter.

— **MR. WRIGLEY'S ORCHIDS.** — Mr. STEVENS has favoured us with a sale catalogue of the important collection of choice and rare established Orchids belonging to O. O. WRIGLEY, Esq., Bridge Hall, Bury, which are to be sold, without reserve, at the King Street Rooms, on Tuesday, Wednesday, Thursday, and Friday next. There are in all 1194 lots, and the whole of the plants are described as being in robust health.

— **AMERICAN POMOLOGICAL SOCIETY.** — The eventeenth meeting of this important Association will be held at Rochester (New York), on Wednesday, September 17 next, and will continue for three days. It is earnestly hoped that there will be a full attendance of delegates from all quarters, thereby stimulating more extensive cultivation by the concentrated information and experience of cultivators, and aiding the Society in perfecting its catalogue of fruits. This catalogue includes fifty States and Territories, most of which have their columns filled with a great amount of information as to the fruit adapted for culture in the respective locations. Many of these are yet incomplete; and it is the object of the Society, from year to year, to fill the blanks, and bring its catalogue nearer to perfection. The coming session will derive a special interest from being held in the midst of one of the great fruit-growing regions of the country, and in a district unequalled in the world for the extent of the nursery interest in the propagation of fruit and other trees. It is believed that the city of Rochester is more easily accessible to a larger number of persons interested in the objects of the Society than any other city in the United States, and a full attendance and an interesting session are therefore anticipated.

— **CEREUS TUBEROSUS.** — This little gem is flowering at the present time in Mr. PEACOCK'S collection at Sudbury House, Hammersmith. Except in its erect habit of growth, it resembles *C. flagelliformis*; and has erect bright red flowers, 3 inches wide and 2 inches long. It is very free flowering.

— **THE WEATHER.** — The report issued by the Meteorological Office for the week ending June 9 states that the weather was rainy and unsettled generally. Thunderstorms, with heavy rain, reported over Great Britain on several occasions, and a very heavy fall of rain in almost all places on Saturday, the 7th. The temperature was again below the mean, the deficit varying from 3° to 5°. The thermometer was seldom above 65° over Scotland, Ireland, and the western parts of England, but slightly exceeding 70° in the Midland Counties and "England, S." on the 5th. The minimum was rather below 40° in most places on the 4th and 5th, but much higher towards the close of the week. The rainfall was more than the mean in all districts, the excess varying from three-tenths of an inch in "England, S." to twelve-tenths in "Scotland, W." The principal of the heavy falls occurred on Saturday, the 7th, but in some places a second was reported on the 9th. The wind has varied considerably in direction. At the commencement of the week the north-westerly or northerly currents predominated, but by the 6th and 7th easterly or south-easterly breezes had become general, while at the close of the period a cyclonic circulation was shown round a depression which lay over our western coasts. The wind has been generally light or moderate in force.



Home Correspondence.

The Proposed International Show of 1880. — However desirous a few, and the trade in particular, may be for a great exhibition of horticultural produce, there cannot be a doubt that to press the inauguration of the thing in the face of the prominent opposition displayed would be both ill-timed and unwise. Although it is scarcely possible to command unanimity in the organisation of anything, it is both quite possible and practicable to command general support, as was the case in 1866. There is no doubt that there has been undue laxity in not having something of the kind years ago, as was intended after the successful results of our first great and ever-to-be-remembered exhibition, but the times won't admit of a generally successful subscription sheet, and to attempt to organise an international effort without general support would be sheer folly. The "old" committee [Not exactly the "old," as we have elsewhere explained. Eds.], after due deliberation, evidently thought so, and consequently it would be a species of unwisdom to persevere in the face of a resolve, which is no doubt backed up by the majority of horticulturists throughout the kingdom. The provinces assisted considerably in the '66 exhibition, and in good times would be likely to do so again, but I could scarcely envy the man who would have—shall I call it the temerity?—to go about with a subscription sheet, say in Glasgow, for instance, in these times. It is better therefore to delay for a year or two. Even on the score of time there ought to be some hesitancy on the part of those who are anxious to carry it through. Horticulturists in our day cannot afford to risk the idea of a failure, and to a certain extent it must be so if it be attempted during 1880. We all know how much chagrin there is in a prominent man putting his hand to the plough and then having to turn back: better that Mr. Wills should do so now than have the responsibility of forcing an international effort without a national response. As a friend of mine says, "Can't Mr. Wills husband his great energy and resources for an effort to come when there is a more general call?" *James Anderson, Meadowbank.*

The Edelweiss. — It may interest some of your readers to know that I have succeeded in flowering the Swiss Edelweiss, and that it is now in full flower. *J. G. Wainwright, Wandsworth Common, June 7.*

A Gossip about Nettles. — *Apropos* of the interesting article on the cultivation of the Nettle as a fibre plant, which appeared in the *Gardeners' Chronicle* of the 7th, I would say that the natives of the North, the Kamschadales and others, have long used the stems of this plant; they dress it like hemp, to make a coarse cloth of it, also lines for fishing, and a stout cordage. The Nettle is with them a most valuable article of manufacture. Its roots boiled with alum yield a fine yellow dye: yarn is often coloured with it, and the seeds are full of oil which burns well, and can be used in lamps. It certainly is one of our neglected blessings. The young tops when boiled are a very wholesome vegetable. Sir Walter Scott was aware of this fact. "Andrew Fairservice" forced "the early Nettles for spring Kail," and all well-educated poultry-keepers know how young turkeys relish and thrive on a paste made of nettle-tops and meal. The dry foliage increases the milk of cows, but they refuse it when fresh; its sting, so like in structure to the poison-fang of the rattlesnake, no doubt hurts their tongue, but have you ever noticed how boldly donkeys will crop it? It never seems to sting their tongues, though horses, like cows and pigs, refuse it in a growing or green state. The Timor nettle, *Daoum Setan* or Devil's Leaf, must be a formidable plant, for its sting is said to cause death. *Helen E. Watney, Berry Grove.*

Primula cortusoides amœna. — I don't think that it is generally known that the flowers of *Primula cortusoides amœna* keep their beauty for a very long time in water. I took a nosegay to the North with me, the flowers were put into a tin on May 12: I dried some flowers of the *Primula*, still beautiful, on the 30th. All the trusses when picked had some flowers expanded though some had buds; all the other flowers, including an *Odontoglossum Alexandræ* (a flower of some age when picked) withered, but some of the *Primulas* kept their colour and beauty to the last. In Scotland the season is very late, so not many wild

flowers were out. I went to the first botanical excursion under the new Professor (Dickson). The Edinburgh students have great advantages, having such beautiful country so near to ramble through, and the Professor is so patient and his manner of teaching so clear that it must be easy to learn from him. The Botanic Garden rockwork was as full of beauty as ever. Mr. Sadler may not be as devoted to alpine as his predecessor Mr. McNab was, but the plants are not the less carefully tended. He showed me some interesting plants of his own collection. I had a most enjoyable visit to Miss Hope, of Wardie Lodge; her hardy plants were in great beauty. She has now an excellent collection, and kindly gave me some plants I much value. Her garden shows what understanding loving care will do for plants with no advantages of soil. On my way home I stopped at York, having long felt it to be a reproach that I had never seen Backhouse's rockwork or York Cathedral: they are certainly both most beautiful in their respective ways. Messrs. Backhouse's rockwork is, to my idea, about perfection; the only drawback is perhaps a necessary one—that in parts it does not seem clothed enough; spaces have to be kept vacant for new treasures as they come in. In this garden they have certainly learnt the secret of growing alpine plants to perfection. I looked over great stores of plants in pots all seeming in thoroughly good condition. *George F. Wilson.*

Calceolarias at the Langport Nurseries.—Profiting by a hint given in your pages that there was a good show of Calceolarias to be seen at these nurseries, I made my way there one day last week, and was well pleased with what I saw. There are nearly 2000 plants of Calceolarias altogether. The bulk of the plants are arranged in two span-roof houses. The effect at first sight is very striking, and a closer inspection only serves to show the high quality of the flowers. Like other well-informed cultivators, the Messrs. Kelway carry on the work of selection and impregnation in a thoroughly satisfactory manner, aiming at securing a high-class article that will sustain their reputation. Whether there had been any indifferent flowers removed from amongst so large a company I do not know; certain I am I did not see one in that vast array, and I was particularly pleased to see that there was no one colour predominant. Usually we find the yellow grounds far exceed any other colour, but it was not so there, for all were evenly balanced, and the rich high-toned flowers were as remarkable in numbers as in health and vigour. As these are grown for seed, of which they were setting a fine crop, they are not large, but they were evidently of a suitable size for the purpose they are wanted for, and they will be certain to produce a magnificent crop of seed. *J. C. Clarke, Colthelstone.*

The Monarch Rhubarb.—This excellent variety is correctly described and not too highly recommended by you at p. 694. With regard to its history, however, perhaps a few facts may not be uninteresting. It was, I believe, raised by Mr. Stott, market gardener and nurseryman, Alnwick, Northumberland, and was originally brought prominently into notice, many years ago, by Messrs. Lawson of Edinburgh, whose then traveller, now the manager of the Lawson Seed Company, was struck with the general appearance and otherwise useful character of this Rhubarb, which for bulk, rich apple-flavour, and appearance when dished, is unsurpassed by any other variety. *P. B.*

—From the description of Monarch Rhubarb given at p. 694 we have no doubt it is the variety sent out by Mr. Stott, Alnwick, under that name. We had it from him about ten years ago, and since then have sold it in large quantities, as our customers have invariably spoken of it as being of the finest quality. Many gardeners use it very much for forcing. *Dicksons & Co., Waterloo Place, Edinburgh.*

—From the description given at p. 694 I have no doubt the Monarch Rhubarb there mentioned is my seedling, only when well grown it gets much larger than is described. I raised it from Victoria in 1851. I had tried several times before, but got none worth notice; however, that year I got three very good sorts, but the Monarch soon took the lead of the others. As soon as I had plants fit for sale I sent it out, and it is now over a great part of the United Kingdom and some of it on the Continent, under the name of Stott's Monarch. It has often been highly commended. I have before me the *Alnwick Mercury*, July 1, 1857, stating, "Mr. Stott, of this town, cut a stalk of Rhubarb yesterday morning 9½ inches in circumference, and weighing, with the leaf, 11 lb., and 7 lb. 3 oz. without it." A contemporary in particularising the various productions exhibited at the Botanical and Horticultural Show, held at Newcastle, states that, "three most extraordinary stalks of Rhubarb were sent (not for competition) by Mr. Stott of Alnwick. They had been raised from the Victoria, and received high commendation." The excellence of its quality is evidenced by the great demand there is for it wherever it is known. Mr. Ingram, gardener to His Grace the Duke of Northumberland, Alnwick

Castle Gardens, can verify these statements. *James Stott, Nurseryman, Alnwick.*

How to Destroy Ants.—Now that the return of spring is bringing out the ants again to levy their yearly contributions, some of your correspondents may be tempted to try an application of dilute carbolic acid, which, I understand, has been found in a series of experiments, detailed in *Die Wiener Ill. Garten Ztg.*, to be perfectly efficacious in driving the ants from their nests. The proportion that has been found safe with regard to plant-life, and satisfactory as an insect deterrent, appears to be 100 parts of water to 1 part of the acid, the water and acid being carefully and repeatedly, for twenty-four hours, stirred together in a tub, and the scum, which rises to the surface (which is highly prejudicial to plant-life), removed by a tube or otherwise. This application seems, from the details sent, to be safe and satisfactory, and if it should prove so for practical purposes, it is so easy of application (especially for pouring into ants' nests in houses) that it may prove serviceable. *O.*

Insects and Orchids.—Having read Mr. J. C. Spyers' notes on insects infesting Orchids, and his advice on how to eradicate such pests, I, for one, accept such advice with thanks, but thinking I know a better way, I beg to offer my method for consideration. In fumigating Orchid-houses I never use live coal; it is a dangerous thing to introduce live coal into an Orchid-house. I prefer making use of some shavings, which are ignited at the bottom of the fumigator, outside the house; on this place the tobacco-paper, not over dry, then place the fumigator inside the door; there is not the slightest necessity whatever to go inside. Place the apparatus so that it can be reached by a stick to stir it, should the smoke not come freely, and to place fresh paper on should it blaze; it will be found the smoke will find its way everywhere, and fill every square inch of space in the house. The process is simple. As an Orchid-grower of many years' experience, I need hardly say I know something of and concerning the thrips family, but I have never seen them in quantity such as Mr. Spyers describes. "To see them lying dead on the leaves proves they have had heavy losses." The tar spots on the leaves I have never seen. If this is a description of any person's results in Orchid culture, I must say "there is something rotten in the state of Denmark." I affirm that such multitudes of insect-life in an Orchid-house is a clear proof to me the gardener does not know how to grow Orchids, and they are in a large measure the result of his mismanagement. Insect-life may be disturbed or destroyed by means within man's power, or they may be increased by his agency. Killing insects with brush, sponge, fumigation, is a waste of time. My experience teaches me to keep a sweet, humid, not over hot, atmosphere, frequently changed and kept pure by judicious ventilation and a free use of the syringe. To the above and inside shading I attribute my perfect freedom from all insect annoyance—there has not been one day spent during the last twelve months in cleansing Orchids here. *William Payne, The Gardens, Belmont, Taunton.*

Harrison's Musk.—I agree with your assertion that this is not the Musk of commerce, although it has been introduced into commerce most largely. The Musk proper owes its great popularity to its pleasing musky perfume. Like the Mignonette, it presents little that is specially attractive to the eye, but much that is delightful to the olfactory nerves. What Harrison's hybrid has gained in effect it has lost in perfume, and its claim to be a Musk on that ground is of the weakest. It is *Mimulus moschatus* hybridus, but not the Musk plant. I am not aware that its exact origin or parentage has yet been given, but evidently it is the result of a cross between *M. moschatus* and *M. cupreus*, obtaining from the latter larger and spotted flowers, more robust leafage, and a dwarf habit. I am not sure as to whether it has parted with its herbaceous or perennial roots, one of the special characteristics of the true Musk, and also do not know whether in the same sense as the Musk it is perfectly hardy. That it is a most useful decorative plant there can be little doubt, and either for pot culture, window-boxes, or baskets it has proved to be singularly popular. I have also observed that it is this year in one large garden to be employed as a bedding plant, and it will doubtless thrive and bloom abundantly if it is provided with a sufficiency of moisture. I have noticed that the style of the flower is sensitive, closing up immediately it is artificially fertilised with pollen or is touched with the point of a knife. I trust it may yet become the progenitor of a fine dwarf race of spotted large-flowered *Mimuluses*. *A. D.*

Saxifraga granulata.—This flourishes here in great abundance under the shade of a thick avenue of Lime trees, in a moist situation, exactly the opposite to that recommended for the double-flowered variety

on p. 724. These plants are without leaves the greater part of the year, and consequently liable to be destroyed in herbaceous borders. Possibly this may account for its failure with some people. *W. H. Divers, Burghley.*

Packing Plants.—In receiving plants from various correspondents at home and abroad, and from nurseries, it has struck me on several occasions that a vast amount of unnecessary packing material is used in most of our English nurseries. I am not now speaking so much of Orchids or stove plants, as of herbaceous and alpine plants and bulbs. Perhaps the worst packers are those of some of the botanic gardens abroad, who envelope needles in bundles of hay in a most provoking manner. Messrs. Fröbel, the well-known nurserymen of Zurich, seem, however, to have discovered that the secret of packing successfully the alpine plants which they collect and grow so largely is to compress them tightly in small, strong, and light boxes, with very little moss or paper, and I have certainly never received plants, in so small a compass, in such good condition, and with so small a sum to pay for carriage, as I have had on two occasions from them. The new paper pots introduced by Messrs. Tebbis, which are now largely used at Chiswick, appear to answer very fairly; but unless the plants are well rooted and a little pot-bound, the earth is apt to shake loose in them. Any system, however, is better than the one of sending plants in their pots, which often get broken, and always add very much to the weight of the package. I do not know whether it is the custom in nurseries for packers to unpack plants which are received, but they would learn a good deal by doing so. I think the most useful packing material would be some kind of cheap loose hemp or cotton cloth, which might be dressed with some waterproofing material when it was necessary to send plants on journeys of several days' or weeks' duration; but such paper as that of which Tebbis' universal pots are made would be very useful. *J. H. E.*

Areca Alicæ was discovered by Mr. Walter Hill, at Trinity Bay, a few years ago, and introduced by him into the botanic garden of Brisbane. I find it a genuine Areca, although I have not seen the ♂ flowers well developed. The species approaches in affinity to *A. triandra*, Roxb., and *A. oxycarpa*, Miq. It is dedicated by me to the so early deceased Grand Duchess Alice of Hesse, in order that also in the princely vegetation of Palms the elevated name of Her Royal Highness may remain commemorated for all time. The description of the species will appear in Dr. Von Regel's *Gartenflora*. *F. von Mueller.*

Pear and Apple Maggot.—As is generally the case when we get cold backward springs, insects of various kinds that affect plant life increase and multiply at a rapid rate, or if they do not breed faster than in more favourable seasons, certain it is that they do a greater amount of mischief, owing to the slow rate of progress vegetation then makes. If the young shoots can push out and the leaves unfold themselves quickly, they seem to outstrip and get away from their enemies, but if they cannot do this the maggots or caterpillars have time to spin their webs and tie, as it were, the foliage together, thus enabling them to travel from one part of the tree to the other. Busy enough have they been at this during the present year, for on examining a plantation of pyramidal Pears and a young orchard of Apples, I find they are badly infested by these pests, which, not satisfied with devouring the leaves, are eating the fruit as well, and this at such a rate that if not checked they will seriously endanger the crop. The good old plan of "catch 'em and kill 'em" is no doubt the safest and best, but where there are many trees to go over this is a work of time, and there are few gardens in which labour can be spared for the purpose, especially just now, when grass and weeds are growing at such a rate that, do what one will, it seems almost impossible to keep them under; and not only this, even if hand-picking could be resorted to, the chances are many would escape, as being nearly of the same colour as the green food they take, it requires very keen eyes to detect them. After trying various expedients to rid ourselves of them, I find the quickest remedy is to play on them with lime-water from a garden engine, the acrid properties of which liquid are such as to cause them to relax their hold and tumble to the ground. The water should of course be perfectly clear, or the trees would be coated with thin whitewash, a thing to be avoided, as it would not only be very objectionable in appearance, but exceedingly hurtful as well. To be effectual, it is necessary to let drive at the trees in different directions so as to catch the foliage and shoots on all sides and give them a thorough wetting, in doing which the force of the stream will do much to dislodge the insects and break up their homes. If the tomtits were not so troublesome in the autumn pecking holes in the Pears, one could wish their

numbers increased, as I see they work most assiduously in searching out the caterpillars to feed their young, and since observing this I have felt much more friendly disposed towards them, and shall not begrudge them a taste of the fruit they are assisting so much in preserving. I should be glad, however, if they would stick to one and finish it up, as it would last them a long time and there would not be much to complain of, but unfortunately they always appear to have a strong desire to have a dig at all to see which is best. Sparrows have been credited with being insectivorous, and I only wish that ours here would take to so light a diet, as just now they might fill themselves to repletion, for truly we have our share, and might exclaim in the words of Shakespeare, "The worst of creatures fastest propagate." J. S.

desired. Some complain of acidity in the flavour of Sir Charles, but if properly grown and well ripened it leaves little to complain of. *W. Simpson, Norman Court.*

The Common Fritillary (fig. 111).—The Fritillary is one of our most striking wild flowers, and one which few gardens should be without. Few of our readers, we imagine, are aware of the fact told us by the artist that it was formerly abundant in some overflowed meadows near Kew, now banked in and covered with Potatoes and other utilitarian plants. Mr. Fitch remembers some thirty years ago seeing some wet-shod children who had been Buttercuping, with handfuls of "Snake's-head" in their nosegays. It is said still to grow near town in meadows near

blooms. It is not generally known that *C. Calceolus* grows wild on the estate here, and not 100 miles from Kendal. I say wild, as it is spread over some considerable extent, and in two places. For many years past I have made it a practice on a particular day to have all the flowers pulled off, so that it may escape the notice of plant collectors, who swarm in this neighbourhood, and whose finding of any rare plant or species surely leads to its extermination. *R. Craig, Levens Hall, Milnthorpe.*

Stellate Columbine.—I send herewith examples of a curious change in the flower of *Aquilegia vulgaris*, which, in much variety of colour, has been quite a weed here for many years past. It was last year, for the first time, that I observed this obliteration of the



FIG. 111.—THE FRITILLARY AND MARSH MARIGOLD.

Strawberries for Forcing.—Now that the season will soon be at hand for making preparation for next season's forcing, a few opinions as to the best sorts for their respective seasons would be useful to many of your readers. If a few of the most experienced and successful cultivators would state what varieties they most approve of for, say, early, second early, and late forcing, we should gain some valuable information, and such as would enable many to avoid the disappointment which is often experienced by forcing sorts which do not pay for the trouble taken with them. For size, productiveness, and good flavour, I can recommend the four following, which I consider are good trustworthy sorts:—Keens' Seedling for early, President for second early, and Dr. Hogg and Sir Charles Napier for late forcing. The first does not stand packing so well as the others, but in size and flavour it is all that can be

Perrivale on the banks of the Brent, north of Ealing, and abundantly in some meadows near Oxford. Mr. Fitch further tells us that he remembers gathering *Epipactis palustris* near a ditch below Kew, some twenty years ago, but the spot, which he shrouded with grass to hide the flowers, is now devoted to Mangel Wurzel. May it have a longer tenure elsewhere!—like the Fritillary.

Cypripedium Calceolus and C. spectabile.—We grow these here in large quantities in borders, where a little shade can be had. I used to adopt the water system with bad effects, but since I made a lucky find my compost has simply been peat, mixed with small limestone shingle. In this the growth is astonishing, and some of the clumps of *C. Calceolus* bear some fifty blooms, all two on a spike, while *pectabile* nearly grows to 3 feet, often with three

spur and other radical change of petal. I then thought it an inconstant freak; I find, however, that it is fixed, and that other similar self-sown plants are appearing. Upon showing a flower only, of the reddish-purple one, to my outdoor propagator (he has been from boyhood among Clematises), and asking him what flower it was, he replied, "it looks like a Clematis." The seeds sown of this one will probably produce double Anemone-flowered forms, as they already show a slight tendency towards that state. I may add that until very recently no other species of the genus than *canadensis* and *Skinneri* were grown here. *Robert Sim, Sidecup Hill Nursery, Fools Cray, June 9.* [It is the stellate form of Columbine long known in gardens, but Mr. Sim's history of the change is very interesting. Technically it is an illustration of "regular Peloria," in which the parts of the flower become regular. Eds.]

Valeriana Phu aurea.—I am much pleased to see Mr. Culverwell's remarks on the above useful spring bedder, as it is worthy of all the praise given. Mr. Culverwell thinks the plant is little known, but in this he is mistaken, as on inquiry he will find that, seventeen years ago, I had some thousands of it here, and sent it all over the country. I first got it in a cottage garden in Cartmell Fell under the name of Tommy-Twa-Sorts. Any gardeners paying a visit to this quarter, or to the lakes of Windermere, will find the Valeriana as common as the Primrose, Polyanthus, or Daffodil. Some years ago I used to have a Valeriana as white as this one is yellow, but it was too delicate to withstand the effects of the bright sun, and got destroyed. I may add that I have exhibited the golden variety several times—once in London and Manchester, but little notice was taken of it. *Robert Craig, Levens Hall, Miththorpe.*

— In looking through your columns for May 31, I noticed a query from our respected friend, Mr. Culverwell, relating to Valeriana Phu aurea, a plant which is very seldom to be met with. The first time I became acquainted with the plant in question was at the quaint old gardens at Levens Hall, Westmoreland, where the head gardener (Mr. Craig) had it growing in any quantity all over the place, in fact it seemed to me to be almost running wild; in the herbaceous borders it was cultivated in large clumps, and really in spring the effect it produces is charming, with its bright golden-coloured and graceful leaves. Mr. Craig, I found, first obtained the plant sixteen years ago; it was growing at a cottager's door at Cartmell Fell, North Lancashire, in the form of a solitary specimen, which he obtained; he soon increased the stock to a large extent, and two or three nurserymen were supplied with plants in 1864-65 (Lawsons, Stansfield & Son, &c.). It is now to be found growing at many places in Westmoreland besides Levens Hall, and is highly esteemed by all who know it. I think when the real value of the plant becomes more known it will be extensively grown by many, and I am sure will be justly appreciated by the same, as for using amongst spring bedding, &c., a better plant is not extant. *A. B. C.*

Setting Grapes.—I cannot conceive a more barbarous way of setting Grapes than that mentioned by "Z." (p. 730), where, speaking of setting Muscats, he says they give them "an occasional stroke of the hand down the bunch." [If this plan answers the purpose, where is the barbarity? Eds.] In all such delicate operations as this the nearer we approach the plan followed by Nature the better. The fertilisation of flowers is accomplished, generally speaking, either by insect agency or currents of air, both of which are very different to "a stroke of the hand." A warm buoyant atmosphere, with a free circulation of air, will generally accomplish all that is required, but if any doubt is felt on the point in the case of shy-setting varieties, a slight rap on the main stem is all that is needed to send the pollen flying in a cloud in all directions without any fear of injuring the tender skin of the young berries by contact with the hand. *W. H. Divers, Burghley.*

Strawberry Cultivation.—A correspondent writing about Strawberry cultivation a short time back recommended the pulling to pieces of old plants for the purpose of forming fresh beds, and although this is ridiculed by "Cultivator," I know several large growers for market who always make their new plantations in that way, and as they have to get a living by what they produce such men generally know pretty well what they are about. There can, however, be no question, I think, that where plants in pots that have been forced can be had they are in every way preferable, as having the whole summer before them and no crop to carry, they have plenty of time to become thoroughly established and in fine order for bearing the following year. Not only are they the best for making new beds, but they also yield the strongest runners for layering, that is, if they have been properly treated and planted early, so as to give them a good start, when, having got hold of the fresh ground, their progeny is always well fed. So much importance do some cultivators attach to getting sturdy runners as soon as possible that they take special care of all the first forced plants and turn them out in rich soil directly their leaves will stand the exposure. In a bed at Orwell Park which I saw last year Mr. Wallis had the whole of his stock of British Queen, that he grows so well in pots, standing nearly close together, which not only saved a deal of time in watering but kept the pots shaded from the sun—a very important matter, as when that is allowed to play on them the sides of the balls where the principal roots are, become desiccated, which, causing a check to the plants' growth, brings on red-spider, a pest that in hot summers is very troublesome to Strawberries. Watering and syringing overhead with soot-water is the best remedy, and in the open ground nothing tends so much to prevent the breeding and spread of this insect as mulching the beds early, so as to keep in the moisture, and if when the fruit is swelling a

soaking of sewage is given, that will be an additional help and enable them to finish off a crop with clean healthy foliage. Another advantage in strawing down early is, that littery stable manure may be used, as by the time the fruit is ripe the droppings, if any, have disappeared and left all sweet and clean. In lands subject to slugs Bracken that has been broken up through use in covering frames or other purposes forms the best mulching to put on Strawberry beds, as the ends and splintered parts are almost as sharp as needles, and therefore prevent these vile creatures from crawling. Fresh-cut grass or hay is very objectionable, as it is not only a long time drying, but moulds, and imparts an unpleasant flavour to the fruit, which it helps to rot should the weather be wet when it is ripening. *J. S.*

Lost and Saved in a Lady's Garden, West Midlands, 1878-79 (Postscript).—Will you kindly devote a corner to the P.S. completing the list of lost and saved in a lady's garden? It is as correct as it can be made at this moment, but the subject of alpinism is at once so extensive and so attractive that it is hardly safe for a lady to enter upon it, as the gift conferred by the blarney-stone may be as dangerous to the pen as it undoubtedly is to the tongue, especially when one bears in mind old Gerard's timely but ungallant warning on that most delicate subject. *H. M. E., May 28.*

Peat-loving Plants and Shrubs, Bulbs and Alpines.

Rhododendrons: the variegated plants suffered much; *præcox* was full of bloom, *Nobleanum* is shy—no flowers; *caucasicum*, colour of bloom spoilt by the frost; *ciliatum* full of flower, and many others well set.

Erica mediterranea dead, *E. codonodes* in bloom, *E. carnea* and *E. c. alba* well bloomed; many others in perfect health. *Cypripedium spectabile* is just starting; it had no protection. *Galax aphylla* looks well, and many other peat-loving subjects.

A cold, damp, and once disappointing corner, now shows *Bambusa Metake*, *gracilis* and *Fortunei* alive. The former was lovely all the winter, its glossy lancet leaves bending to the snow. The dark green *Struthiopteris pennsylvanica* forms a lovely contrast with the tender verdure of the *Lastreas*, so grateful to the eye after the winter snows. Other Ferns, *Iris*, double *Marsh Marigold*, and the ruddy rosettes of *Lobelia fulgens*, now furnish an attractive nook.

The bulbs are very strong this year, in spite of the wicked weather; the sweet little *Triteleia uniflora* especially good. *Gladioli*: in a warm border ten bulbs out of two dozen were killed, in a cool bed they all perished. Variegated grass edgings stood well; blue and green *Fescue-grass*, gold-coloured and silver *Dactylis*, the latter being the most tender. *Arundo Donax* and *A. conspiciua* are hardy. In a bed of choice Lilies, *L. philadelphicum* died. Of two bulbs of *Hyacinthus candicans* one is dead; and the same may be said of *Pardanthus chinensis*.

Tritoma grandis, *glauca*, *Uvaria*, and the little *Macowani* (*Kniphofia*), are all hardy.

But it is to the rocky bank, the alpineries, and the wild-flower bed that the eye turns for refreshment and the mind for interest, after the dreary winter, rather than to the ordinary routine of the trim parterre. In those tiny plants memory presents the alpine pastures of the stormy Jura, or the granite precipices of the sunny Pyrenees, as the glance falls on the deep blue *Gentian*, the silvery *Saxifrage*, and the wrinkled *Ramondia*. The *Arbutus* shades of Killarney return with the growing fronds of the *Osmunda*, and revive in the vivid green and dainty rosettes of the *London Pride*.

In the nook of wild flowers the pendent arches of *Solomon's Seal*, with their tiny bells, recall the sandy drives and cork woods between Biarritz and Fontarabia, and large patches of *Woodruff* give back the glens of the North, and the fragrant carpet under the broad Beech trees by "the whimpering burnie." Here, clinging to the wild Ferns, grows *Ruskin's* little favourite, *Oxalis Acetosella*; there *Shakespeare's* "little Western flower," *Love* in Idleness, shows his "diminished head;" there are *Celandines* white and double gold, that would have delighted Wordsworth, appearing amongst the Kings'-fingers of the Northamptonshire peasant (*Orchis mascula*); *Primroses* of every shade, with the starry *Anemone*, blue and white; rosy *Valerians* from "St. David's ruined pile," as the "Enchanter's Nightshade" seems to be the flower of Conway Castle. A bank of red sandstone crested with a hedge of *Thuja Lobbi* (each a pyramid of unscathed green), the bank itself carpeted with *Tamarisk Juniper*, thickly dotted over with *Aubrietias* of various shades, leaves nothing to be desired that colour can supply, as tufts of golden *Strawberry* and a network of *Sedum acre* aureum are wandering at will through the crevices, the strew-coloured tips of the *Sedum* forming soft cushions, which creep over the rusty stonework. *Aubrietia Hendersoni* far excels the older ones both in its depth of regal purple, just softened by mauve, as it is in advance of them in its time of flowering.

Among 300 to 400 alpinists very few died; they were *Gnaphalium arenarium*, *Dianthus High Clere* (which is very tender)—the others of this genus are a mass of buds; one *Saxifrage* out of many, *S. Mawana*, is gone [perhaps its reproductive bulbils were neglected]; *Primula Monroii* died; *P. pulcherrima* never was so strong; *Thymus azoricus* and *coriscus* suffered greatly, so did *Margyrocarpus setosus*, but it is alive. Early *Cyclamens* were very strong, so were the alpine *Auriculas*—better than ever. *Sedum dasyphyllum* and *anglicum* stood well, and all the others.

I may mention in conclusion that *Cineraria acanthifolia* is quite hardy, which *maritima* is not—it is better in every way. *Thuja Vervaeckiana* kept its lovely tint all the winter. *Ribes speciosum* is still struggling for life, and, alas! the *Escallonia pterocladon*, having successfully braved the winter, has now died suddenly, but the *Colletia horrida* will survive.

Lantanas.—These are not nearly so much grown as their merits deserve, for although the leaves emit an unpleasant odour when brushed against, the plants bear richly-coloured flowers that make a very fine display in a greenhouse or conservatory during the whole of the summer months. Not only are they exceedingly valuable for the above-named decorative purposes, but many of the hardier and close-habited kinds form splendid beds, and where soil and situation suit are preferable to *Verbenas*, which, as regards bloom, *Lantanas* greatly resemble. Many years ago, *L. Sellowiana* used to be a great favourite, but for some time past I have lost sight of it, and whether in existence or not now I am unable to say. Latterly some of the Continental nurserymen have been devoting attention to them, and have sent out several, all of which are very desirable, especially a white one that I have lost the name of, which is so floriferous as to send out trusses at almost every joint. This I am trying outdoors, and if it succeeds it will be of great service, the colour being just the thing wanted, for except one or two *Pelargoniums* that are of little use, there is nothing of suitable habit that will come in so well among the summer arrangements. When grown in pots, *Lantanas* do best fully exposed to the sun and light, as then they come short-jointed and strong, and flower with great freedom. Unless kept very dry at the roots during winter, they are almost too tender to live in a lower temperature than about 50°, and even in that degree of heat the young shoots often die back, but that matters not, as when the plants are started again in the spring they require pruning after the manner of *Fuchsias* to get them into shape and keep them well furnished. The strong varieties do well potted in loam, but those of a more delicate constitution, and which are less robust, should have peat or leaf-mould mixed with the soil, and a good sprinkling of sharp sand to insure its perfect porosity. *Lantanas* seed freely, and may be raised in that way in quantities, as also from the young growth in the spring, which strikes as readily as that of *Verbenas*. *J. S.*

Arrangement of the Interior of a Greenhouse.

—I am building a conservatory, size 55 feet long by 30 feet wide, with an entrance porch 15 feet square. I have three *Camellias* to plant in it, each 16 feet high, and 10 feet in diameter. I dislike the plan of a square bed in the centre for them. If some of your correspondents would kindly give advice as to the internal arrangement of the space, with ideas of how it may be broken up into beds for flowers or Ferns, they would much oblige *Balrath Barry*.

Bearing Reins to Horses Drawing Mowing Machines.—Some two or three years ago I wrote to you on this subject, with the result that many humane gardeners abandoned that cruel instrument of torture—the bearing-rein, but I am sorry to say one still too often meets with this barbarous institution. Several of the coaches in the park are driven without them, and I see by the daily papers that Mr. Du Pont drove his Brighton team of black cobs without bearing-reins at the Islington Horse Show. All honour to that gentleman for his humanity and example, but it is for the poor horses in our mowing machines that I once more raise my voice. Why are they, as they tread backward and forward at their monotonous task, to be subjected to the galling bearing-rein? A horse surely knows best how to carry his own head. See, as he pulls his load up the hill, how he stretches out his head and neck, thus rendering respiration more easy. Many gentlemen, and nearly all the fly proprietors and most of the tradesmen, have abandoned the rein; then, in the name of common-sense, why are our farm and garden horses still to be burdened with it? I believe there is not a more humane class of men to be met with than the gardeners of this country, and to them I appeal to use their knife and cut the matter short by throwing the thing on the fire. *J. Rush, Eridge Castle.*

Pyrus malus floribunda.—I can fully endorse all that was said in favour of this shrub, p. 694, for unquestionably it is one of the finest and most showy hardy spring flowering plants in existence. I have a handsome specimen before me now as I write, which is in the form of a bush, and every branch is literally laden with bloom. These in size and shape greatly resemble the *Cherry*, and are borne in loose clusters along the whole length of the shoots like those of the *Morello*, but instead of being white they have the lovely pink colour of *Apple blossoms*, and therefore any one can readily imagine what a display a few of the plants make about a place. I find that those in light soil and fully exposed to the sun are much more

floriferous than others elsewhere, which is no doubt owing to the growth being a little restricted, and from having the young wood they make more thoroughly mature. If it should stand forcing, it will be a valuable aid in assisting to furnish greenhouses and conservatories in early spring, where in the form of standards it would be a very conspicuous and beautiful object at that season. As such small plants bloom so freely, I feel sure it will be very amenable to pot culture, but whether this should turn out to be the case or not, certain it is that this *Malus* is one of the best things seen of late years for planting in shrubby borders or ornamental grounds, and is a plant that, when more known, will be in great request for the purpose. As yet I have not attempted its propagation, but have no doubt it will strike freely if cuttings are put in during the autumn after being taken off with a heel. Last year ours had a quantity of fruit on it like miniature Apples, which I suppose the birds devoured, as they disappeared before I considered them ripe enough to gather for seed. Although the winter has been one of unusual length and severity, and has told on most shrubs, *Malus floribunda* has not suffered in the least, and its hardiness therefore is beyond doubt, which being so, no one need hesitate to plant it anywhere, except that being early in flower it is advisable to place it so that it can have shelter from cutting winds, which otherwise mar its beauty by knocking the petals about, and thus giving them a bruised and shabby appearance. *J. S.*

—My bush at Tonbridge was well laden last year with little round long-stalked crabs, about the size of a marrowfat Pea. This has not affected its blooming this spring, on the contrary we think it finer than ever. The plant came from Mr. Parker four years ago. *W. T.*

Double-flowering Gorse.—As "*J. S.*" has not mentioned anything respecting the hardiness of this showy shrub, I conclude it has with him withstood the recent severe frosts uninjured. We planted two beds of it here, in the autumn of 1874; the plants having been prepared in pots as "*J. S.*" recommends, grew away unchecked, and soon filled the space allotted them. When massed together in this way, and in full blossom, they have a rich glowing appearance which few other shrubs can equal, but the late severe winter has proved too much for them: the young wood was all killed, there not being so much as a shoot left green. We cut them down in April and now they have broken strongly, and will soon re-cover the beds. With the exception of *Laurustinus*, no other shrub suffered so much from frost with us as this *Furze*. Plants of *Magnolia grandiflora* (Exmouth variety) and *Ceanothus Veitchii*, on walls facing south-west, have escaped without injury; the last-named is a free-flowering neat plant for covering walls, and is just now opening its delicate blue blossoms. The soil here is a tenacious loam, and we are situated in a moist valley, consequently the young wood of shrubs, &c., does not ripen so well as in more favourable places, and is therefore more likely to be injured by severe frosts. *Thos. Coomber, Kendal Gardens, Monmouth, June 9.*

A FLOWER SHOW IN PARIS.

THE annual show of the *Société Centrale d'Horticulture de France* took place in the Palais de l'Industrie, in the Avenue des Champs-Élysées. The show was opened last Saturday morning, and closed on Wednesday night. The main features of this, the only great show of the year in Paris, are pretty much the same every year, as with but few exceptions there are always the same exhibitors. The place itself, which is well known to all Englishmen who have visited Paris, could be made into a very fine place for a flower show on a grand scale. As you enter the Palais from the main entrance you find on each side a kind of drawing-room, and the best, on the right-hand side, was elegantly furnished and brilliantly lighted, and very elaborately decorated with plants and bouquets by M. E. Briollet, floral decorator, of 93 bis, Boulevard Haussmann. It proved one of the greatest attractions of the show, and the jury awarded a Medal of Honour. On the other side was another room, furnished by the same firm; and also containing a good show of bouquets from MM. Debré, florists, of 12, Rue Neuve des Capucines.

Facing the entrance was the central group, in the middle of which stood the monument to be elevated at Ghent in honour of the late Louis Van Houtte, and the cost of which is defrayed by a public subscription. The likeness is not a very striking one, representing the celebrated Belgian botanist and nurseryman when he was young, so that few people are able to recognise him. Round this group M. Chantin, of 32, Route de Châtillon, the well-known French nurseryman, had a quantity of fine Palms of different sorts. M. Chantin also had another group of the same class of plants at the east end of the Palais, and was also awarded a Medal of Honour.

The best group in the whole show was one ex-

hibited by M. Moser, of 1, Rue Saint-Symphorien, Versailles, composed of about 250 plants of *Rhododendrons* in full bloom, *Kalmia latifolia*, and *Azalea pontica*. Among the best of this lot we noticed the following *Rhododendrons*:—Lady Eleanor Cathcart, conchusum, Schiller, Hamiltoni, Mrs. Holford, Lady Easthope, violaceum superbum, Michael Waterer, Magnum bonum, Brayanum, Mdle. Masson, Sir Robert Peel, Sidney Herbert, Old Port, Pavonium, Le Poussin, John Waterer, Fred. Waterer, Alarm, Sir Joseph Whitworth, and last, though not least, the very pretty pale violet *Annica Bricogne* (?). The 1st prize of honour was deservedly given to M. Moser, consisting of a fine Sèvres vase given by the Minister of Fine Arts.

Another very striking lot was that of M. Jules Margottin fils, of Bourg la Reine. M. Margottin showed a fine group of Roses in pots, in good condition, and well covered with blooms. This gentleman worked for some time in England, and shows now that he has not lost by the experience he there gained. A Medal of Honour was given to him for the Roses, comprising the following, which differ a little from the names we are accustomed to see at English Rose shows:—Edouard Morren, Cheshunt Hybrid, Marie Guillot, Monsieur Noman, Madame Camille, Maximilien de la Rocheterie, Maréchal Forey, Caroline Kuster, Madame Laurent, Baronne Prevost, Black Prince, Horace Vernet, Marquise d'Exeter, Comtesse d'Oxford, Bernard Palissy, Anna Alexieff, Princesse Marie de Cambridge, Charles Lefebvre, Monsieur Salet, Céline Forestier, Charles Lawson, Madame Margottin, Baronne de Rothschild, La France, Souvenir d'un Ami, Julie Touvais, Marie Baumann, Souvenir de M. Poiteau, Paul Neron, Camille Bernardin, La Reine, Victor Verdier, Madame Triffle, Eugénie Verdier, Mrs. Veitch, Duchesse d'Orléans, Duchesse d'Aoste, Jules Margottin, Achille Gonod, Caroline de Sansal, Madame Nachury, Madame Maurin, Lyonnais, Clementine Joigneaux, Ferdinand de Lesseps, Peach Blossom, General Tartas, and Madame Bérard. The same firm showed also a few good Vines in pots, of White Tokay, Foster's Seedling, and Black Hamburg.

MM. Lévêque et fils, of 26, Rue de Liébat, Ivry, had also an admirable lot of Roses, standards and dwarfs, with very fine blooms and plenty of them. The varieties were about the same as in M. Margottin's lot. MM. Thibaut et Ceteleer, the nurserymen of Sceaux, had a Medal of Honour for their several lots, amongst which one of bulbous Begonias was very fine; Mons. Bienaimé, Mons. Lecomte, Emperor, Callista, Intermedia superba, Prince of Wales, Paul Mazurel, Léon Plisson, Raphael de Smet, Acmé, very fine; Lelia, Vulcain, Adolphe Fontaine, Dinah Felix, Exposition de Sceaux, Massange de Louvrex, and a seedling not named, but a very fine flesh-coloured flower. Their *Coleus* were the following:—Fascinator, Novelty, Distinction, Exquisite, Royalty, Surprise, Duchess of Edinburgh, Kentish Fire, Sir Garnet Wolseley, and Geo. Bunyard.

M. Morlet, of Fontainebleau, showed a very striking group of seedling *Coleus*:—M. Carrière, M. Joly, Camille Paris, Hardy, Burelle, Souvenir du Comte Henri de Grefülhe, Camille Bernardin, Baron de Haber, Laforcade. A Gold Medal was given.

MM. Chantier frères, of Mortefontaine, had some very good specimens of their new seedling *Croton*, Baronne James de Rothschild, which was exhibited some time ago at Kensington, and which proves in France to be one of the best. They had also two fine plants of *Dracena regia*, and one of *D. erecta alba*. Two firms showed *Clematis*:—M. A. Roy, of 162, Avenue d'Italie, and M. Louis Christen. The last-named exhibitor had a very good lot, and amongst them a seedling named *Eugène Delattre*, with large flowers of a pale violet colour. A Gold Medal was awarded. MM. Vilmorin et Cie. had a very large mixed group of annuals, such as *Calceolarias*, *Tropæolums*, *Resedas*, *Cinerarias*, &c., and were awarded a Medal of Honour. We might here mention that at the close of the Paris International Exhibition of last year M. Henri Vilmorin was unanimously put by the jury on the list of exhibitors that were to receive the cross of the Légion d'Honneur, but the Minister then in power struck out his name because, as I was told, he did not approve of M. Vilmorin's political opinions. What would an English jury have said? The French took it as a matter of course, politics being mixed up with everything. Alfred Bleu, of 48, Avenue d'Italie, had a fine group of *Caladiums*, and received a Medal of Honour. The best sorts in his collection were *Mithridates*, *Ibis Rose*, *Virginal*, Madame Fritz Kœchlin, Comtesse de Condeix, Clio, Verdi, Reine Marie de Portugal, Alfred Marne, &c. M. Bleu also showed a lot of *Begonias*, with the new one, *Louise Chrétien*, amongst them. M. Mathieu, of 54, Rue Spontini, Passy, had a very effective group of Palms and sundry stove plants, and received a Medal of Honour, as also did M. Emile Vincke, of Bruges (Belgium), for a grand group of stove foliage plants. M. Léon Duval, of Rue Duplessis, Versailles, the well-known *Gloxinia* raiser, showed a very fine bank

of *Hydrangea* Thomas Hogg, bordered with some very good new seedling *Tydæas*, not yet sent out. M. Delahaye, 18, Quai de la Mégisserie, contributed a good display of cut flowers of white and red turban *Ranunculuses*, *Muscari*, *Anemones* (varied), and *Iris germanica*. M. Jolibois, head gardener of the Luxembourg Garden at Paris, had a good show (not for competition) of *Bromelias*, and a few *Orchids*, such as *Brassia verrucosa*, *Cypripedium barbatum*, *C. superbiens*, &c. From the Baroness Rothschild's garden at Boulogne came (also not for competition) a good lot of well-flowered *Azaleas*. M. Savoye, of 28, Rue de Fontarabie, received a Gold Medal for fine-foliage plants; and M. Louis Landry, of 92, Rue de la Glacière, had some good plants in his lot—*Cypripedium villosum*, *barbatum*, *caudatum*, *Bromelia*, *Latania*, *Pandanus*, *Cycas*, *Areca*, &c. Amongst the other exhibits of plants we must notice some very large specimens of *Anthemis*, grown umbrella shape, and also M. Moullard's group of *Pansies*, Simon's succulent plants, Falaise's *Pansies*, Bouchet's bulbous *Begonias*, E. Gonesse's pretty show of carpet bedding, *Chaté's Pelargoniums*, &c.

We must now leave the flowers, and go to the vegetable and fruit department. Here a Gold Medal was awarded to M. Louis L'hérault, the well-known Asparagus grower, who showed bunches of enormous size and well made. He had also some very good Strawberries of Dr. Morère, Lucie Flament, a very large variety, but not of a very compact shape. M. Rose Charmeux, the Thomery Vine grower, showed some very good fruit of *Chasselas Doré* (but there was not much of the *doré* about it, owing to the rain), Foster's Seedling, *Grosse Perle*, and *Frankenthal*. M. Chappellier, 268, Avenue Daumesnil, had a good lot of his spiral cordon Pear trees in good condition and covered with fruit. From M. Lapierre came a good number of forced Strawberries in pots. M. Millet had a Gold Medal for some good Strawberries, such as *Marguerite Lebreton*, Dr. Morère, *Quatre saisons*, James, *Princesse Royale*, *Victoria*, *Trollope's*, and some Vines in pots, including *Chasselas* and *Frankenthal*: *Plums Mirabelle* and *Reine Claude*, and *Monro's Cucumbers*. A Gold Medal was also awarded to the Société des Maraichers de la Seine for their well-grown and very marketable vegetables.

Amongst the horticultural implements, E. Dorléans, 37, Rue du Landy, Clichy, showed some well-made mats and wooden shadings, a good lot of iron houses, boilers, seats, &c.

We cannot do better before closing this list than give the name and address of one of the best French manufacturers of hand-glasses (*cloches en verre*), so extensively used in France amongst the market gardeners and others.—Mr. G. Robcis, of 75, Rue du Faubourg St. Antoine, Paris.

The show was lighted every evening from 8 to 11 o'clock by electric light—Jablochkoff's patent.

I regret to say that, though the jury began their labours on the Saturday at about 9 A.M., when we left on the Sunday at half-past 11 A.M. the names of the exhibitors and prize cards were not all put up. The awards were written in a very small hand, and it was most difficult, first to find them, and then to read them. (*From a Correspondent.*)

Reports of Societies.

Royal Horticultural: June 10.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair. But few subjects were brought under the notice of the committee on this occasion; among them were specimens of an *Aecidium* attacking *Lilies* in the garden of Mr. Elwes, which was referred to Mr. Berkeley; × *Gesnera Chelsoni*, a hybrid between *Gesnera macrantha* and *Dolichodeira tubiflora*; and *Choretis glauca*.

Pollinia of Orchis latifolia.—Rev. George Henslow exhibited flowers of *Orchis latifolia* sub sp. *incarnata*, and stated that the pollinia when removed on a pencil-point do not become depressed slowly, as is the case with *O. maculata*, &c., but drop down suddenly, the caudicle being too slender to support the weight of the pollen-mass. The highly elastic caudicle is flattened transversely to the line of falling, and slightly concave just above the viscid disk, which is firmly fixed by the gummy cement with great rapidity.

Change of Sex in Willows.—Rev. G. Henslow showed a series of drawings illustrative of the change of stamens to carpels and of carpels to stamens respectively, such as have been recently figured in these columns.

Ranunculus auricomus, &c.—Rev. George Henslow showed drawings of flowers of this species in which the petals and carpels were more or less staminoïd; also a *Polyanthus* with polypetalous flowers and petaloid stamens and carpels.

Arrest of Growth in the Wing of a Moth.—Mr. Webb showed a moth hatched by him in which ore of the wings remained limp after death, owing to the disunion of the upper and lower surfaces of the wing, and the intervention of a thin layer of fluid which

shifted in position as the wing was moved, producing, in fact, a dropical condition of the wing.

FLORAL COMMITTEE.—Dr. Denny in the chair. It was not to be expected that any great effort would be made to get up a show in the large conservatory during the Ascot week, consequently no one could have been disappointed at the present meeting being only a small one, and confined to the limits of the Council-room. The First-class Certificates awarded on this occasion were voted to Messrs. James Veitch & Sons for *Cattleya MacMorlandi*, a large, distinct-looking flower, with rosy-pink sepals and petals, and a large lip, white at the apex and along the keel, which intersects two large, broad blotches of orange; or *Gloxinia Yakob Khan*, an erect flowering variety, with purplish-lilac throat laced with lilac, and heavily spotted, a very pretty flower; and for *Begonia Mrs. Arthur Potts*, a very dwarf-growing variety of the *B. Davisii* type, with deep crimson flowers. To Mr. B. S. Williams, for *Ochna multiflora* (as a decorative plant), a remarkable plant, described in our report of the Great Summer Show; and for *Imatophyllum concinnum*, a plant in the style of *Clivia nobilis*, with fine orange-scarlet flowers. To Messrs. John Laing & Co., Stanstead, for *Begonia Clovis*, a very fine double flower, orange-scarlet in colour; for *Begonia Marie Bouchet*, also a very fine double crimson-scarlet; and for *Begonia J. H. Laing*, the beautiful single dark scarlet variety that has been already noticed. To Messrs. Osborn & Sons, Fulham, for *Begonia Souvenir de Gand*, a remarkably fine single flower, with petals $1\frac{1}{2}$ inch broad and flowers $3\frac{1}{2}$ inches across as naturally expanded, crimson-scarlet in colour and apparently possessing a neat free habit of growth. To Messrs. J. & J. Hayes, Edmonton, for (decorative) *Pelargonium Nellie Hayes*, blush white, with maroon spots on all the petals, a large trusser and robust free grower; and for (decorative) *Pelargonium Maid of Kent*, white with dark rose-coloured spots on all the petals, a dwarf neat grower in the style of that excellent market variety known as the *Duchess of Edinburgh*, or popularly as "the Duchess." To Messrs. Dicksons & Co., Waterloo Place, Edinburgh, for *Saxifraga Wallacei*, a tufted growing species in the way of *S. Mawana*, but with larger flowers broader in the petal than those of the last-named species. Messrs. James Veitch & Sons also contributed a nice little group of Orchids and other plants, and received the award of a medal. From Chiswick, Mr. Barron brought up a collection of seedling *Aquilegias*, as cut flowers, two or three of which were considered of exceptional merit; a collection consisting of over forty species and varieties of Cape *Pelargoniums*, all interesting to lovers of such plants, and some really valuable for general decorative purposes, amongst the latter being Colonel Clarke's variety of *Unique*, rosy-cerise with dark spots; Countess of *Crimson*, White *Unique*, cucullatum, *Fair Helen*, and *ignescens*; a cut flower of a good white *Bhotan Rhododendron*; a flowering plant of *Saxifraga lantascana*, in the way of *S. pyramidalis*, but dwarf in habit, and a more certain plant to flower—quite a gem; and also a fine display of *Orange blossoms*. Mr. Burnett, The Deepdene, Dorking, showed a flowering plant of the white *Pancratium*-like *Choretis glauca*; and Messrs. Paul & Son, Cheshunt, had cut blooms of the white *Lilac*, *alba grandiflora*, a fine bunch produced by a two-year budded plant 3 feet high. Mr. Turner sent from Slough several specimens of a new show *Pelargonium*, named *Illuminator*, a pure dark scarlet with maroon spots—such a colour as Mr. Foster has been trying for years to get, and only now succeeded. It will be gladly welcomed, on account of its colour, for decorative purposes. Mr. Fisher, The Gardens, Woodlands, Nightingale Lane, Clapham, contributed a specimen of *Saccolabium majus* with three very fine spikes; and a well-flowered specimen of *Dendrobium Falconeri*, for which he was awarded a Cultural Commendation. Messrs. Osborn & Sons also showed cut flowers of several varieties of *Ghent Azaleas*, and numerous hardy plants in pots.

FRUIT COMMITTEE.—H. Webb, Esq., in the chair. The only subjects placed before the committee were some four or five seedling Melons, only one of which was good for anything, and to that, a large netted fruit, like an Egyptian Green-flesh, and named *William Tillery*, a First-class Certificate was awarded. Mr. J. Miller, The Gardens, Clumber, Notts, was the exhibitor.

Bath and West of England Agricultural: *Exeter, June 2.*—*Horticultural Tent.*—Passing over the first moments of relief on exchanging the pitiless rain and the "rougemont" field of the showyard for 40 yards of grass lawn in the horticultural tent, I knew that I stood within the "policies," as Jameson would say, of an artist in floral arrangement. And the master of the feast might well endorse the charter given to the ancient city of *semper fidelis* by Queen Elizabeth, in honour of the gallant response given

by the citizens of Exeter and their neighbours to his bugle-call. Successful as this department was last year, it must be granted that Oxford succumbs to Exeter, and the Worcester of 1880 must look well to her laurels, and gird up her loins forthwith.

It seems that the dwellers in the garden county can stage two or three hundred Orchids with as graceful an ease as they can seat an equally numerous choir to interpret an oratorio of Handel under the sway of Henry Leslie's baton, and it need hardly be noted that the same instincts are again awakened, so intimately connected are the gradations of musical harmonies with the living tones and effects in Nature's rooted gems, be they exotic or home-born.

We will not discuss whether or no the painter is right in saying that no pure white exists in Nature, at all events our artist of to-day may quote as his point of departure something very like it. What of a spotless *Stephanotis*, an *Hydrangea*yclept *Thomas Hogg*, or the quaint and delicate *Orchid*, *Cypripedium niveum*. His goal of colour, perhaps the stem of the *Tree Fern* or *Palm*, or the inner depth of the darkest *Coleus*? Here his work begins. The scarlet *Carnation*, the blue *Lobelia*, the yellow *Allamanda*, must be toned through the *Anthurium*, *Bougainvillea*, and *amaranthine Masdevallia*, and the orange, russet-red, and green of supplementary *Dracenas*, *Crotons*, and *Ferns*; or placed in such legitimate contrast as shall win the educated eye of criticism, notably of those ladies who aspire to deck their fair forms harmoniously. The artist must possess the glance of a field-marshal, the mind of a poet, the sympathy of a harmonist, the decision of a wife! *Quid* colour, as a whole, we wanted more blue, as well to explain its suggested presence in many blossoms, besides the lilac and purple of the *Rhododendron*, as its patent absence from the sky above on that day. Specially noticeable was a masterly crescendo from the entrance of the marquee to the resolution at the final stage, where a mass of Orchids, such as hardly ever have been seen together even in London, may be called the ultimatum handed to the visitors on which Mr. Boscawen staked his campaign. I heard a "pinafore" say "ever" and a far greater authority "never," and he added, "fit for the Veitch Memorial." Overshadowing the group was a giantess *Fern*, backed by *Palms* and a massive *Banana*. For a moment one might have been covered by a vast ægis of *Zulu shields*, riddled and striped by bullet and bayonet. A few dusky faces, with bright eyes gleaming over poised assegais, would have completed the illusion in the tangle of Asiatic and African bush. May its fruit be a happy portent to the flower of our army now among them! Mr. Jackman's varieties of *Clematis* were arranged with Mr. Noble's *Rhododendrons*, on the ground facing the Orchids. Among them were pre-eminent the Countess of *Lovelace*, a double blue-grey; and *William Kennett*, of similar hue, single. Will some kind expert tell me when the latter is likely to make up his mind how many petals he intends to wear in future? I counted six and seven on two blossoms, and on a third very large one, measuring 8 inches across, there were eight petals. If the world goes on at the present rate of diffused information through the Press and other sources, the *Hugh Millers* and *Owens* of some thousands of years hence will not be content with digging up a *Clematis* in our stratum. Their contemporaries will require them to give a name to it; but, perhaps, after all the lives of the great *Pyramid* and the dreams of the societies for the promotion of the lost tribes are right, and it will not signify after 1882.

Mr. H. Cruger Miles, of Penpole, Bristol, took the 1st prize of £10 to 10s., given by the Bath and West of England Society, for the best specimen *Orchid*, with a splendid plant of *Lælia purpurata*, showing at least forty flowers. His collection was throughout very fine, especially a noble example of *Oncidium Marshallii*, and of *Odontoglossum Phalenopsis*, with fifteen blooms. To Mr. W. E. Brymer, of Islington House, Dorchester, was awarded the Society's prize cup of £10 to 10s. for the best collection of Orchids. His forty-six specimens formed by themselves a show, and included many new importations. Specially we may note a plant of *Odontoglossum vexillarium* with twenty blossoms, which took the 2d prize for a single specimen (given by the Mayor of Exeter). His *Odontoglossum Pescatorei*, *Cypripedium caudatum*, *Cattleya Mendelli*, and *Dendrobium thyrsoiflorum*, reflect the highest credit upon their treatment at home under the care of Mr. Powell.

Seeing that there was scarcely a mean plant staged it is not easy to adjudge comparative merit, and I should trespass too much on your space. Mr. J. Lawless, of The Cottage, Exeter, sent *Ferns*, *Ericas*, *Allamandas*, all very good, and the finest possible specimen of *Nephrolepis davallioides*, a good *Adiantum farleyense*, *Erica Lindleyana*, and *Cycas revoluta*.

Mr. H. B. Mildmay, of Flete, Ivybridge, had a fine mixed collection, notably his *Adiantum gracilimum*, a *Musa Cavendishii* in fruit and flower, a *Monstera deliciosa* in fruit, and two *Nepenthes Sedeni*.

A grand *Clerodendron Balfourianum*, with *Oncidium flexuosum* and *Aerides odoratum*, headed a distinguished assortment, representing the stoves of Mr. J. Balteel, of Pamflete, and his *Dracenas* and *Caladiums* were much admired.

Mr. E. Marten, of Nansladron, had an excellent *Dendrobium nobile*, *Dipladenias*, and many other plants deserving high praise. His three *Palms* had the post of honour, so had his *Crotons*.

Mr. Joshua Dixon, of Winslade, sent fourteen well-grown plants. I must not forget three plants of *Cypripedium barbatum* (a good variety) belonging to Sir Thomas Acland. *Masdevallia Lindenii*, *infracta* and *peristeria* were sent by Mr. Walker, of Cleaveland. Lord Morley had some cut outdoor *Camellias*, and Mr. Benjamin Brown's forty *Pelargoniums* were good though small. Some *Pansies*, and the best tuberous *Begonias* I have seen bore the name of Mr. Laing, of Forest Hill. Among the doubles were *Comtesse H. de Chaisnel*, *Dinah Felix*, *Marie Bauchet*; and singles, *J. H. Laing*, *Maud Churchill*, *Viscountess Cranbrook*, *Sir J. Lawrence*.

Had I time I could tell you of the contributions of Lady Hotham, Colonel Coryton, Mrs. Enson, Mr. E. A. Sanders and Mr. Bartlett, as well as of Mr. Boscawen's own plants, many of which came from afar to swell the ranks of excellence.

Now for the only vacuum deserving attention. The heavy *Tree Ferns* did not quite make up for the absence of *Heavittree Roses*, and there was no capital T from Torquay. I dreamed as I journeyed down that I should see *Cloth of Gold* and *Devoniensis* on their own red sandstone, but not a single *Rose* graced the board. However, even *Bakers* and *Curtises* cannot fight against the spring of 1879, and her Majesty shall be courted in her own good time.

With the exception of this minus quantity, the powers of the Bath and West of England Society may be congratulated on an exhaustive and successful display, and Mr. Boscawen on the triumphant issue of his labour of love among the flowers. And when my pen can no longer wag one of Mr. Benjamin Brown's beautiful immortelles of *Stephanotis* and *Rosebuds* would be very grateful to my *Spirit*.

Royal National Tulip Exhibition: June 5.—This exhibition, which took place at the Botanical Gardens, Old Trafford, in connection with the great Whitsun show of the Manchester Botanical and Horticultural Society, proved to be a better show than was hoped for. The fine weather which favoured the Manchester people in the early part of the Whitsun week, added to a much warmer atmosphere, which greatly favoured the growth of plants and the Tulip in particular, had a marked hastening effect on the flowers, and some blooms that were despaired of in the early part of the week became very fair in size by the show day, and finely marked. Messrs. Thomas Haynes, of Derby; William Whittaker, of Salford, and the Rev. F. D. Horner, of Kirkby Malzeard, were in the best form, and staged many flowers that were surprisingly good, the season considered, and the classes were generally filled beyond the expectations of the promoters. It was wonderful to see so many flowers in bloom, but with the exception of the Rev. F. D. Horner, who was the only Northern grower proper, and whose flowers had enjoyed the protection of glass, the other exhibitors were from the Midland districts, and the more southern part of the North.

The premier prize of a cup for the best stand of twelve dissimilar Tulips, two feathered and two flamed in each class, was won by the Rev. F. D. Horner, Kirkby Malzeard, Ripon, whose flowers were generally remarkable for their purity and rich colouring; and consisted of *Madame de St. Arnaud*, Dr. Hardy, Commander, Modesty, Mrs. Cooper, Talisman, *Madame de St. Arnaud*, shown both feathered and flamed; *Demosthenes*, *Duchess of Sutherland*, *Bessie*, *Mabel*, and *Ajax*. Mrs. Cooper, feathered rose; Modesty, feathered rose; Bessie, feathered bybloemen; Commander, heavy feathered bizarre; *Madame de St. Arnaud*, bright flowered rose; Dr. Hardy, a red-flowered bizarre; Talisman, flamed bybloemen; Mabel, feathered rose, were all of fine quality in this stand. 2d, Mr. Thomas Haynes, Derby, with *Aglaia*, Dr. Hardy, Mrs. Lea, George Hayward, Queen of the Universe, *Helena Mary*, *Duchess of Sutherland*, Mrs. Lomax, *Adonis*, Sir J. Paxton, Mrs. Lomax, and Sir J. Paxton. In this stand Sir J. Paxton, flowered bizarre, was very fine; feathered bybloemen *Helena Mary* was also in fine form, Dr. Hardy was in good flamed character, old *Aglaia* very good, *Adonis* cleanly feathered. 3d, Mr. David Barber, Stanton-le-Dale, with *Sovereign*, *Aglaia*, *Martius 101*, *Adonis*, *Masterpiece*, *Queen of England*, *Bessie*, Mrs. Lea, Dr. Hardy, *Nepaulese Ambassador*, Sir Joseph Paxton, and *Charmar*. The leading flowers in this stand were *Martius 101*, feathered bybloemen; *Adonis*, richly flamed; *Queen of England*, a finely flamed rose; and *Nepaulese Ambassador*, flamed bybloemen. 4th, Mr. William Whittaker, Salford, having *Masterpiece*, feathered bizarre, in good form; and Mrs. Lea, feathered rose,

handsomely marked. 5th, Mr. Daniel Woolley, Stockport.

In the class for six Tulips, one feathered and one flamed in each class, the Rev. F. D. Horner was again placed 1st, with Talisman, Mabel, Commander, Sir J. Paxton, Mrs. Cooper, and Bion (Barlow), the latter a very fine feathered dark rose; 2d, Mr. Thomas Haynes, with Sir J. Paxton, Aglaia, Heroine, Bessie, Sulphur, and Violet Aimable, Sulphur being in fine feathered character; 3d, Mr. William Whittaker, with Mrs. Lea, Bessie, Prince of Wales, Adonis, Aglaia, and Masterpiece; 4th, Mr. David Barber, with No. 105, Annie Macgregor, Duchess of Sutherland, No. 105, Aglaia, No. 371; 5th, Mr. William Wardle, Burton-on-Trent; 6th, Mr. Thomas Mellor, Ashton-under-Lyne; 7th, Mr. John Morris, Leigh. The next class, for six Tulips, one feathered and one flamed in each class, was for half-guinea subscribers only: here Mr. Hugh Housley, Stockport, was 1st with Mabel, both feathered and flamed; Violet Aimable, ditto, ditto; Lord Byron and President; 2d, Mr. Richard Yates, Leigh, with Aglaia, Adonis, Sir J. Paxton, Lady Silford, and two unknown; 3d, Mr. John Turner, Stockport, with Ajax, Aglaia, Madame de St. Arnaud, Cock of the Ruck, and two unknown.

The best three feathered Tulips were furnished by the Rev. F. D. Horner, the varieties being Heroine, rose; Mrs. Cooper, byblcemen, and Storer's No. 6, bizarre. 2d, Mr. William Whittaker, with Adonis, byblcemen; Mrs. Lea, rose; and Masterpiece, bizarre. 3d, Mr. David Barber, with George Hayward, bizarre; Exile, byblcemen; Chamer, rose. 4th, Mr. R. Yates; 5th, Mr. Joshua Hague; 6th, Mr. H. Houseley. The best three flamed Tulips also came from the Rev. F. D. Horner, who had Lady Sefton, rose; Adonis, byblcemen; and Orion, bizarre. 2d, Mr. Thomas Haynes, with Aglaia, byblcemen; Sir Joseph Paxton, bizarre; and Bessie, rose. 3d, Mr. W. Wardle, with Sir Joseph Paxton, Adonis, and Aglaia. 4th, Mr. Thos. Mellor; 5th, Mr. D. Barber; 6th, Mr. W. Whittaker.

The class for two Tulips, one feathered and one flamed, of any class, for maiden growers only, brought but one competitor, viz., Mr. James Turner, who was awarded the 1st prize with Abbot's Gem and Aglaia. In the open class for the same, viz., two varieties, one feathered and one flamed, the Rev. F. D. Horner was 1st with Dr. Hardy and Modesty; 2d, Mr. William Whittaker, with Masterpiece and Prince of Wales; 3d, Mr. Daniel Woolley, with Masterpiece and Captain White; 4th, Mr. H. Houseley, with Masterpiece, both feathered and flamed; 5th, Mr. James Turner; 6th, Mr. John Cato.

Class 8 was for the best single blooms in each of the six classes, viz., feathered bizarres, roses and byblcemen; flamed bizarres, roses and byblcemen. Ten prizes were awarded in each class, and it is always made a condition that the variety winning the 1st prize, may win once again, with this exception, all winning flowers must be dissimilar. The best feathered bizarre was Masterpiece, from Mr. Thomas Haynes. Then followed in the order of merit Duke of Devonshire, from the Rev. F. D. Horner; Masterpiece, from Mr. H. Houseley; Tiny Tim, from Rev. F. D. Horner; Masterpiece, from Mr. R. Yates; Geo. Hayward, from T. Haynes; Sir J. Paxton, from Mr. Haynes; Model of Perfection, from Mr. D. Barber; Abbott's Gem, from Mr. John Turner; and Sulphur, from Mr. T. Haynes. In the class for feathered roses, the Rev. F. D. Horner was 1st with Modesty, 2d with the same, 3d with Heroine, 4th with Mrs. Lomax, and 5th with Sarah Headly; 6th, Rachel, and 7th, Catherine, from Mr. T. Whittaker; 8th, Aglaia, from the Rev. F. D. Horner; 9th, Lady Lilford, from Mr. R. Yates; 10th, Mabel, from Mr. Whittaker. With feathered byblcemen the Rev. F. D. Horner was 1st with Bessie; 2d with the same, 3d with David Jackson, and 5th with Friar Tuck; 4th, Mr. T. Haynes, with Mrs. Pickerell; 6th, Mr. Whittaker, with Violet Aimable; 9th, with William Bentley; and 10th, with Gavazzi; 7th and 8th, Mr. D. Barber, with Clara and Exile. The best flamed bizarre was Masterpiece, from the Rev. F. D. Horner; then came Sir J. Paxton, from Mr. Haynes; Lord Sydney, from Rev. F. D. Horner; Masterpiece, from Mr. R. Yates; William Lea, from Mr. T. Haynes; Lord Delamere, from Mr. W. Whittaker; Dr. Hardy, from the Rev. F. D. Horner; San Jo, from Mr. T. Haynes; Prince of Wales, from Mr. Joshua Hague; and Merit, from Mr. D. Barber. Aglaia was the best flamed rose, from the Rev. F. D. Horner; 2d and 3d, Mr. Thomas Haynes, with Aglaia and Mrs. Lomax; 4th, Mr. H. Houseley, with Rose Celestial; 5th, Mrs. Lea, from Mr. W. Whittaker; 6th, Sarah Headly, from Mr. T. Haynes; 7th, Lady Catherine Gordon, from Mr. W. Wardle; 8th, unknown, from Mr. D. Woolley; 9th, Lady Lilford, from Mr. R. Yates; 10th, Mabel, from Mr. S. Barlow. The Rev. F. D. Horner was again to the fore with the best flamed byblcemen, in Aglaia; 2d, Mr. Thos. Haynes, with Talisman; 3d, the Rev. F. D. Horner, with Duchess of Sutherland; 4th, Mr. R. Yates, with Adonis; 5th, Mr. T. Haynes, with

Britannia; 6th, Mr. W. Whittaker, with Lord Denman; 7th, Rev. F. D. Horner, with David Jackson; 8th, Mr. Thos. Haynes, with Bessie; 9th, Mr. Joshua Hague, with Trip to Stockport; 10th, Mr. David Barber, with Nepaulese Prince.

The best stand of six breeder Tulips came from Mr. Thomas Haynes, Derby. The flowers were Dr. Hardy, Talisman, Mabel, Adonis, Madame St. Arnaud, and Mrs. Lea. 2d, the Rev. F. D. Horner, with Alice Grey, Music, Annie McGregor, Dr. Dalton, Lady Grosvenor, and William Lea; 3d, Mr. David Barlow, with Mabel, Industry, Talisman, and three seedlings. The best three breeders also came from Mr. Thomas Haynes, and consisted of Madame St. Arnaud, William Lea, and Alice Grey; 2d, the Rev. F. D. Horner, with Storer's No. 4, Talisman, and Annie McGregor; 3d, Mr. D. Woolley, with Mabel, Sancta Sophia, and Sir J. Paxton.

The best bizarre breeder was William Lea, from Mr. David Barber; Mr. W. Whittaker coming in 2d, with Richard Yates; and Mr. Thomas Haynes, 3d, with Lea's No. 2. Then followed in the order of merit, Sir J. Paxton, Dr. Dalton, Mrs. Harwood, and Dr. Hardy. The best rose breeder was Industry, from Mr. Hugh Houseley; Lady Grosvenor, from the Rev. F. D. Horner, coming 2d; Mabel, from the same grower, being 3d; following these were Modesty, Oliver, and seedlings. Mr. Thos. Haynes had the best byblcemen breeder in Adonis, Mr. T. Mellor coming 2d with Leeche's Alice; then followed Miss Hardy, Talisman, Earl of Warwick, and Alice Gray.

The premier feathered Tulip was Mrs. Cooper, byblcemen, from the Rev. F. D. Horner; and the premier flamed Tulip, Sir Joseph Paxton, bizarre, from Mr. Thomas Haynes. The premier breeder Tulip was William Lea, from Mr. David Barber.

Although this was the sixth day of the Great Manchester Show, things were wonderfully fresh and beautiful to the eye. A seven days' show, with proper precautions, does no harm to specimen plants, as far as the Manchester experience goes.

Scottish Horticultural Association.—The ordinary monthly meeting of this Association was held in 5, St. Andrew Square, Edinburgh, on Tuesday, the 3d inst., the Vice-President, Mr. Hugh Fraser, in the chair. Mr. W. Sutherland, Craigleith Nursery, read a paper on "Alpine Plants." He began by stating that the term alpine plants was a very comprehensive one, and proceeded to treat them under the following heads, viz., their practical cultivation, their uses in gardening, and the sentiment contained in them. It could not be said that these divisions of the subject would exhaust their merits, but would only give an idea of the general principles of their cultivation, and would also show some of the points that commended them to the lover of flowers, and which he thought should ensure for them a more extended cultivation. There are some that could be considered nothing more than mere weeds which should be let alone. Some of the better kinds were difficult to manage; but after learning their adaptabilities it was wonderful how easy their culture became. He said there was a tendency now in favour of hardy plants for spring bedding, and also for late flowering. Managed in this way they were a source of much pleasure, besides giving an infinite variety of colour. By means of careful observation and by keen scrutiny an exact knowledge of their capabilities was to be obtained. Some kinds could only be grown on high hills; hence the difficulty of growing them in gardens, where they are subject to as many variations of climate in a single day as they would be in a year on the top of a hill. To imitate these conditions was simply impossible. An important point in their successful cultivation was to prolong the rest period as much as possible, as most of them were natives of upland pastures. Excessive radiation and evaporation were to be guarded against to an extent for which a remedy was to be found in a depressed form of rockwork. The soil best adapted for most kinds was a good sound loam, a little peat was needed for some kinds, while a chalky soil was best for some others.

The new Flower Committee awarded a certificate to a double Cineraria named Mrs. Joseph Grimond, belonging to Joseph Grimond, Esq., Corbet Castle. Mr. G. L. Brown, Milburn Cottage, exhibited a collection of seedling Primroses and Polyanthus; one of the latter, a dark crimson flower, received a commendation. Messrs. Dicksons & Co. exhibited a variety of spring flowering plants and shrubs, among which were Saxifraga Wallacei, Iris pumila, Sedum canadense, Pyrus Malus floribunda, &c., also a stand of Violas: a very effective flower in the collection, which was named Holyrood, being of a deep indigo-blue colour. Messrs. Downie & Laird exhibited a stand of Viola blooms, one of which was named Mrs. F. Mackenzie, a fine large white flower; Messrs. Thomas Methven & Sons exhibited a seedling Rhododendron, named Hugh Fraser, a catawbiense hybrid, with brilliant rosy-crimson flowers; Mr. Wm. Young, Broughton, exhibited a seedling Auricula, named Wm. Sang, of a velvety brown colour, with yellow

eye. New hybrids were shown of alpine Phloxes, the result of crosses between Phlox frondosa and P. Nelsoni; also between P. setacea and P. verna; also one raised by the Rev. Mr. Nelson (son of the raiser of Phlox Nelsoni), named P. albonensis. Mr. Angus M'Leod, Powburn, exhibited trusses of Pelargoniums and blooms of Petunias; Mr. L. Dow exhibited Ribes aurea; Mr. Hugh Mackenzie, Blackford Road, exhibited Spergula prolifera; and Mr. John Dick, Oveln, Polyanthus flowers.

West of England Pansy: June 5 and 6.—The first exhibition of the West of England Pansy Society was held at Exeter on the 5th and 6th inst. The objects of the Society are to encourage the growth of Pansies in that part of England, and it has abundantly proved that they can be cultivated just as effectively there as in Scotland. Some of the blooms staged were magnificent, especially the Fancy Pansies, and they were very much admired by all who saw them. The season in Scotland has been so backward that the Scotch growers were not really in a condition to compete, but both Messrs. Downie & Laird, and Mr. Wm. Paul were kind enough to send down blooms to fill up the show. The exhibition was held this year in conjunction with the Devon and Exeter Horticultural Society, but the Pansy Society hope next year to be able to hold an exhibition of their own. C. Halford Thompson.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JUNE 11, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | HYGROMETRICAL DEDUCTIONS from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|-------------------------------------|--|----------------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 10 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure from Average of 66 years. | Dew Point. | | |
| June 5 | In. 29.63 | -0.17 | 71.3 | 42.1 | 29.2 | 54.7 | -2.6 | 46.5 | 73 { E.S.E. S.E. } | In. 0.02 |
| 6 | 29.55 | -0.25 | 70.7 | 49.9 | 20.8 | 56.9 | -0.7 | 54.2 | 91 W.N.W. | 0.15 |
| 7 | 29.49 | -0.31 | 63.2 | 52.5 | 10.7 | 57.2 | -0.4 | 53.8 | 88 S. S.W. | 0.55 |
| 8 | 29.46 | -0.34 | 73.5 | 51.8 | 21.7 | 55.7 | +0.1 | 52.2 | 82 S.S.W. | 0.08 |
| 9 | 29.70 | -0.10 | 63.6 | 51.2 | 12.4 | 55.6 | -2.3 | 50.6 | 84 { S.S.W. S.S.W. } | 0.03 |
| 10 | 29.87 | +0.08 | 73.0 | 48.2 | 24.8 | 57.6 | -0.5 | 46.0 | 65 W.N.W. | 0.00 |
| 11 | 29.81 | +0.02 | 62.2 | 47.0 | 15.2 | 54.5 | -3.8 | 51.5 | 89 S.E. | 0.21 |
| Mean | 29.64 | -0.20 | 67.3 | 47.0 | 18.3 | 56.3 | -1.5 | 50.7 | 82 variable | sum 1.04 |

June 5.—A fine day, partially cloudy. A little rain at night.
6.—Overcast till 11 A.M.; fine, but cloudy after. Rain fell in early morning.
7.—A dull day. Frequent showers till afternoon; heavy rain from 5 to 9 P.M.
8.—A fine day, but frequently cloudy and showery. Warmer.
9.—Dull, with occasional showers till evening; then cloudless. Cool breeze.
10.—A brilliantly fine day. Clear and warm. Cloudless at night.
11.—Overcast and dull, with frequent rain till 6 P.M.; fine and bright after. Cloudless at night.

Note.—The mean of the daily departures below the daily averages of mean temperature for the sixty-three days ending June 11, or from April 10, is $5\frac{1}{2}^{\circ}$, and, what is more remarkable, the mean for the 227 days, ending June 11, or from October 27, 1878, is 4° nearly.

LONDON: Barometer.—During the week ending Saturday, June 7, in the vicinity of London the reading of the barometer at the level of the sea decreased from 29.67 inches at the beginning of the week to 29.60 inches by mid-day on June 1, increased to 29.71 inches by noon on the 2d, decreased to 29.47 inches by the morning of the 3d, increased to 29.94 inches by the evening of the 4th, decreased to 29.71 inches by the morning of the 6th, increased to 29.78 inches by the evening of the same day, and decreased to 29.60 inches by the end of the week. The mean reading for the week at sea level was 29.72 inches, being the same as that of the preceding week, and 0.27 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from $71\frac{1}{2}^{\circ}$ on the 5th, and $70\frac{3}{4}^{\circ}$ on the 6th, to 55° on the 2d; the mean value for the week was $63\frac{1}{2}^{\circ}$. The lowest temperatures of the air observed by night varied from $39\frac{1}{2}^{\circ}$ on the 4th to $52\frac{1}{2}^{\circ}$ on the 7th; the mean for the week was $46\frac{1}{2}^{\circ}$. The mean daily range of temperature in the week was 17° , the greatest range in the day being $29\frac{1}{4}^{\circ}$, on the 5th, and the least 9° , on the 2d.

The mean daily temperatures of the air and the departures from their respective averages were as

follows:—June 1, 52°.6, — 3°.9; 2d, 48°.9, — 7°.8; 3d, 50°.4, — 6°.5; 4th, 50°, — 7°.1; 5th, 54°.7, — 2°.6; 6th, 56°.9, — 0°.7; 7th, 57°.2, — 0°.4. The mean temperature of the air for the week was 53°, being 4°.1 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 147° on the 5th, 142½° on the 4th, 135½° on the 1st, and 131° on the 3d; on the 7th the reading did not rise above 77°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 35½° on the 5th, and 36° on the 4th; the mean of the seven lowest readings was 42½°.

Wind.—The direction of the wind was S.W., and its strength moderately strong. The weather during the week was dull, cold, and wet.

Rain fell on every day in the week, and the amount measured was 1.62 inch.

ENGLAND: Temperature.—During the week ending Saturday, June 7, the highest temperatures of the air observed by day were 71½° at both Leicester and Nottingham, 71¼° at London, and 70° at Cambridge; the highest temperature of the air at Sunderland was 61°, and at Plymouth was 62½°, the mean value from all places was 66½°. The lowest temperatures of the air observed by night were 36¼° at Nottingham, 36¼° at Sheffield, 38° at Cambridge, and 39° at Wolverhampton, the lowest temperature of the air at Bristol and Liverpool was 43½°, and at Norwich was 43°; the mean from all stations was 40½°. The extreme range of temperature in the week was the greatest at Nottingham, 35¼°, and the least at Sunderland, 19°; the mean range from all places was 26½°.

The mean of the seven high day temperatures was the highest at Brighton, 65¼°, Cambridge, 64¾°, and London and Leicester, both 63½°; and the lowest at Hull, 57°, and Sunderland, 57¼°; the general mean from all places was 60½°. The mean of the seven low night temperatures was the lowest at Nottingham and Hull, both 43½°, Sheffield, 44°, and Bradford and Leeds, both 44¼°; and the highest at Plymouth, 49°, and Truro, 48½°; the mean value from all stations was 46°. The mean daily range of temperature in the week was the least at Plymouth and Liverpool, both 9½°, and the greatest at Nottingham, 19¼°; the mean daily range of temperature from all places was 14½°.

The mean temperature of the air for the week from all stations was 51¼°, being 3¼° lower than the value for the corresponding week in 1878. The mean temperature for the week was the highest at Brighton, 55°, Bristol and Cambridge, both 53½°, and London 53°; and the lowest at Hull, 48½°, and Bradford 49°.

Rain.—Rain fell on every day in the week at Blackheath and Nottingham, and on five or six days at other places. The falls varied in amount from 2.38 inches at Cambridge, 2.20 inches at Brighton, and 1.62 inch at Plymouth and London, to 0.44 inch at Sunderland and 0.46 inch at Leeds; the average fall over the country was 1.19 inch.

The weather during the week was generally dull, cool, and wet.

Slight thunderstorms occurred at places.

SCOTLAND: Temperature.—During the week ending Saturday, June 7, the highest temperatures of the air observed by day varied from 62½° at Glasgow, and 62° at Dundee, Paisley, and Perth, to 53½° at Aberdeen; the mean value from all places was 60¼°. The lowest temperatures of the air observed by night varied from 37° at Edinburgh, and 38° at both Dundee and Perth, to 40° at Aberdeen; the mean from all stations was 38½°. The mean range of temperature in the week from all places was 21¾°.

The mean temperature of the air for the week from all stations was 49¼°, being 2¼° lower than the value for the corresponding week in 1878. The highest were 50¾°, at Glasgow, and 49¾° at Greenock and Paisley, and the lowest were 47½°, at Aberdeen, and 48½°, at Edinburgh.

Rain.—The heaviest falls of rain were 1.85 inch at Dundee, and 1.72 inch at Perth, and the least falls were 0.27 inch at Paisley, and 0.32 inch at Glasgow; the average fall over the country was 1.01 inch.

DUBLIN: The highest temperature of the air was 65°, the lowest was 37°, the range was 28°, the mean 52½°; and the fall of rain 0.79 inch.

JAMES GLAISHER, F.R.S.

Law Notes.

A CAUTION TO MARKET GARDENERS.—At the Westminster County Court on Wednesday last the Vestry of the Parish of St. George's sued James Bagley, a market gardener, of Ealing, to recover the sum of £4 3s. 6d. for damage done to a lamp-post by the defendant's waggon, loaded with vegetables, being driven against it.

Police constable 281 C said on February 7 last he

was on duty in Piccadilly early in the morning, and noticing the defendant's waggon too near the kerb, warned him of it. He, however, continued his course, and in consequence the waggon came in contact with the lamp-post, and entirely broke it.

Robert Gillespie, the gas inspector for the Vestry, being called, proved the reasonableness of the charges, and said that these occurrences were numerous from heavily laden waggons of the market gardeners coming to London.

The Solicitor for the Vestry said that these accidents were very numerous, and although the amount at issue was very small indeed, still the Vestry felt it incumbent upon them to raise the present action on principle, in order to render the drivers in care of waggons more careful, and pressed the Court for a judgment in favour of the Vestry.

The learned Judge at once ruled in favour of the Vestry for the full amount claimed, together with the costs of solicitor and two witnesses.

Obituary.

WE have to announce the death of the Rev. Canon BEADON, of North Stoneham Rectory, near Southampton. No name in connection with horticulture was more familiar in the South of England than that of the venerable and greatly respected gentleman who died on the evening of June 10, having reached the hundred and first anniversary of his birthday on New Year's Day last. Those who had the happy privilege of enjoying his friendship know how much kindness and gentleness he felt for all with whom he was associated. He was in every sense a thorough English gentleman, and won the regard of all. In the earlier days of horticultural exhibitions he was a principal supporter both of those at Southampton and Winchester, and had a thorough love for horticultural pursuits. Even as late as the autumn of last year the writer of this imperfect tribute to the memory of a truly ardent horticulturist enjoyed a conversation with him about his plants and rare trees and shrubs, of which he possessed a good collection, and in which he took so much delight; and though past his hundredth year he briskly turned to his botanical library and referred to one of the books, of which he had a rare collection, to clear up a disputed point with regard to a plant which formed the subject of conversation. North Stoneham Rectory has been one of our landmarks of gardening for a long time in the South, and the name of Canon Beadon will be long remembered in connection with it.

— We have also to announce the somewhat sudden death, on Monday night, at the age of seventy-one, of Mr. HENRY NOEL HUMPHREYS, an artist of no mean fame, a naturalist of no uncertain repute, an antiquary who did good work. He was born in Birmingham, and educated at King Edward's School in that town. Ever active and industrious, he is best known to naturalists by his works on *British Butterflies* and *British Moths*, undertaken in association with Professor Westwood. A friend of Loudon's, he gave his aid to some of the publications of that voluminous and indefatigable author, and to those of Mrs. Loudon. Natural history, as we have indicated, was by no means the only department in which his elegant pencil was employed—illuminated missals, engravings, coins, all furnished subjects for his pencil or his pen, and, as we learn from *Men of the Time*, novel-writing was among his many accomplishments. Of late years Noel Humphreys was little before the public—unless, indeed, under the cloak of a pseudonym—till quite recently he contributed some characteristic drawings to the pages of our contemporary the *Garden*.

Answers to Correspondents.

ALPINES: K. J. The plants mentioned are such as are not usually understood as being alpine, and we should not show them as such.

BIRD SCAKER: J. H. Messrs. Hill & Sons, 4, Haymarket, W.

BOOKS: W. H. D. Bentham's *Handbook of the British Flora*, published by Lovell Reeve & Co., 5, Henrietta Street, Covent Garden, W.C.—J. H. Warner. Mr. Knight's *Physiological Papers* is not now to be obtained, except perhaps by chance at an old book stall.—B. H. We know of nothing better in its way than Paxton's *Botanical Dictionary*. Probably Mr. J. G. Baker's little book on the *Geographical Distribution of Plants* will give you the information you require.

BORONIA AND AOTUS: Mrs. Hall. Propagated by

cuttings, the same as Heaths and other hard-wooded plants—this is in sand, under bell-glasses.

BOTANICAL SPECIMENS: D. Press them closely between sheets of Newman's drying paper (stout blotting paper will do), and if you have any bulk under pressure use lattice frames at intervals, to allow the moisture to pass off, and prevent heating.

CRASSULA AND POPULUS: Camjee. We could make nothing of the insects on the *Crassula* leaves. Your other question was published in our last, p. 735, col. 8, and an answer appears below.

MARECHAL NIEL ROSE: *Inquirer*. If the ground is in good condition, and well drained, it would do best planted outside.

MUSK ROSE: Mrs. Hall. The Musk Rose is *Rosa moschata*, a semi-climbing plant with single white, musk-scented flowers. You should be able to obtain it from any of the principal Rose nurseries.

NAMES OF PLANTS: Alpha. 1, a moss—a species of *Hypnum*, which we cannot name; 2, *Lychnis diurna*; 3, *Carmine pratensis*; 4, *Cochlearia officinalis*; 5, *Saxifraga granulata*; 6, *Mertensia sibirica*.—J. P. S. S. *Bryophyllum calycinum*—a native of Mauritius.—G. W. M. 1, *Lonicera alpigena*; 2, a *Spiraea*, not in flower; 3, *Prunus Padus*; 4, *Ribes* sp.; 5, *Lonicera Caprifolium*; 6, *Veratrum album*; 7, we do not recognise, send when in flower; 8, *Amelanchier botryapium*.—W. W. A. 1, 2, 4, *Asplenium Adiantum-nigrum*; 2 and 4 may be varieties, but they are not yet fully developed; 3, *Cystopteris fragilis*, and possibly the angustata form, but this is not fully grown; 5, *Adiantum*, not satisfactorily determinable, but apparently a stunted frond of *A. concinnum latum*. It has not the fructification of *A. Ghiesbreghtii*, which is the usual seedling form of farleyense.—A. C. *Leucostegia immersa*.—W. H. 1, 2, and 3, are all *Cupressus Lawsoniana*, but do not exactly correspond with any of the specially named garden varieties; 4, *Cedrus Libani*.—J. A. P. *Fritillaria tenella*.—J. P. K. *Cœlogyne speciosa*.—J. Stewart & Sons. The small-flowered plant is *Dicentra formosa*, and the other one a double *Ranunculus asiaticus*.—T. Cripps & Son. *Rhododendron triflorum*.—C. F. 1, *Senecio vernalis*; 2, *Kalmia angustifolia*; 3, *Cerastium ovatum*; 4, *Claytonia alsinoides*; 5, *Erodium hymenoides*.—C. H. D. 1, *Caragana arborecens*; 2, not determinable from the specimen sent; 3, *Cercis siliquastrum*; 4, *Calycanthus floridus*.—J. W. A. 1, *Diaplas glutinosus*; 2, *Crucianella stylosa*; 3, *Iris germanica*; 4, *Aquilegia formosa*.—J. H. Amos, Bromley. *Smilacina bifolia*.—A. Lover of Wild Flowers. The small-flowered plant is *Chelidonium majus*, and the large-flowered one *Meconopsis cambrica*.—J. M. *Gladiolus tristis*.—W. J. T. The small flower is *Dendrobium chrysanthum*, and the large one *D. Dalhousianum*.—T. W. C. Richardson. Appears to be *Halesia tetrapetala*.—W. P. & Sons. 1, *Papaver nudicaule*; 2, *Trollius europæus*. The shrubs next week.—G. S. *Astrantia major*.

POPULAR: *Subscriber*. Plant the new Poplar, known in the nurseries as *Populus canadensis nova*.

RHODODENDRON: W. W. H. It depends upon what the *Rhododendron* is. If a greenhouse species it would be quite right to show it; but if a hardy kind it would not be eligible.

VINES: K. The Grapes are affected with rust, which has no doubt been caused by rough handling while thinning.

POPULUS ALBA BOLLEANA.—If Camjee will remind me in September next, I will send him a plant or cuttings of *Populus alba Bolleana*, which I introduced four years ago, and which is here already well characterised, being 15 feet in height. Max Leichlin, Baden-Baden.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

COMMUNICATIONS RECEIVED:—W. P., Largo.—J. H. E.—E. W. & Sons.—J. J., Brooklands.—W. D. (thanks).—A. L.—W. H.—W. B.—T. Reid.—Observer.—J. C. M.—O. T.—J. R.—B. C. A. (*Polyanthus* of no commercial value).

Markets.

COVENT GARDEN, June 12.

All best classes of goods are in demand, the supply being short, owing to the backward season. Business generally indifferent. James Wetber, Wholesale Apple Market.

PLANTS IN POTS.

| s. d. s. d. | | s. d. s. d. | |
|-------------------------|-----------|----------------------------|-----------|
| Arum Lily, or Rich- | | Foliage Plants, vari- | |
| ardia aethiop., doz. | 6 0-12 0 | ous, each .. | 2 0-10 6 |
| Azaleas, per dozen .. | 18 0-60 0 | Fuchsias, per dozen | 6 0-18 0 |
| Begonias, per doz. .. | 6 0-18 0 | Genistas, per dozen .. | 6 0-24 0 |
| Bouvardias, per doz. | 12 0-24 0 | Hydrangeas .. | 12 0-24 0 |
| Calceolarias, per | | Lilium eximium, doz. | 30 0-60 0 |
| dozen .. | 6 0-18 0 | Lobelias, per dozen .. | 6 0-9 0 |
| Cinerarias, per doz. | 6 0-18 0 | Mignonette, per doz. | 6 0-9 0 |
| Coleus, per dozen .. | 4 0-12 0 | Musk, per dozen .. | 4 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. .. | 6 0-12 0 |
| Dracæna terminalis | 30 0-60 0 | Palms in variety, | |
| — viridis, per doz. .. | 18 0-24 0 | each .. | 2 6-21 0 |
| Erica, per dozen .. | 9 0-30 0 | Pelargoniums, doz. | 12 0-24 0 |
| — verticillata, doz. | 24 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen .. | 4 0-12 0 |
| per dozen .. | 24 0-42 0 | Rhodanthes, per doz. | 6 0-12 0 |
| — Willmoreana, per | | Roses, per dozen .. | 12 0-42 0 |
| dozen .. | 9 0-24 0 | Saxifraga pyramid- | |
| Euonymus, var., doz. | 6 0-18 0 | alis, per dozen .. | 18 0-30 0 |
| Ferns, in variety, per | | Spiræa, per dozen .. | 6 0-24 0 |
| dozen .. | 4 0-18 0 | — palmata, per doz. | 18 0-48 0 |
| Ficus elastica, each | 2 6-15 0 | Stocks, per dozen .. | 4 0-9 0 |
| Bedding-out Plants, per | | dozen, from 1s. 6d. to 3s. | |

Bedding-out Plants, per dozen, from 1s. 6d. to 3s.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|-----------------------|-------------|-----------------------|-------------|
| Abutilon, 12 blooms | 0 4-10 | Mignonette, 12 bun. | 6 0-12 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Narcissus, 12 bunch. | 4 0-12 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Paeony, 12 bunches. | 6 0-24 0 |
| Azaleas, 12 sprays | 0 4-10 | Pansy, 12 bunches. | 2 0-6 0 |
| Bouvardias, per bun. | 1 0-4 0 | Pelargoniums, 12 spr. | 0 9-1 6 |
| Carnations, per dozen | 1 0-3 0 | — zonal, 12 sprays | 0 4-10 |
| Cineraria, 12 bunches | 6 0-12 0 | Pinks, 12 bunches | 6 0-12 0 |
| Deutzia, 12 bunches | 4 0-12 0 | Polyanthus, 12 bunch. | 3 0-9 0 |
| Eucharis, per doz. | 4 0-12 0 | Primula, double, per | |
| Euphorbia, 12 sprays | 0 6-1 0 | bunch | 0 9-1 6 |
| Forget-me-not, 12 bs. | 3 0-9 0 | Ranunculus, 12 bun. | 3 0-9 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Roses (indoor), doz. | 1 0-9 0 |
| Guelder Roses, 12 | | Stephanotis, 12 sprs. | 2 6-9 0 |
| bunches | 3 0-9 0 | Tropaeolum, 12 bun. | 1 0-3 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberose, per dozen | 1 6-6 0 |
| Iris, 12 bunches | 6 0-12 0 | Tulips, 12 blooms | 0 6-1 0 |
| Isia, 12 bunches | 6 0-18 0 | Wallflowers, 12 bun. | 4 0-6 0 |
| Lily of Val., 12 bun. | 6 0-24 0 | | |

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, 1/2-basket | 1 6-5 0 | Melons, each | 3 0-6 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Oranges, per 100 | 6 0-12 0 |
| Figs, per dozen | 10 0-15 0 | Peaches, per dozen | 12 0-30 0 |
| Grapes, per lb. | 3 0-6 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per lb. | 2 0-10 0 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|------------------------|-------------|
| Artichokes, English | | Horse Radish, p. bun. | 4 0-.. |
| Globe, doz. | 2 0-4 0 | Lettuces, Cabbage, | |
| Asparagus, sprue, | | per doz. | 1 6-.. |
| — Eng., per bundle | 2 6-.. | Mint, green, bunch. | 0 4-.. |
| — Fr. giant, p. bun. | 8 0-15 0 | Onions, per bushel. | 12 0-14 0 |
| Beans, French, p. 100 | 2 0-.. | — young, per bun. | 0 4-6 0 |
| — broad, per lb. | 1 0-.. | Parsley, per lb. | 1 0-2 0 |
| Beet, per doz. | 1 0-2 0 | Peas, per quart | 3 6-.. |
| Cabbages, per doz. | 1 0-2 0 | Potatoes, new, per lb. | 0 6-9 0 |
| Carrots, per bunch | 0 6-9 0 | Radishes, English | |
| — New Fr., p. bun. | 1 6-.. | long, per 12 bun. | 0 9-.. |
| Cauliflowers, per doz. | 2 0-5 0 | — English Turnip, | |
| Celery, per bundle | 1 6-2 0 | per 12 bunches | 1 6-.. |
| Chilis, per dozen | 1 0-.. | Rhubarb, doz. | 6 0-8 0 |
| Cucumbers, each | 0 9-1 6 | Shallots, per lb. | 0 6-.. |
| Endive, per dozen | 2 6-.. | Spinach, per bushel | 2 6-.. |
| Garlic, per lb. | 0 6-.. | Tomatos, per dozen | 2 6-3 0 |
| Herbs, per bunch | 0 2-4 0 | Turnips, new, bunch. | 1 0-1 6 |

POTATOES:—Old Potatoes getting scarce, and best samples advanced in price. Best, 160s. to 180s.; Champions, 100s. to 110s.; Rocks, 90s. to 100s. New stuff from Malta, 12s. to 14s.; Lisbons, 10s. to 12s.; Jersey Kidneys, 4d. to 5d. per lb.

SEEDS.

LONDON: June 11.—The market continues to be very scantily attended, and the amount of business doing is proportionately small. In spite, however, of the lack of business values continue firm, a fact which is probably attributable to the low level at which prices now stand, combined with the prolonged unfavourable weather which has lately been experienced. Red Clover is still quiet, white and Alsike are in better demand, but Trefoil is rather slower of sale, with the exception of really choice samples, which command full rates. Rape seed is in improved demand, and fine qualities now command considerably improved prices—in fact the tendency of all qualities is decidedly upwards. Mustard meets with a brisk sale at full rates. Hemp and Canary seeds continue in fair request at last Monday's prices. Blue Peas still meet with a ready sale, the enquiry for fine large Imperials being very active. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Trade at Mark Lane on Monday though quiet was steady. The supply of English Wheat was short, and the better qualities moved off slowly on former terms. Foreign was in moderate request, and quotations were firm. The rates for Barley were without change; malt was steady, but very quiet. Oats were in fair demand, and sound corn was held for the full rates of last week. Maize was rather dull; Beans were firm, with an improving tendency; Peas were inactive, and no change was reported in flour.—On Wednesday Wheat was firm, but there was not much doing. Barley was slow of sale, and prices were unaltered. Oats were dull, and inferior corn remained rather flat. Maize and Peas were the same as previously reported. Beans were firm, and prices were well supported for flour.—Average prices of corn for the week ending June 7:—Wheat, 41s. 7d.; Barley, 26s. 6d.; Oats, 21s. 8d. For the corresponding period last year:—Wheat, 49s.; Barley, 39s. 10d.; Oats, 24s. 9d.

POTATOS.

The Borough and Spitalfields markets reports state that there were moderate supplies to hand, and with a fair demand prices were pretty well supported. Regents, 100s. to 120s.; rocks, 90s. to 105s.; flukes and Victorias, 120s. to 140s.; German reds, 95s. to 120s. per ton. Jerseys, 17s. to 21s.; Malts, 11s. to 12s. per cwt.—The importation into London continues upon a moderate scale. During last week 13,730 barrels were received from Hamburg, 5485 Colberg, 5802 bags 117 tons Stettin, 453 boxes 3652 packages Lisbon, 425 bags Ghent, 219 Antwerp, 120 sacks Boulogne, and 65 barrels Gibraltar.

Government Stock.—The closing prices for Consols on Monday were—for delivery, 97½ to 97½; and 97½ to 97½ for the account (both ex dividend). Tuesday's closing quotations (ex dividend) were—for delivery, 97½ to 97½; and for the account, 97½ to 97½. On Wednesday prices were—for delivery (ex dividend), 97 to 97½; and for the account, 97½ to 97½; and Thursday's closing prices were 97 to 97½ for delivery, and 97½ to 97½ for the account—both ex dividend.



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Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

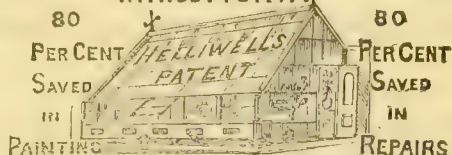
UNSOLICITED TESTIMONIAL.

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CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that it can ONLY be obtained DIRECT FROM THEM, and that every cask is legibly marked with their name and address, without which none is genuine.

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7, Mark Lane, London, Nov. 14, 1878.

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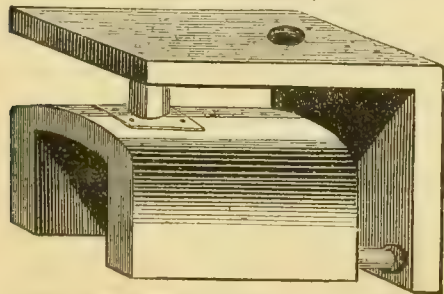
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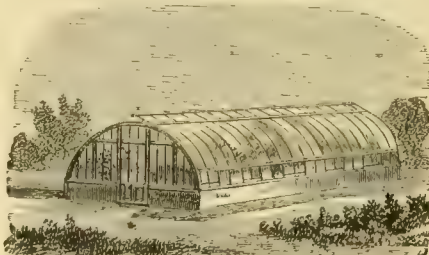
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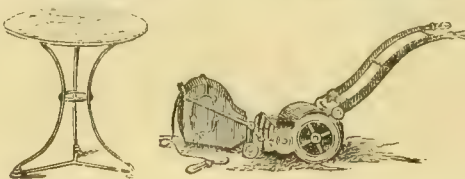


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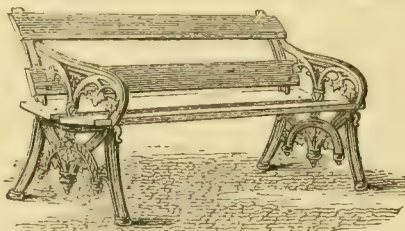
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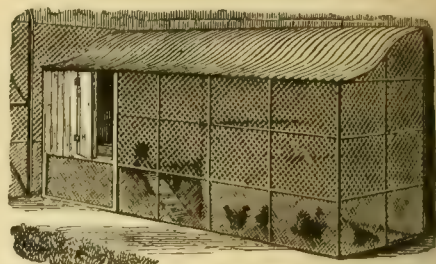
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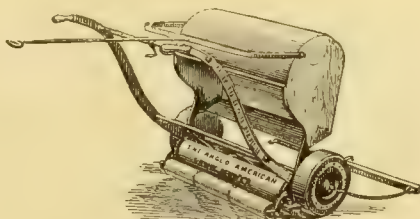
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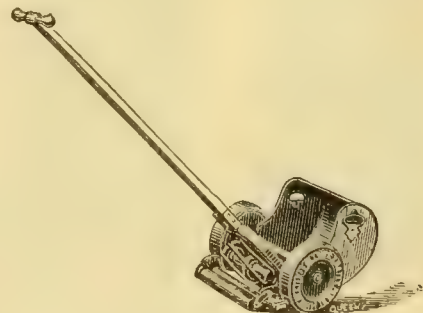
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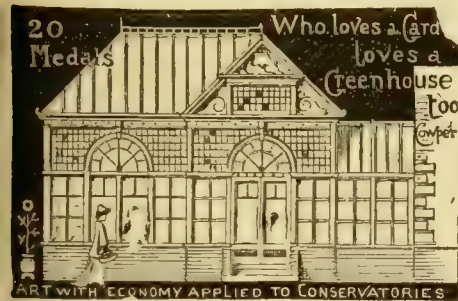
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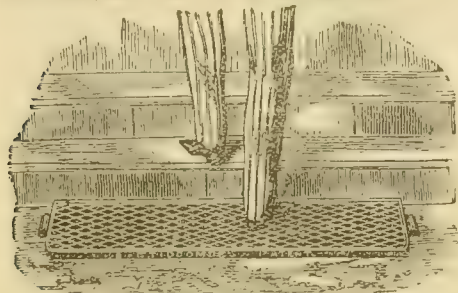
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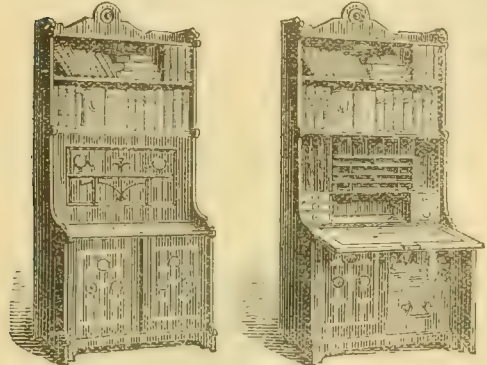
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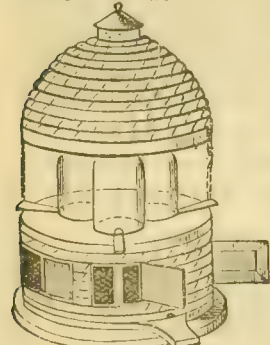
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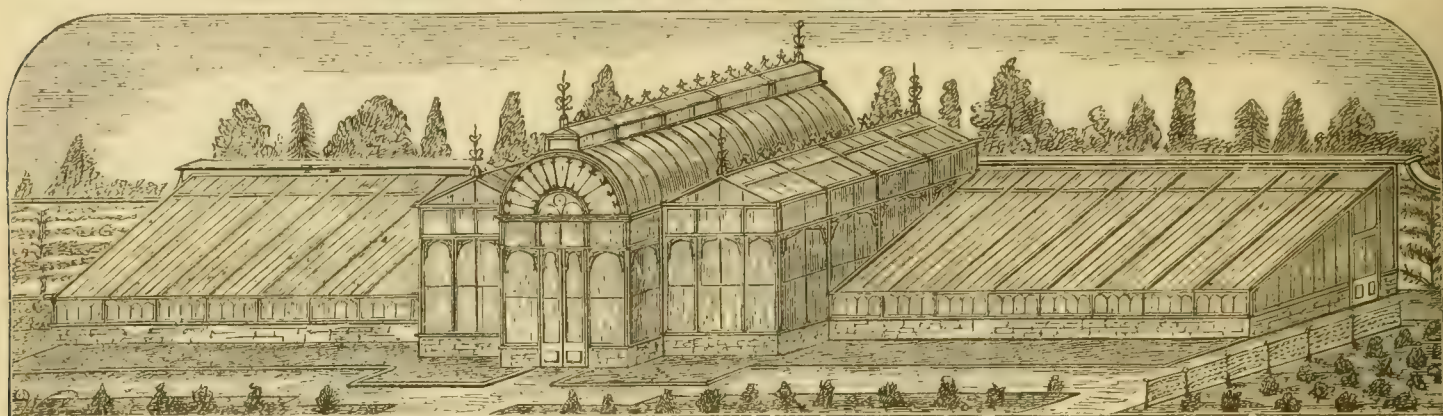
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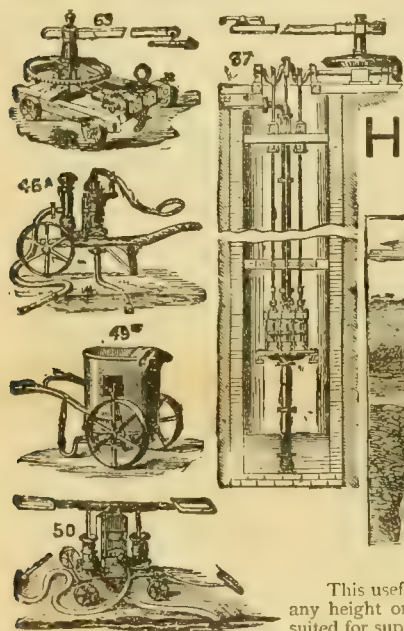
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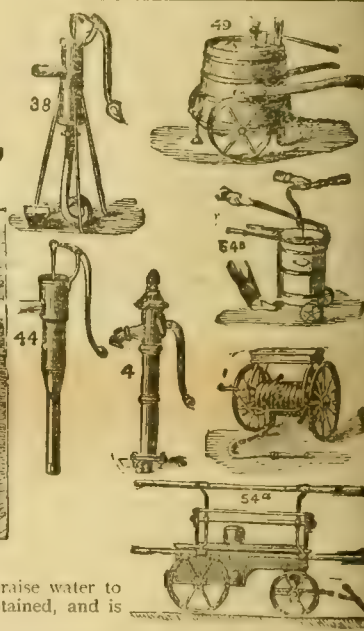


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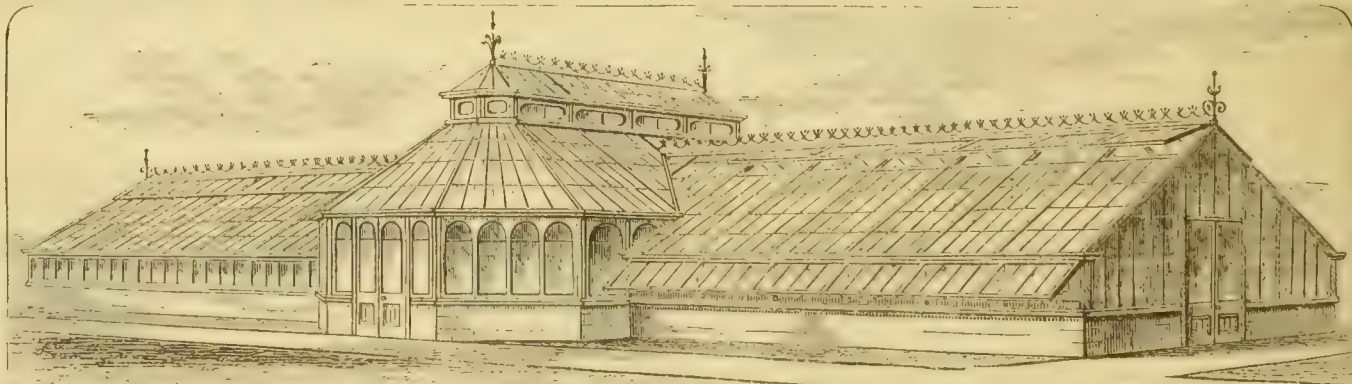
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RICHARD ILLMAN has a fine pair of **CYATHEA EXCELSA**, in 2 feet tubs, with eleven fronds on each, each frond 7 feet long, stem 1 foot high, for £5. cash.

N.B.—A large collection of FERNS, from 6s., 9s., 12s. per dozen. The Nurseries, Strood, Kent.

ORCHIDS.—The most popular kinds, either established, semi-established, or imported. For particulars, see our Descriptive LIST No. 44, just published. The NEW PLANT and BULB COMPANY, Colchester.

TODEAS.—Healthy young plants of **T. superba** and **T. hymenophylloides** (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.

ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

PTYCHOSPERMA CUNNINGHAMII (Seaforthia elegans).—10,000 unusually fine and cheap seedlings, in store pots, may be had. Apply to **J. VANDER SWAELMEN**, Lily Nursery, Ghent, Belgium.

ANÆCTOCHILUS DAWSONIANUS.—A fine lot, freshly imported, in very fair condition. For prices apply to

HAAGE AND SCHMIDT, Erfurt, Germany.

CUT FLOWERS.

TEA ROSES, 1s. 6d. per dozen. Other FLOWERS and MAIDENHAIR FERN at low prices. **J. C. JORDAN**, Walton, Clevedon.

Gentlemen's Gardeners, Amateurs, and Others

GARDEN POTS of best quality are requested to send their orders to **J. MATTHEWS**, Royal Pottery, Weston-super-Mare. Price List on application.

WANTED, 3000 good plants of the following:—Bedding GERANIUMS, CALCEOLARIAS, Tuberous BEGONIAS, COLEUS, BALSAMS, PETUNIAS. Please state lowest cash price per 100.

W. AND J. BROWN, Stamford.

WANTED, 4 doz. Smooth Cayenne PINES, strong, clean and well-rooted suckers. State price and full particulars to **JAMES VEITCH AND SONS**, Royal Exotic Nursery, Chelsea, London, S.W.

DICKSONIAS.—Gardeners who may have One or Two Dicksonias that have grown too large for them, can dispose of them by stating sizes and price to the **HEAD GARDENER**, Cobham Park, Cobham.

To Gardeners and Others.

BEST PRICES given for all kinds of CHOICE FRUITS, &c. Apply **F. A. WHIT FRIUITER**, &c., Bournemouth.

SUTTON'S GRASS SEEDS for PASTURES, 21s. to 30s. per Acre. Carriage free.

SUTTON'S GRASS SEEDS for PARK GROUNDS, 17s. 6d. per Bushel. Carriage free.

SUTTON'S GRASS SEEDS for GARDEN LAWNS, 20s. per Bushel. Carriage free.

SUTTON'S GRASS SEEDS for CROQUET GROUNDS, 20s. per Bushel. Carriage free.

SUTTON'S PAMPHLET on LAWN MAKING and IMPROVING, gratis and post-free.

SUTTON AND SONS, The Queen's Seedsmen, and by Special Warrant to H.R.H. the Prince of Wales, Royal Berks Seed Establishment, Reading.

ROMAN HYACINTHS for the Trade, to be delivered in August, or later in the autumn. Special prices are given by correspondence. Early orders desirable.

E. H. KRELAGE and SON, Nurserymen, Seedsmen, and Florists, Haarlem, Holland.

CATALOGUES.—His Excellency Pierre Wolkenstein will feel greatly obliged if Nurserymen and Seedsmen will kindly send him their Catalogues. They should be forwarded (by post) to

S. E. PIERRE WOLKENSTEIN, Secrétaire de la Société Impériale d'Horticulture de Russie, St. Petersburg.

TEA and NOISSETTE ROSES

in pots, for planting out during spring and summer, or for conservatory decoration all the year round; also new FRENCH and ENGLISH ROSES in pots. The above are a special feature in our Nurseries, and our stock is one of the largest, finest and healthiest in the country. Write for a Pot Rose LIST to

EWING AND CO., The Royal Norfolk Nurseries, Eaton, near Norwich.

Roses—Roses—Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.

W. M. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100. Price to the Trade on application.

Tea and other Roses in Pots.

W. M. CUTBUSH AND SON have a very fine lot of the above to offer, in all the best sorts.

Prices on application.

Highgate, London, N.; and Barnet, Herts.

TEA ROSES.—Tea Rose, Maréchal Niel, strong and healthy plants, in 6-inch pots, 20s. per dozen. Tea Roses of sorts, in 6-inch pots, 18s. per dozen. New Roses of 1879, Tea, Noisette, and Perpetual, 30s. per dozen. The above are now ready to send out.

THOMAS RIVERS AND SON, Nurseries, Sawbridgeworth, Herts.

Pot Roses.

W. B. ROWE has some thousands of **TEA** and **NOISSETTE ROSES**, in pots, unusually good; also some extra fine **MARÉCHAL NIEL**.

Price LIST on application.

Barbourne Nurseries, Worcester.

FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including **JACKMANNI**, &c., at 12s. to 30s. per dozen. Selection left to ourselves.

Descriptive CATALOGUES free on application to **WM. WOOD AND SON**, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THE AMERICAN PLANTS at Knap Hill are NOW IN BLOOM, and may be seen daily, Sundays excepted. **ANTHONY WATERER**, Knap Hill Nursery, Woking Station.

To the Trade.

RAPE SEED and **WHITE MUSTARD**. **H. AND F. SHARPE** have fine samples of the above Seeds suitable for sowing purposes, which they will be glad to submit with quotations on application. Seed Growing Establishment, Wisbech.

SAXIFRAGA WALLACEI.

Two First-class Certificates in London and Edinburgh. "A handsome Alpine." "One of the finest ornaments of the Rock Garden." Should be grown by every one. For full description see *The Garden* of May 31 and also June 14.

DICKSONS AND CO. are now booking Orders for the above, and also for **BEDDING VIOLAS** and **PANSIES** for autumn planting. Price per dozen or per 100 on application.

THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.

No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 2d.

No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.

A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

Savoy Plants.

SAVOY PLANTS.—Several hundred thousands to be obtained on Tuesday next, June 24, of **MR. JOHN BATH**, Covent Garden, W.C.

PORTRAIT of the Rev. M. J. BERKELEY.

Subscribers are informed that Copies of this Portrait, specially printed on larger paper and packed in a case, may be had, post-free, for 6d. stamps, on application to

W. RICHARDS, 41, Wellington Street, Strand, W.C.

ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.
NOTICE.—COMMITTEES' MEETINGS, FRUIT and FLORAL, at 11 A.M.; SCIENTIFIC, at 1 P.M.; on TUESDAY NEXT, June 24. Band of Royal Horse Guards at 4 o'clock. Admission, 1s.

ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.
ROSE SHOW and EXHIBITION of PELARGONIUM SOCIETY, TUESDAY, July 8. Special Display of ROSES, by Messrs. William Paul & Son, Waltham Cross. Admission to Fellows at 12 o'clock, Public at 1 o'clock, on payment of 2s. 6d. Band of Royal Horse Guards.

ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.—July 9.
EVENING FETE, 8 o'clock. Bands of 1st Life Guards and Royal Horse Guards (Blue). Part Songs by the Lombard Amateur Musical Society. Special Rose Display, Electric Lighting, &c. Admission by ticket purchased before the day, 10s. 6d.; on the day, 15s.

ROYAL HORTICULTURAL SOCIETY,

South Kensington, S.W.
The **COMPETITION for SPECIAL PRIZES** offered by Messrs. Hooper & Co., John Laing & Co., James Carter & Co., and Sutton & Sons, will be on JULY 8, instead of June 24 as formerly announced.

ROYAL BOTANIC SOCIETY,

Gardens, Regent's Park, N.W.
EXHIBITION of AMERICAN PLANTS by Anthony Waterer, of Knap Hill, Surrey. Open daily. Admission as on ordinary days, or by Spring Exhibition Tickets, 2s. 6d. each.

CRYSTAL PALACE.

GREAT ROSE SHOW by the National Rose Society, SATURDAY, June 28. Fête of the German Gymnastic Society. Dr. Carver. Promenade Concert. Band of Scots Guards. Variety Entertainment. Admission 7s. 6d., or by Ticket purchased on or before Friday, June 27, 2s. 6d., or by Season Ticket.

ALEXANDRA PALACE.

The **GREAT ROSE SHOW** will be held on SATURDAY, July 5. Schedules of Prizes now ready, and may be obtained on application. Entries close June 28.

Alexandra Palace, Muswell Hill, N. The MANAGER.

RICHMOND HORTICULTURAL SOCIETY.

President—H.S.H. the DUKE of TECK, G.C.B.
The **FIFTH ANNUAL EXHIBITION of PLANTS, FRUITS, FLOWERS, &c.**, will be held in the Old Deer Park, Richmond, on THURSDAY, June 26, 1879. His Serene Highness the Duke and Her Royal Highness the Duchess of Teck have signified their intention of visiting the exhibition.

ALBERT CHANCELLOR, Honorary Secretary, 1, King Street, Richmond, Surrey.

SALES BY AUCTION.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 23, at half-past 12 o'clock precisely, ODONTOGLOSSUMS from Colombia, in fine condition; CATTLEYA LINELLI, ZYGOPETALUMS, ONCIDIUMS, &c., from Brazil; DENDROBIUMS, &c., from Assam; fine Plants of BULBOPHYLLUM BECCARII, a consignment of SARRACENIAS from America; some fine specimen Plants of GLEICHENIAS, from 3 to 5 feet in diameter; several small collections of ORCHIDS and GREENHOUSE PLANTS; also several small Importations of ORCHIDS; some fine specimen ORCHIDS and LAPAGERIA ALBA from Loxford Hall.

On view the morning of Sale, and Catalogues had.

Bulbophyllum Beccarii.

MR. J. C. STEVENS will SELL by AUCTION at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 23, some fine Plants of the above ORCHID, just received, in good condition, from Borneo. This wonderful species is unquestionably one of the most extraordinary Orchids of modern introduction. It has grand broadly ovate leaves, something like 18 inches long by 12 inches broad, and as "thick as a board." Its remarkable flowers are produced in dense cylindrical nodding racemes, and are of a bright light violet colour.

On view morning of Sale, and Catalogues had.

The Celebrated Collection of Plants at Dangstein.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, on the Premises, Dangstein, near Petersfield, on TUESDAY, June 24, and two following days, and TUESDAY, July 1, and following days, at half-past 12 o'clock precisely each day, this magnificent COLLECTION OF PLANTS, without the slightest reserve, comprising Camellias and Azaleas, Palms, Dracenas, Crotons, fine specimen Gleichenias, a most beautiful collection of Filmy Ferns, Trichomanes radicans in quantity, a grand plant of Trichomanes reniforme, Hymenophyllum demissum, &c., Anectochilus, Peperomias, Darlingtonias, Sarracenias, Platyceriums, &c.; also a choice assortment of Orchids, consisting of large plants of Masdevallia tovarensis, M. Veitchii, M. Harryana, Odontoglossum pulchellum, splendidi plants; Cattleyas of sorts, Dendrobies of sorts, extra fine plants of Stanhopeas of sorts, Angraecum sesquipedale, Vandas, and many other rare and valuable plants.

On view day prior and mornings of Sale. Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Conveyances on the days of Sale will meet at Rogate Station the train from Waterloo at 7 o'clock, arriving at Rogate Station at 9.15; also 9.30 from Waterloo, arriving at Rogate Station at 11.26; and meeting 5.11 and 7.29 trains back at Rogate Station.

Fishing Tackle.

The Property of the late Sir St. George Gore, Bart.

MR. J. C. STEVENS has received instructions from the executors of the late Sir St. George Gore, Bart., to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 27, at half-past 12 o'clock precisely, without reserve, the valuable and extensive COLLECTION OF FISHING TACKLE, consisting of a large quantity of Salmon and other Rods, Landing Nets, Winches (some quite new), Hooks, Lines, Artificial Baits, Birds' Feathers, Skins, and a quantity of other materials for Fly-making; also several Saddles, Cloths, Bits, Stirrups, Fishing Boots and Leggings, Tents, Poles, and other Camp Furniture, &c.

On view the day prior and morning of Sale, and Catalogues had.

Lælia præstans.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 30, a splendid importation of this rare and lovely LÆLIA, being fine pieces in the best possible condition, just received by R.M. ss. "Elbe," from Brazil, by Mr. R. Bullen of Lewisham.

On view morning of Sale, and Catalogues had.

Rare Brazilian Orchids, &c.

MR. J. C. STEVENS has received instructions from Mr. R. Bullen, of Lewisham, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 30, at half-past 12 o'clock precisely, a splendid importation of the exceedingly rare and beautiful ONCIDIUM DASYTYLE, just received ex R.M. ss. "Tamar," from Brazil. The Collector (Mr. H. Blunt) describes it thus:—"I have just found the greatest novelty I have seen in Orchids for years. The plant grows amongst the moss-covered trees, on the coldest parts of the mountains here. Flowers thus—Lip all yellow, sepals and petals pale yellow, spotted or blotched with a chocolate colour approaching carmine. The column is a deep blue-black, very prominent and best the shape of a bee, and seems as though a black bee were resting in the centre of the flower. The plant is very free-flowering, many of the bulbs having two flower-spikes measuring from 18 to 24 inches in length, with numerous branches, covered with its lovely flowers." The plants offered are in splendid condition.

At the same time will be offered a fine importation consisting of Miltonia Morelana (very rare), M. cuneata and M. Clowesii, Warszewiczella violacea, Oncidium crispum, O. grandiflorum, O. curtum, O. Marshallianum, and O. Forbesii, Sophronites grandiflora, Cattleya marginata, C. amethystina, and C. Leonoldii, Lælia purpurata and L. Dayana, and many choice varieties.

On view the morning of Sale, and Catalogues had.

Kent, in the Parish of Cudham.

FREEHOLD GARDEN GROUND, 4½ Acres, most productive, in a charming situation, 3 miles from Westerham, 8 miles from Bromley, and 18 miles from London, occupying a very elevated position, with fine views, and in the centre of the great fruit-growing district. The property is readily accessible from London. The Land is of good quality, and is alike suited for the growth of Strawberries, Raspberries and Currants, or for the Erection of Residences, for which the picturesque scenery renders it most attractive, and it will be divided into lots of convenient area.

MR. JOHN LEES is instructed to SELL by AUCTION, at the Mart, London, E.C., on THURSDAY, July 10, at 1 or 2 o'clock, in lots, the above desirable FREEHOLD PROPERTY, great title free and land tax redeemed, and offering an eligible opportunity to Gentlemen, Fruit Growers, Trustees, and others desiring property for investment or occupation.

Particulars may be had of G. CARTER MORRISONS, Esq., Solicitor, Reigate; MORRISONS, 94, Cannon Street, London, E.C.; at the Mart; and of Mr. JOHN LEES, Land Agent and Auctioneer, Reigate.

Preston.

To the GENTRY, HORTICULTURISTS, NURSERYMEN AND FLORISTS.

Sale of Magnificent Full and Half-Specimen EXHIBITION PLANTS; British, Exotic and Tree FERNS; PALMS, and a Large General Collection of STOVE, GREENHOUSE and CONSERVATORY PLANTS.

MESSRS. ARTINGSTALL AND HIND have been instructed by the Directors of the Preston Nursery and Pleasure Gardens Company (Limited), who are re-arranging their Nursery Department, to SELL by AUCTION, on WEDNESDAY and THURSDAY, June 25 and 26, the entire Collection of their Magnificent Specimen EXHIBITION PLANTS, TREE FERNS, and PALMS; together with a large quantity of Miscellaneous Nursery Stock. The Sale will take place in the beautiful grounds of the Company, situate at Ribbleson, under 2 miles from Preston, where the plants may be inspected from the Monday and Tuesday prior to the Sale, from 10 to 4 o'clock.

Admission by Ticket, which may be obtained, together with descriptive Catalogues, from the MANAGER of the Nurseries, 143, Church Street, Preston; or from the AUCTIONEERS, 45, Princess Street, Manchester.

N.B.—Conveyances run to and from the Gardens.

Great Sale of First-Class Market Garden Stock AND LEASEHOLD PROPERTIES.

MR. MALCOLM SEARLE is favoured with instructions from the Administratrix of the late Henry Sheppard, Esq., to SELL by AUCTION, at 108, Evelyn Street, Deptford, Kent, on MONDAY, July 7, and following day, at 11 o'clock, in lots:—

The LEASE of the superior FAMILY RESIDENCE with GARDEN, 108, Evelyn Street, held for a long term at a ground rent.

The LEASEHOLD and other interest in about 14½ acres of MARKET GARDEN adjoining.

The LEASEHOLD INTEREST in about 22 acres of MARKET GARDEN, situate in Deptford Lower Road.

The LEASEHOLD and other interest in about 43 acres of MARKET GARDEN situate at Charlton, Kent; also Eight well-known English Draught HORSES, PONY, DOG-CARTS, Village CARTS, PHÆTONS, Twelve TUMBRILS, Eight VANS, IMPLEMENTS, PLANTS, 460 glazed three-light Forcing FRAMES, 300 HAND-GLASSES, Erections of Two GREENHOUSES, SHED, HOT-WATER PIPING, and Effects.

Catalogues of the Market Garden Auctioneer and Tenant Right Valuer, 2, Bond Court, Walbrook, City, E.C.

Middlesex.

In the Parish of Harmondsworth, 13 miles from town by road. Excellent FREEHOLD LANDED INVESTMENT, comprising 300 Acres of Fertile Land, with House and Homestead, let to a yearly tenant of thirty years' standing at the very low rental of £600 per annum.

MESSRS. BAKER AND SONS will SELL

by AUCTION, at the Mart, Tokenhouse Yard, Bank, E.C., on FRIDAY, July 18, at 2 o'clock precisely, the valuable FREEHOLD ESTATE, known as Perry Oaks Farm, conveniently situate in the parishes of Harmondsworth and Stanwell, 2½ miles from Ashford station, 3½ from Staines station of the South-Western Railway, 3½ miles from West Drayton and Hayes stations of the Great Western Railway, and 13 miles by road from Hyde Park, in six lots, as follows:—Lot 1, 42 acres of Meadow and Arable Land, approached from the main Bath Road by Whitewood Lane, and intersected by the Queen's and Duke of Northumberland's Rivers; apportioned rent, £70 per annum. Lot 2, 110 acres of productive Arable Land, well adapted for market gardens, with a frontage of 470 feet to the high road, and abutting on the Duke of Northumberland's River; the rent apportioned to this lot is £190 per annum. Lot 3, 70 acres of Arable Land, also adapted for market garden or as a site for a public institution; it has a frontage of 2080 feet to the high road from Stanwell to Harmondsworth, and extends to the Duke of Northumberland's River; apportioned rent, £125 per annum. Lot 4, 1 acre of Arable Land in Stanwell parish, with frontage of 126 feet to the road from Stanwell to Harlington; apportioned rent, £2 per annum. Lot 5, A choice Enclosure of Arable Land, containing 43 acres, with a frontage of 2200 feet to the high road from Stanwell to Harlington; the rent apportioned to this lot is £80 per annum. Lot 6, A comfortable Farmhouse called Perry Oaks Farm, with well-arranged homestead, gardens, and orchard, and 35 acres of prettily-timbered meadow and arable land, having a total frontage of 2324 feet on two sides to the high road from Stanwell to Harlington and Harmondsworth; the rent apportioned to this lot is £133. The whole estate is tithe-free, is intersected by two rivers, and under-drained throughout, and has a subsoil of gravel. The land is exceedingly fertile, in a good state of cultivation, and would command a high rent for market garden purposes, while from its proximity to London it must yearly increase in value, thus offering unusually sound investments.

Particulars, plans, and conditions of Sale may be had at the Mart; of E. LAKE WALKER, Esq., Solicitor, 8, New Square, Lincoln's Inn, W.C.; of C. C. HORNE, Esq., Land Agent, Littleton, near Staines; and of the Auctioneers, 11, Queen Victoria Street, E.C.

To Florists, Gentlemen's Gardeners, and Others.

FOR DISPOSAL, a first-class FLORIST and FRUITERER'S, with House, Shop, Greenhouses, and Ground. Situate in a main thoroughfare. To an immediate purchaser a very low price will be taken.

A. Z., *Gardeners' Chronicle* Office, W.C.

TO BE LET, from Michaelmas next, a MARKET GARDEN FARM, comprising the large and excellent residence called Plashet Hall or Potato Hall, situate near Stratford, on the Ilford High Road, with ample Buildings, Three Cottages, and 125 Acres of the best Market Garden Land in the district, long held by the late Mr. Adams and his Son, and in first-rate condition.

Apply to Messrs. PHILIP D. TUCKETT and CO., at 10A, Old Broad Street, E.C.

MR. CHARLES BURLEY, HORTICULTURAL AUCTIONEER and VALUER, undertakes SALES, in any part of the country, with strict economy. Office: Brentwood, Essex.

THE CANTERBURY ROSE SOCIETY.

President.—The Right Hon. LORD RONDELE.

Patrons.—THE DUKE and DUCHESS OF EDINBURGH; &c.

The FIRST SHOW will be held at St. George's Hall, on THURSDAY, July 3. There will be Two Open Classes, Class vi., 30 Any Varieties, 1 trust of each: 1st, £8; 2d, £5; 3d, £3. Class viii., 12 Tea and Noisettes, 1 trust of each: 1st, £5 5s; 2d, £3 3s; 3d, £2 2s. Entries close Monday, June 30.

H. B. BIRON, } Hon. Secs.
W. MOUNT, }

LUDLOW ROSE SHOW.—The ANNUAL EXHIBITION of ROSES will be held in the Assembly Rooms, Ludlow, on TUESDAY, July 8. Liberal Prizes will be given to Nurserymen, Amateurs and Cottagers. Schedules of the Prizes may be obtained from the Ludlow. Rev. V. T. T. ORGILL, Hon. Sec.

TORQUAY HORTICULTURAL SOCIETY.

The Committee have the honour to announce that their GRAND ROSE and SUMMER SHOW will be held on JULY 2. Prizes amount to £250. Entries close on Tuesday, June 24. Schedules and all information to be obtained from

W. FANE TUCKER, Capt., Hon. Sec. T.H.S.

Braddon Tor, Torquay.

GRAND ROSE SHOW at NORWICH, WEDNESDAY and THURSDAY, July 9 and 10. ENTRIES for PUT PLANTS CLOSE on MONDAY, June 30; for ROSES and all other Classes on WEDNESDAY, July 2. Upper Surrey Street, Norwich. E. A. FIELD, Hon. Sec.

WEST of ENGLAND ROSE SHOW, Hereford.

This EXHIBITION is FURTHER POSTPONED to WEDNESDAY, July 16. Rev. C. H. BULMER, Hon. Sec. Credenhill Rectory, June 16.

BIRMINGHAM ROSE SHOW will be held in Bingley Hall, on THURSDAY and FRIDAY, July 17 and 18 next. Schedule of Prizes and all information can be obtained from the Secretary.

Mr. W. T. SMEDLEY, 57, Colmore Row, Birmingham.

THE LIVERPOOL HORTICULTURAL ASSOCIATION.

Patrons:—

The Earl of DERBY, The Earl of SEFTON, Colonel J. IRELAND BLACKBURN, M.P.

President:—

The Mayor of Liverpool, Thomas B. ROYDEN, Esq.

The Committee have pleasure in announcing that, by permission of the Parks Committee or the Town Council they will hold a GRAND EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, in Sefton Park, on August 2 and 4 (Bank Holiday).

PRIZES amounting to about £300 will be awarded. Schedules of Prizes and Forms of Application for Space may be had on application by letter to

DAVID THOMSON, Secretary.

69, St. Alban's, Everton, Liverpool.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

President—H.R.H. the PRINCE of WALES, K.G.

INTERNATIONAL AGRICULTURAL EXHIBITION

TO BE HELD IN

LONDON (KILBURN),

SEVEN DAYS ONLY,

JUNE 30 to JULY 7, 1879.

RAILWAY STATIONS.

Salisbury Road, Queen's Park, and West Kilburn (London and North-Western Railway), and Kensal Green Station (North London Railway) adjoining; Westbourne Park (Great Western Railway) and West End (Midland Railway), 1 mile distant.

Great Show of British and Foreign

HORSES.

CATTLE, SHEEP, and PIGS.

ASSES, MULES, and GOATS.

BEEES.

IMPLEMENTES.

HOPS, WOOL.

BUTTER, CHEESE, HAMS, BACON.

FRESH and PRESERVED MEATS.

CIDER, PERRY.

FARM IMPLEMENTS.

AGRICULTURAL MACHINERY.

CHEESE and BUTTER MAKING DAILY.

INDIAN and EUROPEAN FARM PRODUCE.

COMPOSITION OF FOODS.

COMPARATIVE MUSEUM of ANCIENT and MODERN FARM IMPLEMENTS.

PARADE of HORSES and CATTLE DAILY.

ADMISSION.

| | June 30 | July 1 | July 2 | July 3 | July 4 | July 5 | July 6 | July 7 |
|-----------|---------|--------|--------|--------|--------|--------|--------|--------|
| MONDAY | .. | .. | .. | .. | .. | .. | .. | .. |
| TUESDAY | .. | .. | .. | .. | .. | .. | .. | .. |
| WEDNESDAY | .. | .. | .. | .. | .. | .. | .. | .. |
| THURSDAY | .. | .. | .. | .. | .. | .. | .. | .. |
| FRIDAY | .. | .. | .. | .. | .. | .. | .. | .. |
| SATURDAY | .. | .. | .. | .. | .. | .. | .. | .. |
| MONDAY | .. | .. | .. | .. | .. | .. | .. | .. |

Non-transferable Season Tickets, available for admission and re-admission on each day of the Exhibition, price 10s 6d, may be obtained at all the principal Libraries, and at the Offices of the Royal Agricultural Society, 12, Hanover Square, W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The NINETEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms, on MONDAY, June 30, at a quarter to 7 o'clock. The Right Hon. the MARQUIS of HARTINGTON, M.P., in the Chair.

Dinner Tickets, 21s., application for which must be made to the Secretary, at the Offices of the Institution, 26, Charles Street, St. James's, London, S.W.

BOURNEMOUTH HORTICULTURAL SOCIETY.

Patrons:—

Viscountess Bury
Lady Cornelia Guest
Lady Caroline Morant
Lady Gervis
Lady Sulivan
Lady Shelley
Lady Wolff
The Hon. Mrs. Portman
The Hon. Eleanor Eden
The Hon. Mary Wrottesley
The Hon. Maria Wrottesley
Sir H. D. Wolff, K.M.G., M.P.

Committee:—

Mr. T. W. Hogue
Mr. E. W. Rebbeck
Mr. W. W. Merson
Mr. T. Beechey
Mr. W. Stevenson
Dr. J. Roberts Thomson
Dr. Douglas
Mr. Cunningham
Mr. Swaffield
Mr. Underwood.

Honorary Secretary:—

Mr. H. Nash, the Observer Office, Bournemouth.

Honorary Treasurer:—

Mr. J. G. Shepherd, the Wilts and Dorset Bank, Bournemouth.

The THIRD EXHIBITION will be held in the Winter Gardens, Bournemouth, on THURSDAY, August 14.

A Military Band will be in attendance. Grand Promenade Concert during the evening.

The Schedule of Prizes is now ready, and may be had on application to the Hon. Secretary.

EXHIBITION OF RHODODENDRONS,

Royal Botanic Gardens, Regent's Park, S.W., daily. Orders of Admission may be obtained from Fellows of the Society, or from the Exhibitors.

ANTHONY WATERER, Knap Hill, Woking, Surrey.

CARTER'S, the PREMIER SEED HOUSE at the PARIS EXHIBITION. Illustrated Catalogues gratis and post-free. Awarded Five GOLD MEDALS, including the only Gold Medal for Grass Seeds.

CARTER'S, The Queen's Seedsmen, High Holborn, London, W.C.

Savoy Plants.

SAVOY PLANTS.—Several hundred thousands to be obtained on Tuesday next, June 24, of Mr. JOHN BATH, Covent Garden, W.C.

PINES for SALE.—About 100 Fruiting and Succession, in good condition (mostly Queens). For price and further particulars apply to S. BIDE, Alma Nursery, Farnham.

FOR SALE, CHEAP, 50,000 LEEKS, strong healthy Plants. Apply to GODDARD, care of Mrs. Forward, 91, Elizabeth Street, Eaton Square, London, S.W.

FOR SALE, 3,000,000 selected KOHL RABI and ROBINSON'S CHAMPION DRUM-HEAD CABBAGE PLANTS, at 2s. per 1000, for cash. Put on rail at Spalding Station in quantities to suit purchasers. Apply WILLIAM COLVIN, Moneybridge Gardens, Pinchbeck, near Spalding.

RICHARD WALKER has to offer:— CABBAGE PLANTS, Enfield Market, 3s. 6d. per 1000; BRUSSELS SPROUTS and BROCCOLI, London Market and Sprouting; CELERY PLANTS, Red and White, all at 5s. per 1000. Terms cash. Market Gardens, Biggleswade, Beds.

Spiraea palmata.

BUDDENBORG BROS., Bulb Growers at The House, Bloemswaard, Hillegom, near Haarlem, Holland, beg to announce to the Trade that they have on hand a very large and healthy stock of the above, and will be pleased to give particulars on application.

NEW COLEUS.—The following attractive new kinds have been obtained by fertilising distinct sorts with new types received from the Islands of the South Pacific. Price, 5s. each.

ADMIRATION
AURORA
FUTTERFLY
CLOWN
FAME
FIREFLY
GLOW
HARLEQUIN
MAGIC
PILLAR OF GOLD
SPARKLER
STELLA
SUNBEAM
WONDER.

Mr. WILLIAM BULL'S Establishment for New and Rare Plant's, King's Road, Chelsea, S.W.

Special Offer to the Trade.

HARDY BULBS and FLOWER-ROOTS. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers the following:—

COLCHICUM AUTUMNALE, fl.-pl., 14s. per 100.
CROCUS, blue, 10d. per 100, 7s. per 1000.
VERSCOLOR, 10d. per 100, 7s. per 1000.
DIELYTRA SPECTABILIS, fl. 5s. per 100, £10 per 1000.
HEMEROCALLIS FLAVA, 10s. per 100.
FULVA, 7s. per 100.
IRIS GERMANICA, the best named varieties, 9s. per 100.
LIATRIS SPICATA, 17s. per 100.
LILIUM AURATUM, home-grown, £5 to £12 10s. per 100.
MARTAGON, home-grown, £1 per 100.
TIGRINUM, 7s. per 100.
TIGRINUM, fl.-pl., £3 7s. per 100.
SPLENDENS, £2 10s. per 100.
UMBELLATUM ATRO-SANGUINEUM, £1 per 100.
GRANDIFLORUM, £1 5s. per 100.
NARCISSUS BIFLORUS, 2s. 6d. per 100.
ODORUS (Campernel Jonquil), 2s. 6d. per 100.
POETICUS, fl.-pl., 5s. per 100, £2 2s. per 1000.
ORCHIS MACULATA, home-grown, 9s. per 100.
ORNITHOGALUM SPLENDENS, 1s. per 100.
UMBELLATUM REFRACTUM, 10d. per 100. {100.
PLATYCODON GRANDIFLORUM, flore coerules, 14s. per 100.
POLYGONATUM MULIFLORUM, 2s. per 100, 13s. per 1000.
SAXIFRAGA GRANULATA, fl.-pl., 2s. per 100, 13s. per 1000.
SCILLA CAMPANULATA, flore albo, 5s. per 100.
" " flore atro-coeruleo, 3s. 6d. per 100.
" " flore coeruleso, 4s. 6d. per 100.
SPIRÆA FILIPENDULA, fl.-pl., 9s. p. 100, £3 7s. p. 1000.
TRITELEIA UNIFLORA, 2s. per 100, 10s. per 1000.

New Bedding Plants for 1879.

IRELAND & THOMSON

Have much pleasure in announcing that they are now sending out the following splendid Novelties:—

NEW AGERATUM, "HER MAJESTY."

Is of a dwarf-creeping habit, and produces flowers in great abundance, of a pale lavender colour, and is very effective. This will prove to be the best Ageratum yet sent out.

Price 12s. per dozen, 84s. per 100.

NEW TROPÆOLUM, "VESUVIUS."

This is admitted by all who have seen it to be the finest and most effective Tropæolum for bedding yet raised. It is of a dwarf habit, and produces flowers in great abundance, of the most intense scarlet colour. This will form one of the greatest additions to our Bedding Plants we have had for some time.

Awarded a First-class Certificate by the Royal Caledonian Horticultural Society.

Price 12s. per dozen, 84s. per 100.

NEW WHITE LOBELIA, "LOBELIA ALBA MULTIFLORA."

This is a Seedling raised from speciosa. In habit it much resembles its parent, but produces flowers of large size, of a pure white colour, and when seen in beds or lines it produces a dense mass of pure white. We can recommend this as the best white Bedding Lobelia yet sent out.

Awarded a First-class Certificate by the Royal Caledonian Horticultural Society.

Price 12s. per dozen, 84s. per 100.

NEW PINK LOBELIA, "LOBELIA PINK QUEEN."

This is quite a novelty among Bedding Lobelias. In style of growth it resembles pumila grandiflora, being of a dwarf, compact habit, and free bloomer. The colour of its foliage and stems is a bluish-bronze, with flowers of a beautiful pink colour.

Price 12s. per dozen, 84s. per 100.

We beg to call special attention to our stock of VIOLAS, which includes Lady Gertrude, Purity, Perfection, Lottie, Grievei, Sovereign, Golden Gem, Lady Diana, Sophia, Ruby King, Modesty, and many others of the best bedding varieties, at 20s. per 100.

NURSERIES:—

Royal Exotic, Lynedoch Place, and Craigleith, Comely Bank, Edinburgh.

BEDDING PLANTS, &c. SURPLUS STOCK.

CLEARANCE PRICES FOR CASH.

| Established in Single Pots. | Per 100. | doz. |
|---|----------|------|
| AGERATUM, Imperial Dwarf blue .. | 8 | — |
| ALTERNANTHERA, of sorts .. | 10 | — |
| CHRYSANTHEMUMS, choice named .. | 25 | 0 |
| CINERARIA, maritima and m. candidissima .. | 8 | 0 |
| CLEMATIS, good collection, to name .. | — | 9 |
| COBEA SCANDENS .. | — | 4 |
| VARIEGATA .. | — | 9 |
| CONVOLVULUS MAURITANICUS .. | 10 | 0 |
| DAHLIAS, Show and Bedding .. | 20 | 0 |
| ECHEVERIA SECUNDA .. | 8 | 0 |
| FUCHSIAS, fine named sorts, in 60's .. | 20 | 0 |
| GERANIUMS, Silver Tricolors, of sorts .. | 20 | 0 |
| " Silver-edged, of sorts .. | 18 | 0 |
| " Ivy-leaved, of sorts .. | 16 | 0 |
| " Double Zonal, of sorts .. | 20 | 0 |
| GNAPHALIUM, lanatum and variegatum .. | 10 | 0 |
| HERNIARIA GLABRA .. | 12 | 0 |
| IRENESE, Herbistii and Lindenii .. | 10 | 0 |
| LEUCOPHYTON BROWNII .. | 10 | 0 |
| LOBELIAS, in variety, to name .. | 8 | 0 |
| MENTHA PULEGIUM GIBERTARICUM .. | 8 | 0 |
| MESEMBRYANTHEMUM CORDIFOLIUM .. | 8 | 0 |
| PERILLA NANKINENSIS .. | 6 | 0 |
| PHLOX, Herbaceous, to name .. | 25 | 0 |
| PETUNIAS, Double, to name .. | 20 | 0 |
| " Single, from seed .. | 8 | 0 |
| POTENTILLAS, Single and Double .. | — | 4 |
| PYRETHRUM, Herbaceous, to name .. | 25 | 0 |
| " Golden Feather (from pans) .. | 2 | 6 |
| SALVIA MICROPHYLLA .. | — | 2 |
| SENECIO MACROGLOSSUS (Cape Ivy) .. | 10 | 0 |
| VERBENAS, in variety, to name, very fine .. | 10 | 0 |

PACKAGES EXTRA.

WOOD & INGRAM, THE NURSERIES, HUNTINGDON, and ST. NEOTS.

CHOICE FLOWER SEEDS.

| POST-FREE. | Per Packet. | s. d. | s. d. |
|--|-------------|-------|-------|
| ANTIRRHINUM, choicest mixed .. | 0 | 6 | 1 |
| AURICULA, choicest mixed .. | 2 | 6 | 5 |
| BEGONIA, choicest tuberous-rooted .. | 2 | 6 | 5 |
| CALCEOLARIA, choicest herbaceous .. | 1 | 6 | 5 |
| CINERARIA, choicest mixed .. | 1 | 6 | 5 |
| CYCLAMEN PERSICUM, choicest mixed .. | 1 | 6 | 5 |
| GLOXINIA, choicest mixed .. | 1 | 6 | 5 |
| PANSY, Show and Fancy, choicest mixed .. | 1 | 6 | 5 |
| POLYANTHUS, choicest mixed .. | 1 | 6 | 5 |
| PRIMULA SINENSIS FIMBRIATA .. | 1 | 6 | 5 |
| (In separate colours or mixed). | | | |
| " " Fern-leaved .. | 1 | 6 | 5 |
| " " Double .. | 2 | 6 | 5 |
| STOCK, East Lothian .. | 1 | 0 | 2 |
| Brompton, Double German .. | 1 | 0 | 3 |
| WALLFLOWER, extra Double German .. | 1 | 0 | 3 |

Choice Biennials, Perennials, and all other Seeds for present sowing, in great variety.

Priced CATALOGUES post-free, on application.

JAMES DICKSONS & SONS, Old Established Nursery and Seed Business, 108, EASTGATE ST., and "NEWTON" NURSERIES, CHESTER.

New Ferns. MR. WILLIAM BULL

is now sending out the following:—
DOODIA ASPERA MULTIFIDA.—A handsome, crested, new Greenhouse Fern, of neat and dwarf habit, with prettily arched fronds, rendered drooping by the tassellation at their apex; the young fronds are prettily tinted with pink. This was one of the twelve New Plants with which Mr. W. B. gained the First Prize, at the International Horticultural Exhibition held at Ghent in 1878. Price, 7s. 6d. each; stronger plants 15s. and a guinea each.

LASTREA ARISTATA VARIEGATA.—One of the most charming of Greenhouse Variegated Ferns. It has the same kind of firm leathery fronds as the type, and like it is of a rich, dark, full green colour, which sets off the distinct variegation to much advantage. The variegation consists of a band of pale yellowish-green, which runs down the centre of the pinnae, and includes the midrib or rachis. It was one of the twelve New Plants with which Mr. W. B. gained the First Prize at the Provincial Show of the Royal Horticultural Society, held at Preston in 1878. Price, 10s. 6d. each.

Establishment for New and Rare Plants, King's Road, Chelsea, London S.W.

Display at Once.

H. CANNELL begs to announce that he has a few thousand Surplus BEDDING PLANTS he can offer at a reduced rate. Send a List, and H. C. will quote Special Prices.

Wire Address, "Swanley."

F. AND A. SMITH'S SPECIALITIES IN SEEDS.

The large quantity of Seed sold annually in bulk and packet to regular customers is sufficient guarantee of the excellence of our Strains of CINERARIAS, CALCEOLARIAS, and PRIMULAS, &c. 1s., 2s. 6d., and 5s. packets. Price by weight to the Trade on application.

The Nurseries, West Dulwich, S.E.

PARIS EXHIBITION, 1878.—

Legion of Honour. We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the peculiar merits of our exhibits at the above exhibition. See Times Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON AND SONS, The Queen's Seedsmen, Reading, London and Paris.

GERANIUMS.—1000 Zonal and Nosegay

Geraniums, in 100 beautiful varieties, from single pots, good plants, for £5; 100 ditto, in 50 varieties, ditto, for 12s.; 12 very select Zonals, for pot culture, 4s., post-free.

TORONIA FOURNIERI, 6s. per dozen.

EUCALYPTUS GLOBULUS, 6s. per dozen.

Post-office Orders payable at Sissinghurst.

W. POTTER, Camden Nursery, Sissinghurst, Staplehurst, Kent

Carpet and other Bedding Plants.

W. MILES has the following to offer in good Plants:—
ALTERNANTHERA amena, amena spectabilis, magnifica, amabilis latifolia, paronychioides.
ANTENNARIA tomentosa and candida.
LEUCOPHYTON Brownii.
MESEMBRYANTHEMUM cordifolium.
AJUGA REPTANS.
HERNIARIA GLABRA.

At 8s. per 100, or 70s. per 1000.
MENTHA, SEDUMS, CERASTIUMS, LOBELIAS, 5s. per 100, 40s. per 1000.

Descriptive LIST of Carpet and other Bedding Plants, with price, on application. Terms cash. Package free.

Designs Furnished, and Beds Planted in any part of the country. Estimates given.

West Brighton Nurseries, Cliftonville, Sussex.

TO FLORISTS and the TRADE.—

SPIRÆA JAPONICA, 9d. per dozen sprays.
PELAGONIUM, 9d. per dozen sprays.
GERANIUM, Scarlet, 4s. per dozen bunches.
GARDENIAS, 2s. per dozen.
ROSES, 3s. per dozen.
MAIDENHAIR FERN, 6s. per dozen bunches.
BOUARDIAS, Scarlet, 12s. per dozen bunches.
SPIRÆA JAPONICA, 48-pots, in bloom, 6s. per dozen.
PELAGONIUM, Duchess of Edinburgh and Reine Blanche, 9s. and 12s. per dozen.
C. WILSON, The Nurseries, Summerhow, Kendal.

The Truly Magnificent Double Scarlet

ZONAL PELARGONIUM "VESTA." MESSRS. HAWKINS and BENNETT are prepared, during July, to execute orders, in rotation, for the above-named superb stock of most brilliant coloured semi-double scarlet PELARGONIUM, raised by Thomas Laxton, Esq., and awarded a First-class Certificate by the Royal Horticultural Society. Prices, for cash, in No. 60 pots, 25s. per dozen; in No. 48 pots, 63s. per dozen. Special terms to Trade. Apply at Lily Gardens, near the Railway Station, Twickenham, S.W.

FORTY THOUSAND Dwarf, Tea-scented, and other ROSES, in pots, at 15s. to 18s. per dozen, or £5 per 100.

Extra fine Tea-scented ROSES, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen. Address

WM. WOOD and SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

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PINKS, in pots, to name, 3s. 6d. per dozen.
DAHLIAS, in great variety, 3s. per dozen, 20s. per 100.
IRENESE LINDENI or WALLISII, ALTERNANTHERA MAGNIFICA, extra strong, in pots, 2s. 6d. per dozen, 15s. per 100; out of pots, 10s. per 100.

GERANIUMS, in sorts, our selection, for bedding, 15s. per 100.
COLEUS, including Kentish Fire, Geo. Bunyard, Lord Falmouth, Royalty, Garnet, in 12 fine sorts, 3s. per dozen.

AGERATUMS, strong, from stores, 5s. per 100.

PERILLA, 4s. per 100.

GOLDEN PYRETHRUM, 3s. 6d. per 100.

BET, Dell's, 5s. per 100.

HELIOTROPES and LANTANAS, from single pots, in variety, 2s. per dozen, 10s. per 100.

CATALOGUES post-free.

WM. CLIBRAN and SON, Oldfield Nursery, Altrincham.

Cabbage and Other Plants, Now Ready.

FREDK. GEE has much pleasure in again offering Plants of his superior and far-famed selected Stocks, which can be supplied in any quantities as follows, for cash:—**CABBAGE**, large Drumhead and Enfield Market; **KOHL RABI**, large Green; **KALE**, Thousand-head, Scotch, and Cottagers', very hardy; **SAVOY**, large Drumhead and Dwarf Green Curled; all the foregoing at 3s. 6d. per 1000. **BROCCOLI**, Purple Sprouting, 5s. per 1000; Early and Late White ditto, 7s. 6d., per 1000; **CAULIFLOWER**, Early London and White, all transplanted, 10s. per 1000. Package free for cash with orders. Special prices to very large buyers, stating quantity required; also **CATALOGUE** of Seeds, Plants, &c., on application to **FREDK. GEE**, Seed and Plant Grower, Biggleswade, Bedfordshire.

Hyacinths, Tulips, Lilies, &c.

WHOLESALE CATALOGUE of the above is now ready, and may be had free on application to **BUDDENBORG BROS.**, Bulb Growers, at The House, Bloemswaard, Hillegom near Haarlem, Holland.

Bedding Plants.

JAS. HOLDER AND SONS can still supply Geraniums Flower of Spring and mixed sorts, also Coleus, Iresines, Amaranthus, Perillias, Single Petunias, White Verbenas, Fuchsias, Lobelias, Heliotropes, Gazanias, Senecios, Tagetes, Centaureas, Pyrethrums, Asters, &c. 4 dozen, 10s.; 9 dozen, 20s.; 20 dozen, 40s., hamper and packing included. Cash with order.

Crown Nurseries, Reading.**Iresine Brilliantissima.**

F. AND A. SMITH offer the above New **IRESINE**, which is far in advance of any other variety. Strong Plants now ready, at 4s. per dozen. The Nurseries, West Dulwich, S.E.

PRIMULA CASHMERIANA (New).—Fresh Seed of above in 2s. 6d. and 3s. 6d. packets.

PRIMULA CASHMERIANA PURPUREA.—A fine variety, with deep purple flowers. The scapes of this grew 2 feet high. Per packet, 5s. (It should be sown at once.)

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

SPECIAL OFFER OF PLANTS, Established in Single Pots. **PYRETHRUM AUREUM**, **LOBELIAS**, Blue and White, and **AMARANTHUS MELANCHOLICUS RUBER**, 8s. per 100.

CALCEOLARIAS, Sultan and Prince of Orange, and **HELIOTROPES**, 12s. per 100. **GAZANIAS**, of sorts, and **PETUNIAS**, mixed, 10s. per 100. **GERANIUMS**, Bijou and Flower of Spring, 20s. per 100. **BELLIS AUCUBIFOLIA**, strong tufts for parting, from open ground, 6s. per 100.

Package Free. **THOMAS PERKINS AND SONS**, 34, Drapery, Northampton.

CHOICE FLOWER SEEDS.

FOR PRESENT SOWING.  FOR PRESENT SOWING.

Post-free at prices quoted.

| | Per Packet. |
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| AURICULA , choicest Alpine, from a fine collection of s. d. named flowers | 1s. and 2 6 |
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| CINERARIA HYBRIDA , Daniels' superb strain, | 1s. and 2 6 |
| COLEUS , from newest sorts | 1 6 |
| CYCLAMEN PERSICUM , very choice | 1 6 |
| HOLLYHOCK , choicest double | 1 0 |
| PRIMULA , Daniels' superb red | 1s. and 2 6 |
| " " " white | 1s. and 2 6 |
| " " " mixed | 1s. and 2 6 |
| STOCK , East Lothian, scarlet, white, purple, or mixed | 1 0 |
| " " " Brompton Giant, scarlet, white, purple, or mixed | 1 0 |
| SWEET WILLIAM , Daniels' superb Auricula-eyed | 1 0 |
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DANIELS BROTHERS,

ROYAL NORFOLK SEED ESTABLISHMENT,
NORWICH.



CLEMATIS in POTS.—30,000.—One dozen splendid varieties for 24s., such as gained the Gold Medal Prize. Priced Lists on application. **RICHARD SMITH AND CO.**, Nurserymen, Worcester.

ENGLISH PEDIGREE SEEDLING ROSES

BEAUTY OF STAPLEFORD.
DUKE OF CONNAUGHT.
DUCHESS OF CONNAUGHT
DUCHESS OF WESTMINSTER.
HONOURABLE GEORGE BANCROFT.
JEAN SISLEY.
MICHAEL SAUNDERS.
PEARL.
VISCOUNTESS FALMOUTH.

Are now being distributed. Price, 10s. 6d. each; the set, £4 4s. Descriptive LIST gratis and post-free.

H. BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

COLEUS.—The following perfectly Distinct

Kinds, introduced from the Pacific Islands, and said to be of a much more hardy nature than the ordinary kinds. This, together with their totally different and beautiful foliage, renders them indispensable both for the decoration of garden and greenhouse, and probably as much so as *Verschaffeltii*.

DISTINCTION.—Foliage bronze-green, shaded and splashed with bright violet, crimson, and yellow.

SURPRISE.—Ground colour of its foliage the most lovely shade of green. One-third of the centre of each leaf is bright yellow passing to pure white, which gives it a most striking appearance, far more defined and effective than *Zonal Geranium* *Happy Thought*. 2s. each; the two post-free for 3s.

H. CANNELL, The Home for Flowers, Swanley, Kent.

To the Trade.

ASPARAGUS, Giant, 1, 2, 3, and 4-year.
JAMES BIRD, Nurseryman, Downham.

To Noblemen's and Gentlemen's Gardeners.

**Special Notice.**

Royal Horticultural Society.

Messrs. **SUTTON'S PRIZES**

For 6 dishes of Peas
(½ peck of each),

viz.:—

First Prize..... Silver Medal and £2 2s.

Second Prize..... Bronze Medal and £1 1s.

Originally offered for Competition at the Great Summer Show, Will be Competed for at the Rose and Pelargonium Show, July 8 next.

And the restriction as to varieties will be withdrawn.

SUTTON AND SONS, The Queen's Seedsmen, READING.

For Sale.

TOBACCO CORD, CLOTH, and PAPER, for Fumigating Purposes. Apply to **DOBBIN OGILVIE AND CO.**, King Street, Cork.

GARDEN REQUISITES.**COCOA-NUT FIBRE REFUSE.**

ORCHID and AZALEA PEAT, YELLOW FIBROUS LOAM, LEAF and PEAT MOULD, SILVER SAND, BLOOD and BONE MANURE for Roses, Fruit Trees, &c. **DISSOLVED BONES, BONE DUST, and HALF-INCH BONES** for Vines.

GUANO, NITRATE of SODA, CLAY'S FERTILISER.

TOBACCO CLOTH and PAPER for Fumigating.

RUSSIA MATS, VIRGIN CORK, SPHAGNUM MOSS.

TEAK RODS for Orchid Baskets, Wood and Zinc LABELS, FLOWER STICKS, &c.

Any of the above supplied in Large or Small quantities.

Write for Free Price List.

H. G. SMYTH,

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COCOA-NUT FIBRE REFUSE, as supplied to the Royal Horticultural Society.—Four-bushel bag (bag included), 1s.; 30 bags (bags included), 20s.; truck free to rail, 25s.

T. RICH (late Finlayson & Hector), Cocoa-Nut Fibre Works, 24 and 25, Redman's Row, Mile End Road, London, E.

COCOA-NUT FIBRE REFUSE.

Reduced Price:—In 4 bushel bags, bags included, at 1s., 20 bags £1, or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—**J. STEVENS AND CO.**, Greyhound Yard, and 134, High Street, Battersea, S.W.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.

Delivered on rail at Blackwater, S. E. R., or Farnborough, S. W. R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

Fresh **SPHAGNUM**, 10s. 6d. per bag.

WALKER AND CO., Farnborough Station, Hants.

PEAT SOIL, PEAT SOIL.

BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. **BLACK**, good quality for American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s. per ton, or 6-ton truck for £4 10s. Delivered on rail at Blackwater, S. E. R., or Camberley, S. W. R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER AND SON, Crown Nurseries, Reading.

**TREE FERNS and PALMS.**

THE LARGEST AND BEST STOCK IN EUROPE.

ALSO MANY OTHER

MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS,

Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

WILLIAM BULL, F.L.S., Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW "CHESHUNT" RAISED and ENGLISH SEEDLING ROSES

For 1879.

PAUL & SON,

The Old Nurseries, Cheshunt, N.

Beg to announce that they are now sending out a continuation of their Cheshunt-raised Roses, which they believe will give as much satisfaction as the several kinds sent out previously by them. Duke of Edinburgh, Cheshunt Hybrid, Reynolds Hole, Emily Laxton, John Bright, and Mrs. Laxton, are examples of the careful trial to which kinds are subjected here before being sold.

H.P. MARQUIS OF SALISBURY (Paul & Son).

First-class Certificate Royal Horticultural Society, 1877.

Deep rose with crimson shading; perfectly imbricated, round, globular form, like a well arranged ball, a grand autumnal Rose, and perhaps the finest shape yet raised; a strong, compact habited plant, making a neat standard and dwarf. Exhibited both in 1877 and 1878, it was much admired. Strong plants, single plant, 7s. 6d. each.

H.P. CHARLES DARWIN (Thos. Laxton, Esq., and Paul & Son).

Rich brownish-crimson, perfectly round, reflexed form; this is a new tint in colour, and is evidently of Bourbon blood in its origin; it will be a beginning of a desirable very free autumn-flowering as well as summer-flowering race. We unhesitatingly recommend it. The whole stock of this fine Rose was purchased by us in the winter of 1876, so that it has been thoroughly tested at Cheshunt. Our large stock lets us offer this at once, as a grand garden show Rose, which should be in every collection, at 3s. 6d. each, 36s. per dozen.

H.P. CLIMBING EDWARD MORREN (Paul & Son).

Cherry-red; a selected sport, which will be most valuable; the blooms being a little smaller and less double than its type is a gain, and its robust habit will render it most valuable. It is a perfect autumn-flowering climber. Single plants, 5s. each.

Also splendid plants in pots of

NEW FRENCH ROSES of 1879, and **NEW ENGLISH ROSES** of 1878, 30s. per dozen.

NEW FRENCH ROSES of 1878—the best only, 24s. per dozen.

Many thousand fine Pot Roses for Greenhouse culture now ready to select from.

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IMPORTANT TESTIMONIAL.

"Gentlemen,—Some months since you were kind enough to send me a bottle of your 'Florvita,' and at a subsequent period, when your representative called here, I had not then had sufficient experience with it to be able to form an opinion of its value as a fertiliser.

"Since that time I have tried it on various kinds of plants, and I must admit that its effect upon them has very much exceeded my expectations. To apply a stimulating manure to a collection of plants of any kind, and to find that these plants succeed well, and at once to ascribe this result to the application, is an assumption not altogether justified, at all events it is not a fair trial as to the effect of the fertiliser, as it might of course be assumed that the plants might have done equally well in the absence of the application.

"My experiments have been conducted upon various sets of plants of the same species, same age, potted in the same compost (or description of soil), and growing in the same structure, applying the 'Florvita' as directed to a portion of the plants only, and the effect produced upon this portion was very soon apparent.

"Our early Cucumbers here are always grown in large pots placed upon a hot-water tank. To one half of the pots the 'Florvita' has this season been applied twice a week, and the difference between the moieties of plants is very remarkable as regards the healthy appearance of the plants, as well as the production of fine fruits.—I am, gentlemen, yours respectfully, "Messrs. PRENTICE BROS. "P. GRIEVE."

One teaspoonful of the Florvita to be added to each gallon of water used. The Plants should be watered with it three times a week or more.

Samples, post-paid, 1s. 2d. Prepared only by PRENTICE BROS.,

CHEMICAL LABORATORY, STOWMARKET.

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Safe and Certain.

SIMPSON'S RED SPIDER AND THIRP ANTIDOTE. Per quart, condensed, 6s.; per pint, 3s. 6d. Supplied to Seedsmen and Chemists. Prepared by JOHN KILNER, Wortley, Sheffield.

GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

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EWING'S MILDEW COMPOSITION, in bottles, 1s. 6d. and 3s. each; one gallon cans (to make 104 gallons of mixture for syringing), 12s. each; two gallon cans, 20s. each. Mildew or Red Spider are also effectually prevented or destroyed by merely painting the hot pipes with the composition mixed with whitewash; no direct application to the foliage is then necessary.

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A NEW AND UNRIVALLED INSECTICIDE FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing properties, with perfect safety to foliage. No known blight can resist it, and it is the cheapest in the market.

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TOBACCO PAPER, CLOTH, and CORD.

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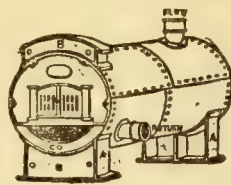
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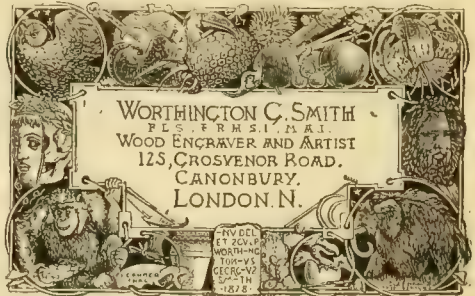
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DUKE of CONNAUGHT, seeded from President X Louis Van Houtte.

JEAN SISLEY, seeded from President X Emelie Hausburg.

MICHAEL SAUNDERS, seeded from President X Madame Victor Verdier.

PEARL, seeded from President X Comtesse de Serenyi.

VISCOUNTESS FALMOUTH, seeded from President X with Moss Soupert et Notting.

Strong Plants, in pots, now ready, 10s. 6d. each; the Set, £4 4s.

TESTIMONIAL.

"DEAR SIR,—Your Seedling Roses have all bloomed, and we are greatly pleased with them; and if these striplings of plants will produce such flowers as they have done, what will they not be when we get them in strength. They are, without doubt, a grand success.

"The Royal Nurseries, Slough, June 10, 1879.

"CHARLES TURNER."

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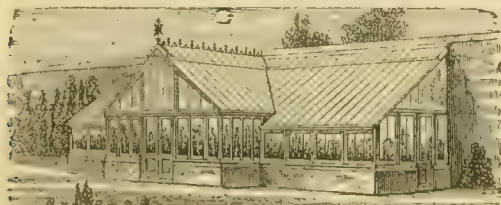
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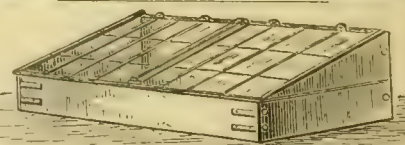
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With 2-inch sashes and 1½-inch red deal frames, secured at each corner with two wrought-iron strap bolts. Glazed, without putty, with 21-oz. glass.

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The Ridge always fits close, the interior is free from all obstruction, the corners are secured in iron angle-plates: glazed, without putty, with 21-oz. glass.

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GIGANTEUM RUBRUM, new, 5s. and 3s. 6d. per pkt.
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finest mixed, 5s., 3s. 6d., 2s. 6d. and 1s. 6d. per packet.
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SUTTON'S RUBY KING (New variety).
Large Silver Banksian Medal, Royal Horticultural
Society, January 14, 1879, also a
First-class Certificate, Royal Horticultural Society,
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"Most striking and magnificent in appearance."—*Gardeners' Chronicle*.

"The most beautiful of Chinese Primulas."—*Garden*.

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| Deep Blood-Red. | Perfectly Distinct. |
| Per packet s. d. s. d. | Per packet—s. d. s. d. |
| Ruby King .. 5 0 | Superb White 5 0 and 2 6 |
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"The Primulas from your seed I have never seen equalled."—Mr. A. BIRT, *Redborough*.

SUTTON'S PRIZE CALCEOLARIA.

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| Perfection | 5s. and 2s. 6d. per packet. |
| Little Wonder | 5s. and 2s. 6d. per packet. |

From the "Garden."

"The Calceolarias of Messrs. Sutton & Sons' Nurseries, Reading, are just now beautifully in bloom, and should be seen by all who take an interest in this class of plant. The strain is one of the finest, being the result of years of careful selection. Many of the individual flowers measures $2\frac{1}{2}$ inches across, and are perfect in shape and colour."

"Your Calceolarias were really beautiful, and took first prize at Gosport Show."—Mr. N. WATERS, *Gr. to Sir E. Commerell*.

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| Sutton's Superb | 5s. and 2s. 6d. per packet. |
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| Drooping Flowering .. | 5s. and 2s. 6d. per packet. |
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From Mr. J. B. WARD, *Lower Edmonton, April 8*—

"Gloxinias from your seed, raised last spring, just coming into flower, are perfectly marvellous. The flowers are 3 to $3\frac{1}{2}$ inches in diameter, and the colour of the bloom is quite equal to your plates."

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| Sutton's New Double .. | 5s. per packet. |
| Sutton's Single Hybrid .. | 5s. and 2s. 6d. per packet. |

POST FREE.

Sutton Sons

THE QUEEN'S SEEDSMEN,
And by Special Warrant to
HIS ROYAL HIGHNESS the PRINCE of WALES,
READING.



SATURDAY, JUNE 21, 1879.

MENTMORE TOWERS.

(Concluded from p. 743.)

THIS seat of the Earl and Countess of Rosebery, and lately of Baron Meyer de Rothschild, is called in Murray's *Handbook of Buckinghamshire* a "superb mansion," and I cannot "better" the expression. It is a magnificent house, most luxuriously furnished and elaborately decorated. The central and grandest apartment is the Great Hall, with its ceiling in the roof, and galleries reached by a broad marble and alabaster flight of steps. Though wealth and luxury are growing inconveniences, there are very few people in the world who can go up such a pair of stairs as that to bed. In each of the numerous rooms—bright and light, the Hall alone being dimly lighted and its gorgeous furniture artfully obscured—there are articles of *virtu* each worth the value of 100 acres of good grass-land in the adjoining vale. There are rich and rare cabinets by the score, majolica and amber ornaments of fabulous preciousness, a room full, but not too full of exquisite engravings, another room without even a nail in the wall to hide the rich pattern of hand-woven silk. The paintings are hung sparingly, and are generally portraits of distinguished persons, and not red-cheeked people whom you now see for the first time, a heavy crop thick set upon the walls without a gap. For further particulars in this department I must refer to Murray.

As we walked through the grounds and gardens I learned from Mr. Smith that he employs from forty to fifty men. There are 10 acres of kitchen garden, and a great many more graperies, fruit-houses, stoves, and plant-houses than I could count, or should care to travel through in less than a day devoted to the purpose. A portion of the hill, which bore upon its crest a little village only thirty years ago, and which wealth has crowned with a better village, a cluster of model cottages, and Mentmore Towers, consists of a gravel soil, and the greater portion is clay with an unkind subsoil of poor white marl. When the roots of fruit trees reach this stuff the trees begin to canker, and Mr. Smith prevents their doing so by a simple process of root-pruning. A trench is dug round the tree 2 feet or more from its stem, and about 2 feet deep. The roots are then cut, and the tree "under-pinned," as builders would say, with nice, friable, manured and well rotted turf-mould. One half of the circumference is done first and then the other half; the bad clay is entirely removed from beneath the tree and replaced by a layer of the made earth. When the process is completed the tree rests on a layer of this good stuff, 6 inches deep at the thinnest, and in two or three years you have a tree with a bush of fibrous roots which may be fed from the surface and will not penetrate the subsoil. On sandy ground half the tree may be treated this autumn and the other half a year later, but Mr. Smith completes the operation in one season, and his trees are not checked nor their crops injuriously affected even in the first summer.

We looked into an elegantly fitted dairy and passed on to a pleasure garden on the side of the hill. It consists of a sloping lawn planted with specimen Conifers and clumps of various sorts of evergreens and other trees. A Picea

nobilis glauca is the reigning monarch of this department, clad in the purple of royalty. I believe Mr. Smith is quite a courtier, and may be seen here doing homage every Sunday morning after church. There are several clumps of great beauty here, the most attractive being composed of *Cryptomeria elegans*, which reddens to a deeper hue as the winter season advances. Something green and low, and slow growing should be used with this shrub to hide every bit of soil, and this is managed here with short bushy *Rhododendrons*. It is not quite the soil for Conifers, but it agrees exceedingly well with the Chinese Juniper, which is drawn up in an imposing manner alongside the carriage-drive, where it grows rapidly, and was thinned last year by the removal of alternate shrubs. The largest spreading Walnut tree, I can remember, with some far-reaching side branches, grows on the top of the slope with its seams and cracks well metalled over.

We next reached the site of the former kennel whose removal to Ascot no good gardener could regret. The spot was seized and transmuted, and behold a rosery instead of stag-hounds, and a tennis lawn where some adjoining buildings stood. We passed through a fernery in embryo to the subtropical garden, which had then lost much of its attraction by the removals to the Palm-house, and yet the spot was fascinating, and I could have lingered longer compiling a list of various plants from many distant shores. It would have taken all day however to complete. I wrote down the names of several reeds and Bamboos which would probably be familiar to gardeners. There is a New Zealand grass (or reed), *Arundo conspicua*, of slighter habit than the Pampas-grass, and blossoming like it, but ten weeks earlier, which would form a fit companion for it. Other plants which caught the eye were *Arundo Donax* variegata, *Eulalia japonica*, the common *Eucalyptus*, *Juniperus sphaerica*, *Acanthus*, *Aralia variegata*, *Spiræa opulifolia aurea*, a good foreground and contrast to a boundary fence of *Euonymus* and Yew. No live fence of subtropical or other garden should be without the *Acer rubrum*, which is here with *A. polymorphum* and some others.

An aviary came next, with flamingos on rickety long legs, gorgeous Mandarin ducks, and those very pretty, costly, and curious birds (£20 per pair!), the whistling ducks, who kept their heads beneath their wings and whistled, and then withdrew them and whistled so, and then tried the other plan—whistling always. They are exceedingly cheap at £20. Pat told the poulterer he could buy a goose for 6d. in Ireland. "Then why did not you stop in Ireland?" "Because," said Pat, "I hadn't got the sixpence." And so it is with many a would-be buyer of whistling ducks at £20 a pair.

We passed through many houses, from that which I may call the Palm-house, since it contains several, to the Mushroom-house, where that esculent is warmed up by a little bottom-heat, and yields several bushels weekly. The "foliage plants" are grown here in large quantities for what is technically called "furnishing;" and among the innumerable sorts and specimens grown for decoration I observed, in passing, large quantities of the *Gardenia*, which must be a favourite; but I was most surprised by the number of the *Amaryllis aulica*. It "stands," Mr. Smith says, better than anything else, and its gorgeous blossoms suit the apartments which it is employed to decorate. The bulbs are not dried off, but kept growing all the year in small pots, and repotted in alternate years. If the plant is forced the leaves will grow long and flabby when they ought to be short and tough, and the flowers will be borne on long stalks instead of short. It should be kept in cold frames till the blossoms show, in November, when a little heat must be given.

The big bulbs, at the present time, are producing numerous offsets, and the constant succession of blossoms by the offsets forms one of the peculiar merits of the plant. Something should be said of the Orchids and of Mr. Smith's hybrid *Dracænas*, and of another plant in quite a different department, which ought not to have been overlooked—I mean the Potato, which I found advancing for a Christmas crop; but this article is already long, and it must now be closed at once, lest the writer should remember something else. *H. E.*

GLEICHENIA DICARPA LONGIPINNATA.

GLEICHENIA DICARPA is one of those species in which the little round segments which fringe the rachides are incurved at the margins so as to form a minute pocket or pouch. This peculiar character is found to occur in several forms, of which probably *G. alpina* is the extreme in one direction and *G. hecistophylla* in the other. It at once distinguishes them from the green-leaved *G. microphylla* and *semi-vestita*, and from the glaucous *G. Spelunceæ* and *rupestris*, in which the segments are not pouches.

The plant of which we now give a woodcut illustration (fig. 112), kindly placed at our disposal by Mr. Williams, of the Victoria Nursery, Holloway, is one of this pouches series, which he has within a short period introduced directly from Australia. It has all the elegance and beauty of the original, as is well shown in the figure, but it proves to differ from the forms of *G. dicarpa* already in cultivation in being more free in its growth, and thus forming a specimen plant more rapidly than they do. Hence it will have a special value as an exhibition plant over and above that which it bears from the decorative point of view. In this respect it will also take a high rank, for few small-growing Ferns will successfully contend with it for precedence.

G. dicarpa longipinnata, then, is an evergreen greenhouse Fern, with a creeping caudex and a rusty-brown stem, clothed with appressed fimbriated scales, as also is the underside of the rachis. The fronds which have come under our observation were three times dichotomously branched, the whole of the branches being furnished throughout with drooping pinnæ. In some examples which were fully grown the pinnæ were as much as 5 inches long, so that the branch when spread out measured 10 inches across. The colour of the fronds while young and fresh is dark green, with a metallic or bluish tint thrown over the surface, and the underside is glaucous. It has already won its spurs, having been certificated at the metropolitan exhibitions. Altogether it is a very beautiful variety of a most charmingly graceful Fern—one which in any of its forms has always been a favourite with cultivators.

In this connection we may mention another of the pouches *Gleichenias* found in cultivation under the name of *G. Mendelii*—a plant of remarkable elegance. It is marked by the deep bluish-green metallic colour of the upper surface of its fronds, while the underside is remarkably glaucous. Indeed, in its colouring it somewhat approaches the variety now figured, but has not the same vigour of growth. This has, no doubt, been at some time imported from Australia, but its origin is, we believe, not exactly known. It is, however, equally with the subject of our illustration, a desirable acquisition for choice collections. *T. Moore.*

THE POLYANTHUS.

ONE of the oldest of florists' flowers and allied to the *Auricula* in habit, character, time of blooming, and essentials of cultivation, the Polyanthus appeals to all who love hardy spring flowers either in the commoner aspect of their garden uses, or in the more technical and special sense as exhibition plants. With that awakening of renewed life amongst florists now being stimulated by the National Auricula Society, the Polyanthus is once more taking a prominent place on the show table, and there can be little doubt that, like the *Auricula*, the Polyanthus may again become the favoured child of many an amateur cultivator who looks to his plants for that recreation and rest from the anxieties of business pursuits so essential to the health and

happiness of all busy men. Just as the old florist will dignify with the designation of "the *Auricula*" none other than the show section, so also will he claim place for the gold-laced kinds as being *par excellence* the show Polyanthus—all other kinds, however beautiful they may be, being in his estimation simply border varieties. The Southern section of the National Auricula Society in London, and its Northern sister in Manchester, have, however, at last recognised that these so-called border kinds contain many elements of beauty and show quality, and have consequently in each case established special classes for their encouragement, with what success time alone will show.

Either the gold-laced Polyanthus of forty or fifty years since has been greatly flattered by old artists, or the best kinds of those days have been lost, as we cannot now find, even in the very best sorts now in cultivation, such perfection as the floral artist was then enabled to portray. It is, however, fair to assume that the fault of flattery was as common then as now, probably more so; that our best kinds were also the best kinds of our forefathers; and that in good hands they are as well done as ever they were in days past. Judging by the florist's ideal as depicted in the old drawings, and further by the best flowers they have handed down for our education and delectation, we have now existing amongst some professing florists either exceedingly crude notions as to the points, of excellence in a first-class flower or else blinded by prejudice in favour of their own children, they fail to perceive how deficient are their seedlings in those elements of beauty that constitute a high-class flower. All who have at any time set themselves to the work of raising seedling gold-laced Polyanthuses must acknowledge the remarkable difficulty that attends the production of any flower that can be regarded as promising. Of a thousand seedlings raised from the best strain procurable, many will be rubbish of the most wretched kind: a large proportion of them will be passable, and may do for the garden border; a very few will be worth saving as seed producers. Of these, it is most probable, as the paucity of good new flowers shows, that not one will be worth a name; some may have between them all the points that make up a good show flower, yet not one may unite them all. One has lacing so clear, fine, and continuous, cutting through in every case to the centre, and presenting such a beautiful outline as to be almost perfection, yet the ground, perchance, is muddled and shady, or the centre is dirty and clouded, or there is a horrid stigma sticking up out of the tube, whilst the anthers are quite out of sight. In fact, there is sure to be something or other to nullify the one point alone that is so good, and thus, except as a seed-bearer, the plant is valueless.

Raisers of seedlings may well ask of botanists the question, How is it that in all seedling stocks of the Polyanthus at least two-thirds will be inevitably pin-eyed flowers, even though all the parents were thrum-eyed? Probably sentimentalists of a certain school will reply that, as in the human family, so in flowers—there is an undoubted tendency to revert to their evil habits, if not in the one case instructed, and in the other case cultivated; but it will do little to clear up a point that is one of undoubted interest to all florists. The highest development of perfection in the gold-laced Polyanthus is never seen in a large flower. Size and beauty in all points are never allied; and now we have a demand for size, on the ground that in the best kinds the blooms are not large enough. With such enormous difficulties presented to the raiser in the production of really good flowers of even moderate size, it is rather absurd to cry out for bigness ere the other steps have been gained. It is well worth enquiring whether in the Polyanthus size is an element worth striving for, and, indeed, until better small ones can be obtained it had best be altogether ignored. Outside of the genuine school of florists how few are there who understand the points in a gold-laced flower that makes up perfection. The lacing is the chief point, and that must be narrow, pure, even, cutting right through at every segment of a petal to the centre, and must be of a bright yellow. The ground should be either black, or as dark and as dense as possible, or else of a rich chocolate-red; the centre flat, smooth, and perfectly rounded, showing a fair proportion in its diameter to the breadth of the entire flower, and it must, like the lacing, be of a bright clear yellow, and not a dull orange or a clouded buff. The throat or tube should be small and

rounded, having the anthers or thrum well up in the mouth. If to these points be added a flat flower of a neat rounded form, then a first-class variety is the luck of the raiser, and he has good reason to be proud of his success.

A very common feature in many seedling flowers that are otherwise fairly decent specimens, is the pointed form of the segments of the petals. Except in unfrequent cases it is the rule in the flower of the gold-laced Polyanthus to produce not more than five petals or divisions, and each of these are divided into two segments or lobes, the lacing in a good flower passing quite through the ground-colour as clearly in the centre of the petal as on the outside. The pointed form is produced by the lobes of the petals having the outer sides or edges longer than the inner ones, presenting in fact sharp angles rather than rounded lobes, and thus the symmetrical regularity that ought to exist is wanting. Some newly-named kinds have this defect in a marked degree. To produce flowers

they lack those qualities that make up a good show flower, as even though size, form, and substance be present, the defects of colouring are most marked when placed in juxtaposition to good self-coloured flowers. Some very beautiful dark self flowers have been selected from the dark strain of Polyanthus, so largely grown in some localities for the London market. In habit and size of flower these come nearer to the gold-laced kinds, but the plants are very hardy and robust, and generally produce very erect even heads of bloom. From out of these there is hope that in good time may be selected a race of finely-shaded flowers that will display in the Polyanthus some of those beautiful features that characterise the show alpine Auricula. A section of rich shaded flowers would not only give to the Polyanthus additional interest, but it would open up to amateur cultivators a wider field, and one that may, when combined with the self kinds, offer such attractions as shall succeed in drawing into the present too limited

and-by; in the meantime there are now available a goodly number of varieties, some of which are of exceeding brilliancy, others of remarkable delicacy of colour, and whose only fault is that they bloom before the leaves appear—a defect which it has been sought with much success to remove, in the newer varieties to which we have alluded. With the yellow, and pinks, and scarlets of the Azaleas, and the white, or pink, or purple, or deep rosy, or magenta, or carmine hues of the Rhododendron, the picture is a richly-coloured one, and once seen is not easily forgotten.

The past winter, as all severe ones do, has sternly tried the qualities of the varieties, and many well-known sorts cut but a sorry figure from the buds being more or less frost-bitten, and the flowers killed in the incipient state, so that but few of the blossoms in a truss come to perfection. It is in such seasons as this that the collection should be visited by those who intend to plant, that they may see what sorts bear the



FIG. 112.—GLEICHENIA DICARPA LONGIPINNATA. (SEE P. 780.)

that possess in common the necessary points of excellence may well incite some of our younger florists to tread the paths their fathers trod, in the hope of gaining some day the coveted and merited reward.

Although all other kinds of the Polyanthus are classed by florists as fancy or border flowers, yet this term very imperfectly describes or defines their position and features. Fancy flowers comprise some beautiful self kinds, the pervading hues of which are white, sulphur, yellow, red, crimson, purple and black; of these alone it would be possible to select many perfect flowers that could constitute a class of selfs for show purposes. There are merits attached to these kinds that the gold-laced section does not possess: they seed freely, and generally reproduce from seed flowers of fine quality and variety; they have that which is to some the cherished element of size and robustness; they want no coddling but will thrive well in any good soil or situation, and as well or even better in the open air as under glass. What might well be termed "fancy" kinds are all those that have diversely marked or flaked and spotted flowers. Charming as these are, however,

circle of spring-flower florists many who have the taste but not the means and capacities to cultivate successfully such comparatively rare and costly subjects as Auriculas and the gold-laced Polyanthus. X.

THE AMERICAN PLANTS AT Knap Hill.

THE grand display of Rhododendrons and Azaleas at the Knap Hill Nursery is now about in its full glory—and a glorious sight it is when the atmospheric conditions are favourable, the rosy and carmine tints of many of the modern flowers being such as require to be lighted up by sunshine to bring out fully their brilliancy and beauty. In many seasons the Azaleas are found to be in advance of the Rhododendrons, but the peculiarities of the past season and the effects of crossing have brought them on together, and the result is a mixture which heightens the charms of both. Beautiful as are the hardy Azaleas now in cultivation, they are as nothing compared with a new race of hybrids which has here been worked up to a very high pitch of merit. We shall hear more of these by-

stamp of hardiness in foliage and flowers. There is as much difference in the leaf as in the blossom in regard to the effect of the plant as a hardy evergreen bush, some having bold enduring foliage, while others fall readily, and leave but a beggarly account of scraggy branches; while in respect to the flowers, while some throw bold and perfect trusses even after the severest winters, others develop only the miserable two or three-flowered trusses which we have already mentioned.

For the benefit of those who cannot go and see for themselves, but which we advise all who are interested to do, we have noted down the names of a few of those which are free from the defects at which we have hinted, and those who plant these sorts under fair conditions will assuredly not be disappointed. First, perhaps, comes Lady Armstrong, one of the most fascinating of Rhododendrons, bearing immense bluntly conical trusses of large flowers, the colour of which is a sparkling brilliant light rose, with the centre paler than the other parts of the flower. Kettledrum is another of the hardiest amongst the hardy—a rich deep purplish-tinted rose, which stands

out everywhere striking and effective. Meteor is a brilliant crimson-red, very rich and glowing in colour. Mrs. Midner and H. W. Sargent are flowers of a splendid crimson-rose, bold in truss and in foliage, and amongst the most telling. Archimedes is a light rose with paler centre, undamaged by the frost. Old Port, a rich plum-purple, is indispensable, both for its merit as a flower, its hardiness as a shrub, and its distinctness of character. Agamemnon is a fine claret-red, with a white centre. Caractacus, a magenta-rose with blotch of black dots, is a striking sort: so is the old Everestianum, with its charmingly fringed lilac flowers. Minnie and Mrs. John Clutton are conspicuous amongst the whites. Scipio is remarkable for its dense leafage and its abundant, large, compact flower-trusses of a deep rosy-pink, marked on the upper segment by a rich black blotch.

Amongst newer sorts Sappho is a very striking variety, large and bold in the flower and truss, the colour a clear white, with a large blotch on the upper segment so dark as to appear black by contrast; nothing can be more effective than this. Another very fine and distinct variety, having all the virtues, is Mrs. Shuttleworth—hardy, forming a good bush and an equally good standard, and bearing compact trusses of finely-shaped flowers, which are of a rich crimson, with a white blotch on the upper segment, the blotch almost covered by black spots—the effect of this dash of white in lighting up the centre of the flower being marvellous. J. Marshall Brooks is another grand flower, of a rich and lovely crimson, with a large blotch of bronzy or yellowish green spots on the back segment, which renders the blossoms very telling, and gives a distinctness of character which is most desirable. Lady Grey Egerton has immense compact trusses of large blush-coloured flowers. In Sigismund Rucker we have perhaps the finest hardy Rhododendron ever raised, a close and well-shaped truss of deep magenta-rose flowers, with a large and very distinct black spot.

This is by no means intended as an exhaustive list, or even as a full selection of the best sorts grown, but simply as a record of those which have proved specially attractive, and which caught our eye as having escaped unhurt, while many others have been hard "hit" by the severity of the past winter. M.

ROOT GROWTH.

THE accompanying diagrams (fig. 113) represent, in a concise form, the principal results of some experiments undertaken with a view more especially of ascertaining the conditions under which root-hairs are formed. These root-hairs are, under certain circumstances, formed very abundantly on the root-fibres of some plants, while, on others, under apparently equally favourable conditions, they are either very few, very minute, or they do not exist at all. Water plants and thick fleshy roots are often, but not universally, destitute of them. But even in the case of plants the general character of whose roots is pretty much the same, the hairs vary greatly in degree of development. The fine fibrous roots of various species of grasses, for instance, present considerable diversity as regards the production of root-hairs. There is no very great difference between the radicles of Mustard and those of Cress, but it is easy to see with a pocket lens or even with the naked eye that while the Mustard has abundant root-hairs, the Cress is relatively very deficient in them. Their formation has been attributed to pressure causing an obstruction to the course of the fluids and its consequent determination to the epidermis, but their presence on some roots growing in water and air, and in other cases where pressure is exerted, oppose this view of the cause of their formation. These several circumstances point to corresponding diversities in the mode of obtaining and of appropriating food, so that a careful study of these outgrowths would, in all probability, give results not only of much physiological importance, but also bring to light facts of much practical importance for the cultivator.

The full details of the experiments to be now alluded to must be reserved for the *Journal of the Royal Horticultural Society*. In this place we can merely indicate their general scope, and allude to certain main results which may be clearly seen in the accompanying tables. The experiments were made by sowing on the same day seeds of Mustard and seeds of Cress, in 6-inch pots filled with materials of various consistence, &c. Thus two pots were filled with stiff clay rammed hard (called 1 in the diagram); two with small gravel pebbles (2); two with lumps of "ballast" or burnt clay (3), varying in size from that of a Filbert to that of a Walnut; two

with rich garden mould (4); two with layers of flannel laid loosely (5); two with compact layers of half-rotten leaves (6); and two with road-sand (7). Thus considerable variations in degree of permeability and capacity of retaining water were obtained. Half of each pot was devoted to Mustard, the other half to Cress. On the same day other seeds of the same plants were sown on glass plates, and on blocks of charcoal kept moistened. With these, however, we have not at present any concern. The seedlings in pots were kept in a cold frame, and one set was examined and measured on February 16, the companion set on March 3. All the seedlings were measured, and a rough average thus arrived at. In the accompanying diagrams the average height of the entire plant, the length of the caulicle or tigellum (that portion between the seed-leaves and the radicle), and the length of the radicle, are indicated for both Mustard and Cress, as noted on the two dates mentioned. The horizontal spaces to the left numbered 1—17 represent the pots with the various substances before enumerated; the black dots • indicate the average height of the seedlings on February 16; the open circles ○ show the average height of the tigellum of these seedlings on the same date; while the asterisks * represent the average length of the radicles. The measurements are of course approximate, but sufficiently near for this purpose.

The corresponding measurements of the duplicate set of seedlings taken on March 3 are represented as follows:—a thick line | shows the average height on March 3; a thin line | that of the caulicle, a wavy line { that of the radicle.

The four sets of observations are on the whole fairly consistent with each other, and the general result goes to show that while the total height, the length of the radicle and, it may here be said, the production of root-hairs, the amount of which could only be estimated to the eye, are for the most part in direct proportion to the porousness of the soil and its permeability, the length of the caulicle is much less influenced by diversity of physical conditions. Its marked rise in No. 6, (rotten leaves), however, in all four pots, is not easily explained. In the earlier stages of growth—during the time, in fact, when the seedlings must have been in part nourished by food stored up in their own tissues—the fluctuations are much less sudden; this is especially noticeable in the Cress diagram for February 16, where the total height, that of the radicle and of the caulicle respectively, maintain an almost uniform relation. The seeds grown on moistened flannel (5) were invariably, and those on (6), decayed leaves, almost invariably, among the lowest of the series, while there is considerably more diversity in the other cases. It must be observed that in col. 4 of the Mustard diagram the asterisk (*) is placed too high—it should have been placed on a line with the horizontal line 8; and on the other hand the dot • is placed too low—it should be between 11 and 12.

THE FORESTS OF CENTRAL NEVADA.

By CHAS. S. SARGENT.

As compared with our Atlantic forests, or those still nobler ones which, farther to the west, owe their existence to the influence of the Pacific, the forests which clothe, with a scanty and stunted vegetation, the mountain slopes of Nevada are miserably poor in extent, productiveness, and especially in the number of species of which they are composed. Actually they are of immense value. For, scanty as they are, they regulate and protect the rare and uncertain streams on which the agriculture of Nevada depends, and furnish a large population with fuel and lumber; a population, too, which, while consuming and wasting enormously its forests in vast mining operations, is practically cut off, by its isolation and the cost of transportation, from outside supply.

A hurried journey made in September last, undertaken for the purpose of studying *in situ* the trees of the "Great Basin," and of introducing into cultivation some of the peculiar plants of that region, took me to the great mining centre of Eureka, and then through Dry and Fish Spring valleys, 75 miles further south-west into the Monitor Range, to the point where its highest peak, "Table Mountain,"

reaches an elevation of 11,200 feet, and offered an excellent opportunity to examine the timber supply of that central portion of Nevada.

The forests of this portion of the State are composed of but seven species. Of these two, the Red Cedar (*Juniperus virginiana*, L.), and the Aspen (*Populus tremuloides*, Michx.), extend across the continent; two, *Pinus Balfouriana*, Murr., and *Pinus flexilis*, James, extend along the mountain ranges from the Rocky Mountains of Colorado to Mount Shasta in California; two, *Pinus monophylla*, Torr., and *Juniperus californica*, Carrière, var. *utahensis*, Engelm., are endemic to the "Great Basin;" while *Cercocarpus ledifolius*, Nutt., although occurring as a shrub both in the Rocky Mountains and in California, only here becomes a valuable tree.

Juniperus californica var. *utahensis* is the most common, and the most widely distributed, of the trees of this region. It is found at lower elevations than any other tree, and alone descends into the valleys, where, at an elevation of 5000 feet, it is often abundant, but less so than on the mountain sides, over which it spreads up to 8000 feet elevation. It is a low bushy tree, branching from the ground, with a stout trunk which rarely exceeds 2 feet in diameter; short and very stout branchlets, and thick shreddy bark. The wood, which is moderately hard, pale coloured, and slightly aromatic, furnishes the common and cheapest fuel both for domestic use and for generating steam on the railroads and at the mines. The typical *Juniperus californica* belongs to the California coast range, and the variety extends over the whole of the southern portion of the "Great Basin." In fruit this species will be readily distinguished by its dry one-seeded berry, the great thickness of the stony coating of the seeds; and from all other Junipers (as pointed out by Dr. Engelmann) by its 4—6-cotyledonous embryo. Without fruit it may be easily confounded with *Juniperus occidentalis*, Hook., which species, however, has not been detected in Central Nevada. Like all the trees of the "Great Basin," this Juniper is of exceedingly slow growth. A specimen before me $4\frac{1}{2}$ inches in diameter shows 105 annual layers of growth, or an annual average increase of nearly one-fiftieth of an inch.

Growing with this Juniper, above 6000 feet elevation, and extending rather higher up the mountains, is *Pinus monophylla*, Torr., the "Nut Pine" of Nevada and eastern California; but not to be confounded with an allied species, also bearing edible seeds, *Pinus edulis*, Engelm., found from Colorado to New Mexico and Arizona. *Pinus monophylla* is a small tree, 10 to 20 feet high, with reddish scaly bark, and is easily distinguished from other North American Pines by its solitary, glaucous, terete leaves (very rarely in pairs, and then semi-cylindrical). The wood is white, soft, light, and very resinous; it is more highly prized for making charcoal than that of any tree of this region. In slowness of growth *Pinus monophylla* does not essentially differ from the Juniper with which it is associated; a specimen that I have examined, from the locality which furnished the specimen of Juniper referred to above, is $5\frac{1}{2}$ inches in diameter, and shows 113 annual layers of growth. The immense crops of large and delicately flavoured seeds produced by this tree supply, as is well known, to the Indian tribes of the "Great Basin" their most important article of food. The value of this crop, and the excellent quality of the wood for charcoal, make this tree, in a mining region entirely destitute of coal, its most valuable vegetable production. The introduction of *Pinus monophylla* into the South of Europe as a subject for forest planting is worthy of consideration; it might flourish there on those dry and exposed hill sides which have been found so difficult to satisfactorily recover with any European tree. Its strictly pyramidal habit while young—a habit which it entirely loses with age—and the pleasing glaucous tints of its foliage commend this species to the lovers of ornamental conifers.

*Pinus Balfouriana** was only met with on Prospect Mountain, near Eureka, at an elevation of 7500 feet, to the summit 8000 feet. Formerly the whole summit of this mountain was very generally covered with this species, but with few exceptions the trees have all been cut to supply the mines with timbering, for which purpose the strong and very close-grained, tough wood of this species is preferred to that of any

* With the insufficient material at my disposal I cannot satisfactorily separate *Pinus aristata*, Engelmann, from Murray's *P. Balfouriana*, the older name and founded on California specimens. *Pinus aristata* is an alpine plant discovered by Parry many years later in the Rocky Mountains of Colorado.

* Abstract from a paper in the *American Journal of Science and Arts*, June, 1879.

other Nevada tree. The specimens seen were 15 to 30 feet high, with trunks often 2 feet in diameter, pyramidal in outline, their lower branches still remaining, so that at a little distance they might readily be mistaken for Spruces. The bark, like the wood, is reddish in colour, very thick and deeply furrowed, that of the branches smooth and quite white. The short, falcate, appressed leaves persist for years, forming tufts of foliage a foot or more long at the ends of the naked branches; and this peculiarity has suggested to the lumbermen of the region the name of "Fox-tail Pine" for this species. *Pinus Balfouriana*, should it be found to retain in cultivation the peculiarities which characterise it on the mountains of Nevada, will be one of the most striking and interesting of the genus for ornamental planting.

Pinus flexilis, the Nevada representative of the Eastern White and the Californian Sugar Pine, is the largest and the most valuable timber tree of the central portion of the "Great Basin." I found large

Central Nevada trees. It is a small tree, 10 to 30 feet high, with small evergreen leaves and brown scaly bark, in habit and general appearance not unlike a stunted Apple tree. The wood of this tree, which is of a bright mahogany colour and susceptible of a beautiful polish, is exceedingly hard, heavy, and close-grained, but very brittle, and so liable to "heart shake" and difficult to work as to be useless in the arts. It is, however, sometimes employed for the bearings of machinery, where it is found to wear as well as metal; but it is as fuel that "Mountain Mahogany" (the name by which, owing to the colour of its wood, *Cercocarpus* is universally known) has no North American equal. We are in the habit of considering that our Eastern Hickories produce the best fuel. The specific gravity of dry Hickory is but .838, while that of *Cercocarpus* is 1.117, so that, weight being the best test, as fuel it is worth 30 per cent. more than Hickory. The amount of ash, too, left after burning *Cercocarpus* is only $\frac{32}{100}$ of 1 per cent. of the dry wood

inverse ratio to their age; and it is perhaps permissible to suppose that the seed which produced this little tree had already germinated when the oldest living *Sequoia* on the continent was still a vigorous sapling with its bi-centennial anniversary still before it.

Two shrubby plants of this region may be mentioned which, from their beauty, are especially worthy of introduction to cultivation—*Cowania mexicana*, Don, a large Rosaceous shrub, nearly allied to *Cercocarpus*, with elegant pinnatifidly-lobed leaves and large and very abundant yellow flowers; and a large shrubby *Spiræa*, *S. millefolium*, Torr., with the foliage of *Chamaebatia*, but a larger and more striking plant, and perhaps the most elegant of the genus.

It will have been seen that the forests of Nevada, consisting of a few species adapted to struggle with adverse conditions of soil and climate, are of immense age, and that the dwarfed and scattered individuals which compose them reach maturity only

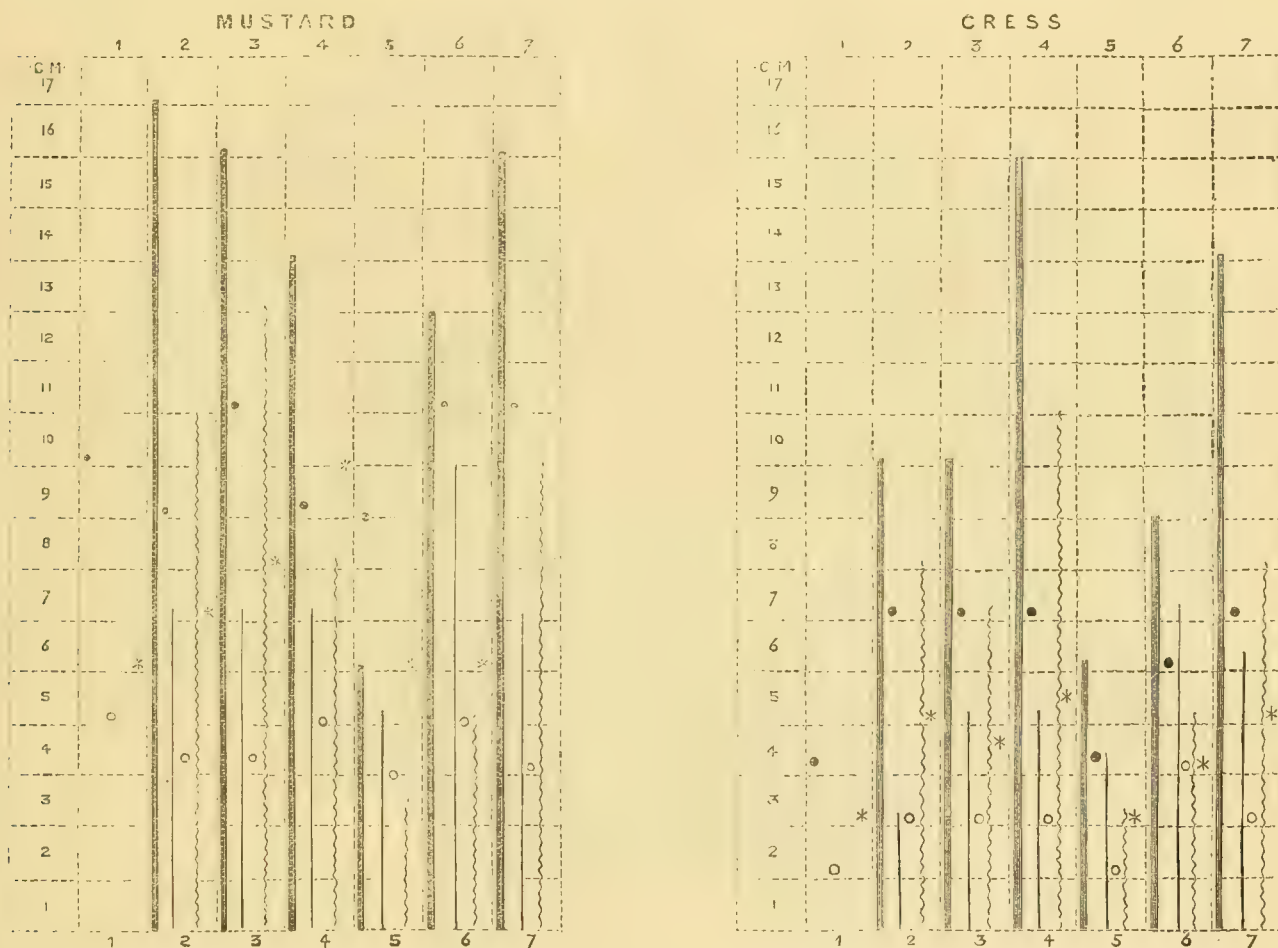


FIG. 113.—DIAGRAMS ILLUSTRATIVE OF ROOT GROWTH, ETC. (SEE P. 782.)

tracts of it on the Monitor Range, from 8000 up to 10,000 feet elevation; and further to the north-east it gives their names to "White Pine" District, "White Pine" Range, &c. On the Monitor Range specimens 50 to 60 feet high, and from 2 feet 6 inches to 4 feet in diameter, were not infrequent, the trees gradually becoming smaller as the elevation increased, until at 10,000 feet they were little more than prostrate bushes a foot or two high. The fact that the finest specimens were found on the banks of the mountain streams, associated with *Populus tremuloides*, indicates that this species is more dependent on moisture than the other Nevada Conifers. It is the only tree of this region which is sawed into lumber. The wood is soft, white, and although not free from knots, is of fair quality, and about intermediate between Eastern White Pine and Sugar Pine.

Cercocarpus ledifolius, with *Populus tremuloides*, the only non-coniferous tree of this region, here attains the largest size and greatest age. It is common at 6000 to 8000 feet elevation, and next to the Juniper and the Nut Pine is the most common of

consumed, while that of Hickory is $\frac{31}{100}$ of 1 per cent., $\frac{3}{10}$ per cent. more. *Cercocarpus* is probably the only North American wood which is heavier than water; and among the tropical woods employed in the arts and described by Laslett, but six equal or surpass it, the most conspicuous being the West Indian *Lignum-vitæ* (*Guaicum*), with a specific gravity of 1.248. As was to be expected, the growth of *Cercocarpus* was found to be exceedingly slow. An examination of several specimens from 100 to 200 years old shows an average annual increase of wood only one-sixtieth of an inch in thickness. The largest specimen of this tree was seen on Prospect Mountain, near Eureka, in New York Cañon, at an elevation of 7000 feet. It was a low, much-branched tree, about 20 feet high, with a trunk rising 6 feet to the first branches. At 3 feet from the ground it had a girth of 7 feet and 5 inches. If we suppose that its average growth had been as rapid as that of the younger specimens examined, this tree would have been 890 years old. It was probably much older. The rate of growth of trees is, after a certain age, in

after centuries of exceedingly slow growth. On this account, and because, if once destroyed, the want of moisture will for ever prevent their restoration, either naturally or by the hand of man, public attention should be turned to the importance of preserving, before it is too late, some portions of these forests. Large areas of forest-covered mountain ranges are still held by the General Government; and in view of the vast importance of their remaining wooded to serve as reservoirs of moisture, on the existence of which the future of this region must depend, it would seem wise and not perhaps altogether impracticable, to check, or at least to regulate, the terrible destruction of forest which follows, both on public and private domain, every new discovery of the precious metals.

In the territory between the 41st and 37th parallels of latitude, and extending from the eastern base of the Rocky Mountains to the foot of the western slope of the Sierra Nevada are three distinct belts of arborescent vegetation. Beginning at the east there is:—1. The Rocky Mountain region, including, besides the main range, the Uinta and the Wahsatch, and

embracing Colorado and the eastern half of Utah: 2. The Nevada region, extending from the western base of the Wahsatch, to the eastern base of the Sierra Nevada, and embracing the western half of Utah and the whole of Nevada with the exception of the extreme northern and southern portions of the State. 3. The Sierra Nevada region.

In the Rocky Mountain region, to which in spite of its mid-continental position considerable moisture is attracted by the high peaks which everywhere dominate it, there are twenty-five trees and forty-eight shrubs, in all seventy-three species. In the Nevada region, where, owing to its isolated position between high mountain ranges, the rainfall is small and very unequally distributed, the number of species is reduced nearly one-half—to thirty-eight; ten trees and twenty-eight shrubs. In the Sierra Nevada region, to which the Pacific contributes a large although unequally distributed snow and rain fall, the number of species is increased to eighty-nine; of these thirty-five are trees, or three and a half times more than occur in the adjoining Nevada region, and a third more than are found in the Rocky Mountain region; and fifty-four are shrubs, or double the number of the Nevada region.

The absence of arborescent and frutescent Leguminosæ from the three regions, where herbaceous genera of this order are so largely represented, is remarkable, especially as they abound farther south in New Mexico and Arizona. In the Rocky Mountain region there is a single representative of this order, a Robinia nearly allied to those of the Eastern States; in the Nevada region there is not a single frutescent Leguminosa, and in the Sierra Nevada but one species, a large shrubby Cercis. On the contrary, the number of genera of frutescent Rosaceæ, many of them endemic and monotypic, is very large in proportion to other Angiospermæ. In the Rocky Mountain region there are thirteen genera with nineteen species; in the Nevada region seven genera with ten species; in the Sierra Nevada region eleven genera with thirteen species; in all, fourteen genera with twenty-eight species. In all the United States east of the Mississippi River there are but ten woody Rosaceous genera, all represented in our three regions with the exception of the southern Chrysobalanus and Neviusia.

The comparison of these three regions with reference to the distribution of the Oaks will show how dependent these are on moisture. Oaks abound in both the Atlantic and Pacific forests, while in the Rocky Mountain region there is but a single, exceedingly polymorphous species, which does not reach the Nevada region, where no Oak is known; nor has this genus, so far as I know, any foothold on the dry eastern slope of the Sierra Nevada. A few insignificant species extend, however, along the mountains of Arizona and New Mexico, where the precipitation of moisture is more regularly distributed than farther north, and serve to connect the Oaks of the Pacific with those of the Atlantic forests.

The absence of Pinus ponderosa from the Nevada region is remarkable. This species abounds in all the Rocky Mountain region, and extends through New Mexico and Arizona to the Sierra Nevada, where, on the dry eastern slope, it constitutes in some of its forms fully three-quarters of the forests. It might therefore be naturally looked for on some of the higher mountains of Central Nevada, where, however, it has not yet been seen.

Pseudotsuga Douglasii, which also abounds in the Rocky Mountain region, and on the higher mountains of New Mexico and Arizona, does not enter the Nevada region. This is less remarkable, perhaps, than the absence of Pinus ponderosa, as this tree does not appear, in any numbers at least, on the eastern slope of the Sierras, and only reaches its noblest development in the humid climate of the north-west coast.

Juniperus virginiana, the most widely distributed of North American trees, ranges from the St. Lawrence River to Florida, and from the Atlantic to the Northern Pacific. It does not, however, enter the Sierra Nevada region, and is extremely rare in Nevada.

A BILLION.—Sir Henry Bessemer, some while since, in a letter to the *Times*, in a most simple manner brought the significance of a billion home to the understanding of every reader by explaining how a billion sheets of the *Times* superimposed upon each other, and compressed into a compact mass, would reach an altitude of 47,348 miles!

PLANT PORTRAITS.

ALTERNANTHERA AIROPUREURA, Hort.: *Revue de l'Horticulture Belge*, February, 1879.—Said to be a sport from *Teleianthera versicolor*. The plant is of a deep brownish-purple.

ANTENNARIA PLANTAGINIFOLIA, Hook.; Meehan, *Nat. Fl. U.S.*, vol. ii. tab. 8.—"Mouse-ear Everlasting." An early-flowering plant, allied to *Gnaphalium*.

ROSE DUCHESSE OF BEDFORD, Paul's *Rose Annual*, 1879—H.P., scarlet-crimson, globular, vigorous habit.

ROSE JEAN LIABAUD, Paul's *Rose Annual*, 1879.—H.P., very dark crimson. "A really good Rose."

ROSE MADAME LAMBARD, Paul's *Rose Annual*, 1879.—Tea, salmon-pink. "The best novelty of the year."

ROSE SOUVENIR DE MADAME PERNEL, Paul's *Rose Annual*, 1879.—Tea-scented, salmon-pink.

SCUTELLARIA WIGHTII, Gray; Meehan, *Nat. Fl. U.S.*, ii., t. 11.—Native of Texas.

SILENE STELLATA, Aiton; Meehan, *Nat. Fl. U.S.*, ii., t. 12.—Leaves in fours, ovate-lanceolate; flower white, like that of *Cucubalus*.

SILENE VIRGINICA, L.; Meehan, *Nat. Fl. U.S.*, ii., t. 5.—Very like our *Lychnis dioica*.

SINGLE DAHLIAS, *Floral Mag.*, t. 340.—1, Paragon, maroon striped with purple; 2, lutea, clear yellow; 3, Cervantesii, maroon, with a lighter edge to the petals. From Mr. Cannell, Swanley Nurseries, Kent.

TEA ROSES.—Marie Van Houtte and Comtesse Nadaillac; *Garden*, Jan. 25, 1879.

TILLANDSIA STREPTOPHYLLA, Schweidl.; *Belgique Horticole*, 1878, t. 18, 19.—A Mexican Bromeliad, with linear-lanceolate recurved leaves, and panicle inflorescence, the lower bracts being of a crimson colour.

TETRANEMA MEXICANUM, Benth.; *Belg. Horticole*, 1878, t. 16.—An ally of *Pentstemon*. Native of Mexico. Figured in *Bot. Reg.*, t. 52 (1843), *Bot. Mag.*, t. 4070, &c.

TRITHRINAX ACANTHOCOMA, Drude; *Gartenflora*, t. 959.—The new Fan Palm, figured in *Gardeners' Chronicle*, vol. ix., p. 661.—Remarkable for the plaited spines which terminate the sheaths. Rio Grande do Sul. Dr. Drude gives full botanical details.

VERONICA LONGIFOLIA var. SUBSESSILIS, Linn.; *Botanical Magazine*, t. 6407.—The Japanese form of the European *V. longifolia*. Leaves broadly lanceolate, crenate, serrate, acuminate. Flowers large, blue, in bold terminal racemes.

VITIS INDIVISA, Willd.; Meehan, *Nat. Fl. U.S.*, ii., t. 6.—A Vine with cordate, broadly ovate leaves, and small berries, which are at first green, then red, turning to blue, and ultimately to black.

VRIESEA IMPERIALIS, E. Morr.; *Belg. Horticole*, t. 14, 15, 1878.—A broad-leaved Bromeliad of fine proportions, and with dense spikes of yellowish-white flowers. Native of Costa Rica. Bot. Gard. Liège.

ORNAMENTAL GRASSES AND SEDGES.

MR. C. BOUCHÉ, curator of the botanic garden at Berlin, contributes an interesting article on this subject to our contemporary, the *Monatsschrift des Vereines zur Beförderung des Gartenbaues* for March and April of the present year. The author briefly sketches the history of the employment of plants with fine foliage for decorative purposes in Germany. *Arundo Donax* was the forerunner of this class of plants, having been introduced some forty years ago. This was soon supplemented by the giant Indian Corn, followed by the *Papyrus*. The Berlin Botanic Garden is unusually rich in ornamental grasses and sedges, and we extract Mr. Bouché's list, together with the substance of some of his remarks:—

GRASSES.

Panicum micranthum.—A native of Caracas, and an exceedingly ornamental grass of densely-tufted habit, with gracefully overhanging leaves: about 1 yard high. In winter it requires a temperature of about 60° Fahr.

Panicum (*Ptychophyllum*) *sulcatum*.—A broad-leaved grass from Brazil, reminding one of a *Curculigo*. It must be sheltered from rough winds to be had in its full beauty; and it needs the same winter temperature as the last.

Panicum (*Ptychophyllum*) *Crus Ardeæ*.—Similar to *P. sulcatum*, but of more graceful habit.

Eulalia japonica, and the varieties attributed to it, but which Mr. Bouché thinks may belong to a distinct species.

Gymnothrix latifolia.—A highly ornamental grass from Monte Video, having broad bright green overhanging leaves and thickened internodes, in the way of *Panicum bulbosum*. It will bear our winters with a little protection, but succeeds better if transferred to a house with a temperature of 55°. In rich soil it attains a height of 6 or 7 feet, and is very effective in single specimens.

Erianthus Ravennæ.—A native of the Mediterranean and Caspian shores, recommended on account of its hardiness. In the habit of its foliage it almost rivals the Pampas-grass, and it is less liable to injury from frost and wet. The flower-spikes grow to a height of 6 or 7 feet and more, but they can lay no claim to beauty.

Sorghum halepense.—The true plant has a creeping rhizome, sufficiently protected by a covering of leaves in winter, and throwing up annual stems 6 to 9 feet high.

Phyllostachys bambusoides.—One of the Bamboo tribe, from Japan, and an extremely beautiful plant on the banks of streams and lakes.

SEDGES.

Cyperus lucidus.—An Australian species, about 2 feet high.

Cyperus dives.—A very ornamental species, introduced from Abyssinia by Dr. Schimper. The leaves are from 1 to 2 yards long, and the flower-stems rise to a height of 9 or 10 feet.

Cyperus vegetus, from South America, growing about 2 feet high; and as it flowers the first year it may be treated as an annual.

Cyperus cylindrostachys.—A native of tropical South America, growing about 2 feet high, and bearing graceful umbels of flowers.

Cyperus flabellaris, from the Cape of Good Hope, resembling *C. alternifolius*, though altogether smaller and very suitable for edging.

Cyperus textilis is from the same country, and belongs to the same group as the last, but it grows 5 or 6 feet high.

Cyperus albo-striatus.—Another decorative species from South Africa.

Scirpus natalensis.—An elegant plant, with something the habit of a *Pandanus*, the leaves growing about 2½ feet long.

Carex pendula.—A fine indigenous species for planting on the margins of lakes, &c.

Carex Grayi.—A North American species, of interest on account of its singular fruit.

DARWINIA TULIPIFERA [HEDAROMA TULIPIFERA].

OF the many fine hard-wooded flowering plants that Australia has given us there are none which surpass this; in fact, for distinctness of appearance and endurance of the flowers, the genus stands unequalled. The individual blooms retain their colour and vitality for three or four months after they open, and are very effective whilst in the bud state. They are produced on the ends of the shoots in clusters individually small, and somewhat insignificant, each group being enclosed with an ample covering of bracteal leaves, which are highly attractive, in shape not unlike a small Tulip (hence its specific name), the ground colour is creamy white, striped and splashed with deep crimson, the latter much more profuse and bright when the flowers are developed in full light close up to the glass, and still further heightened by exposing the plants when the bloom is set the autumn previous for three weeks or a month in the open air in a position where the sun's rays during the middle of the day will be partially broken, as otherwise the leaves get too much bronzed. The plant is a quick grower, but liable to die off suddenly, a result often caused through not receiving enough water, as it and some other subjects of a similar nature will not bear the treat-all-alike system of management which hard-wooded plants are often subjected to. For details of this and others of the family, see *Gardeners' Chronicle*, 1874, pp. 600 and 601, vol. i.

The accompanying engraving (fig. 114) very correctly and well executed by Mr. W. G. Smith, was made from a photograph taken at the end of June, which did scant justice to the plant, as it had that spring been shown some half-dozen times, and through travelling to

and from some 600 or 700 miles, it had lost quite one-third of its flowers; it was 7 feet 6 inches through, by 4 feet 6 inches high, from the rim of the pot, and was one of several I struck from cuttings of the mature shoots from a dying plant, taken off a day or two after it began to flag—a certain indication with this plant that the roots were gone and death had taken place. This occurred about the close of summer, and the cuttings, inserted in sand kept moist, and covered with a bell-glass, were stood through the winter in a temperature of from 45° to 50°. By the spring they were callused over, and rooted freely with a slight increase of temperature; they were then potted singly, and as soon as established fully were submitted to ordinary greenhouse treatment. I have reason to suppose that plants obtained from cuttings of the fully ripened shoots, in this way, are much less liable to die off suddenly than such as are rooted from

cautions, their seedlings were guarded from the vulgar eye and the risk of mischance. Mr. Taylor, to whom their existence and their rearing are principally due, was (and I may say is) not a little proud of his productions, and well he may be. What met my eyes as I entered the house (it was a dull and gloomy November day several years ago) was a neat compact batch of seedlings with good dark green and glossy foliage, and on one of them several trusses of expanded flowers such as I had never seen before. The colour was a peculiarly striking crimson; the truss many-flowered; and each well-poised member of the umbel showed itself to perfection. The shape of the flower was something between salver-shaped, funnel-shaped, and bell-shaped, as botanists would say, all of which may be loosely rendered by "a Brobdingnagian crimson Jasmine." I examined the flowers, and found

was my first friend, and never ceases to delight me; Duchess of Teck is light buff shaded with orange; Prince Leopold, a mixture of fawn and rose and yellow; Duke of Edinburgh is coral-pink; Princess Royal (the oldest of the family), blushing or rosy-pink; and Princess Alexandra, pure white. The plants thrive best in very small pots, which points to their epiphytal tendencies; they bloom freely when small, and I have seen them blooming in many different months, in the depth of winter and in the blaze of a seasonable midsummer.

A horticulturist should not content himself with collecting and cultivating pretty flowers, but he should, as far as in him lies, learn their native places, their history, their botanical peculiarities and affinities, and, in the case of hybrids, their parentage. I should consider, then, this paper very worthless were



FIG. 114.—*DARWINIA TULIPIFERA*: 7 FEET 6 INCHES IN DIAM.

wood in the usual condition, for the reason that I could never keep plants I bought alive near so long as those I several times raised in the manner described, and which not only lived and grew vigorously for twelve or fifteen years with me, but with other growers who had some of them. *T. Baines*. [The name *Darwinia* has precedence over that of *Hedera*, while the name *Genetyllis*, by which the plant is also sometimes called, is a sectional name merely. Eds.]

RHODODENDRONS.

THE strain of *Rhododendrons* raised by the Messrs. Veitch, of Chelsea, has opened, so to say, a new vista to *Rhododendron* growers, at least to such of them as have a warm greenhouse. I have mentioned my astonishment and delight at the vision of *R. calophyllum* in the Temperate-house at Kew; but I was scarcely less impressed on being first introduced to the house at Messrs. Veitch's, where, with due pre-

that, like *R. Falconeri*, they had little or no calyx; that the anthers, though those of hybrids, were nevertheless well furnished with pollen; and that the leaves showed through a lens the scales and pitted marks peculiar to certain *Rhododendrons* with which I was well acquainted. The colour I have said was peculiar, and this is a feature of the strain, for the red and crimson are totally different from the reds and crimsons of the harder varieties; and the coral, orange, and yellow are scarcely to be found outside the limits of the strain, or the parents which produced it. Seedlings of all the above and other colours have unfolded their blossoms since my first visit. Each year has produced some new varieties; I think the last was the Maiden's Blush, which, as a tiny plant, with one truss of large and most striking flowers, was exhibited at the great horticultural show a very few weeks ago.

One of the most beautiful of them all is \times *R. Taylori*, of a brilliant colour, and named most appropriately after the founder of the race. Duchess of Edinburgh

I not to say something in it as to the parentage of the plants which I have been praising.

Mr. Taylor, at my request, has given me the following particulars, which no doubt are substantially correct, though they differ slightly from a list published in the *Garden* in 1875. I understand that the first-named of the two plants is the seed-bearer:—

First Crossing.—*R. javanicum* and *jasminiflorum*, the produce being *R. Princess Royal*, *R. Princess Helena*.

Second Crossing.—*R. Princess Royal* and *jasminiflorum*, the produce being *R. Princess Alexandra*.

Third Crossing.—*R. Lobbi* and *javanicum*, *R. Lobbi* and *Princess Royal*, *R. Lobbi* and *Princess Helena*, *R. Lobbi* and *Brookeanum*; the produce being the various hybrids which the Messrs. Veitch have hitherto shown and distributed. It will be observed that I have italicised the names of the species with which the work was carried on.

Now, I can fancy some of my readers, after the

study of this genealogy, sighing that I have left them just as wise as I found them; that of *R. jasminiflorum* they know no more than the name indicates; of *R. javanicum* no more than I told them in a former paper; and of *R. Lobii* and *Brookeanum* [figured in the *Gardeners' Chronicle*, 1871, p. 236] absolutely nothing at all. The truth is, that these species are but seldom cultivated; and, as to the two last, people may hunt far and wide and yet not see them. Do I then need any apology for repeating information which doubtless has already appeared in this journal, but which seems very much in point in a series of papers written to encourage the cultivation of *Rhododendrons* as a special study?

R. jasminiflorum, which, as the best known, I take first, is figured and described in the *Botanical Magazine*, vol. lxxvi., t. 4524. It was introduced from Mount Ophir, Malacca, and was exhibited at Chiswick, from the nursery of the Messrs. Veitch, in 1850; and this is what Sir William Hooker said of it:—"Many of the flowers excelled it in splendour; but the delicacy of form and colour of the flowers (white with a deep pink eye), and probably their resemblance to the favourite *Jessamine* (some compared them to the equally favourite *Stephanotis*) attracted general notice. So unlike, indeed, are they to the ordinary form of *Rhododendron* blossoms that a reporter in recounting the prizes of the day seemed to imply that it was probably no *Rhododendron* at all." The leaves of this species are very thick and substantial, the growth dwarf, the habit most floriferous, and the flowering, under favourable circumstances, nearly continuous. Plants, well set with blossom-buds, are easily to be procured at a very moderate price. Such was the first pollen-parent of the new strain.

R. javanicum is figured in the *Botanical Magazine*, vol. lxxv. (1847), and Sir W. Hooker thus describes it:—"On communicating this splendid plant to me for figuring in the *Botanical Magazine*, Messrs. Veitch & Sons, its possessors, remark that it is certainly one of the finest things ever introduced to our gardens, and in this opinion we think all will agree who see the present representation, and more especially those who have the privilege of beholding, as we now do, the plant itself with its beautiful glossy bright green foliage and orange-coloured flowers (twelve in a bunch), here and there marked with red spots, and again spotted as it were, with the dark black-purple coloured anthers, which lie generally five on each side towards the lower side of the mouth of the corolla. . . . Blume discovered it on the Mountain Salak in Java, Dr. Horsfield on the volcanic range extending through Java, in dense forests, at an elevation of 4000 feet above the level of the sea. Hence we are not surprised to learn from Mr. Veitch that it succeeds well under the mere shelter of a greenhouse." [See also *Gardeners' Chronicle*, 1848, p. 172.] Such was the first seed-bearing parent of the new strain.

It may seem an astonishing thing (and I am told that it astonished Dr. Lindley) that an orange-coloured and a white flower should produce between them a flower rosy-pink in colour, as *Princess Royal* (see the pedigree) undoubtedly is. But I think that the puzzle is solved by referring to Bennett's *Pl. Fav. Rar.*, p. 85, t. 19, where *R. javanicum* is represented of a crimson colour; so that we may take it, and it has been stated, that *R. javanicum* is variable in colour, and that those who raise seedlings may hope to be delighted by the various tints which are in the blood of the species. I am afraid however that large blossoming plants of *R. javanicum* are rare, though smaller ones may be readily procured. The habit of the species is to bloom when small, and to bloom freely, and few things are more beautiful than a plant of it. Mr. Veitch hoped that it would bloom all the year round, but in this respect his hopes have not been realised.

I must postpone my remarks on the remaining parent species till I send you another paper. *J. H. M.*

The Poultry Yard.

A LADY'S EXPERIENCE IN POULTRY KEEPING (continued from p. 721).—Walled-in gardens doubtless preserve their fortunate possessors from many of the accidents detailed in my last article; but every lady who attempts to rear chickens finds out in time that she must make up her mind to meet with accidents and losses among her young broods. These are not taken into account at all in some poultry-books; for instance, in Mr. Kinard Edwards' pamphlet, before alluded to, the original cost of each bird is set at 1*d.*—the supposed price of the egg—whereas I believe no one is so fortunate as often to hatch every egg set, and rear every chicken hatched. My husband informs me that Virgil tells us of an old man near Tarentum whose Apple trees produced as many

Apples as they did blossoms. Perhaps, had he taken to poultry-keeping, he would have shown a chicken for every egg, but in these degenerate days we are often obliged to divide the cost of a whole setting among a small number that reach maturity.

The first difficulty to be encountered is that of making sure that the eggs are fertile. Every book that I have met with, if it alludes to the subject at all, assures us that it is impossible to tell this till the eggs have been set on for a few days; then, if the egg be clear, you may cook it, but it is too late to fill up the nest with fresh eggs.

Early this year I set some eggs, several of which produced no chickens. My cook, whose previous mistress was a farmer's daughter, asked me why I had not examined these eggs before setting them, and proceeded to explain that her former mistress never set an egg without first holding it up before a candle in a dark corner, to see if it were fertile. If she saw a small, round, dark patch at the broad end of the egg she set it; if this were wanting, she knew there would be no chicken. I was very incredulous, but determined to try whether her advice were worth taking. Since then I have rejected all eggs in which the dark spot (air-chamber?) could not be seen, and in all my subsequent hatchings every egg has been found to contain a chicken!

In the last number of *Science for All* (part xix.), there is an article by Mr. Dunman entitled "The History of a Hen's Egg." In it he states that the air-chamber is developed when the egg has been kept a few days, and that as if "is easily visible when an egg is held up to the light, it forms a ready means by which the careful housewife may test the freshness of the eggs with which she is supplied. The development of this air-chamber is due to the shrinkage of the albumen, or white of the egg, consequent upon its evaporation through the porous shell."

On reading this I exclaimed, "Why, then, my cook has been making me reject all my freshest eggs!" I sent immediately for the eggs that had been laid that day. The dark spot was perfectly visible in all; and for two or three days afterwards I examined every egg soon after it had been laid, and always found the spot, except in one. That egg I placed under a hen that was wanting to sit, and left it with her for twenty-four hours. At the end of that time the spot was still invisible, although on opening it I found the air-chamber was present. Had the egg been fertile the germ ought, after twenty-four hours' incubation, to have exhibited a bright red spot. This was wanting, and the egg appeared perfectly clear. I really began to think that my cook had revealed to me a farmhouse secret unknown to the writers of poultry-books. I had been accustomed to sneer at the superstitions of the ignorant (just as if I were a scientific man), and had often laughed at the old-fashioned recommendation revived by Mr. Kinard Edwards, to set none but long eggs, with the dark spot at the end, if you wished for cocks; and none but rounded eggs, with the spot on one side, if you wished for hens; but now my respect for the opinions of the unlearned was increased. One superstition appeared to be proving itself true, why not another? So I selected long eggs, wrote "cock" on them, and placed them under a hen; and I selected rounded eggs, wrote "hen" on them, and placed them under another. I could not attend to the second part of the instructions, because the dark spot was so perverse as often to be on one side of the long eggs, and at the end of the round ones. The result of this experiment still remains to be seen; but I no longer feel any interest in it, for my new-born faith in farmhouse superstitions has been suddenly quenched by the discovery that the "dark spot" is perfectly visible in eggs laid by some hens which have been running alone for three months. There are bounds to every one's credulity. I could not believe it possible that these eggs were fertile; though to settle the point, and place the matter finally beyond dispute, I put two of them under a hen. If chickens are hatched from them I will duly report the extraordinary circumstance. Of course I have come to the conclusion that we have been mistaking coincidences for consequences, and I suppose that the air-chamber is not always visible through thick-shelled eggs, especially when dark-coloured, like Brahmas. I think it worth while to publish this little experience, because I find that my cook is not the only person who believes in the "dark spot" indicating fertility. With respect to Mr. Dunman's remark, that the freshness of the eggs can be tested by the presence of the air-

chamber, there is clearly some blunder, as the air-chamber can be seen as plainly in a new-laid egg as in one that has been kept a few days.

On referring to a somewhat old-fashioned book, *The Pictorial Museum of Animated Nature*, I find it stated that the "vesicular aeris is filled with air containing an unusual portion of oxygen, destined to serve for the respiration of the future chick;" and the same account is given in the *English Cyclopædia*. This is hardly consistent with Mr. Dunman's assertion, that the air-chamber is due to the shrinkage of the albumen, consequent upon its evaporation, since in that case we should expect the chemical composition of the air within the egg to be identical with that outside.

That old-fashioned notions should linger in country farmhouses is not wonderful, but I think it is strange that we should find assertions made in books and periodicals intended for the enlightenment of the ignorant the fallacy of which can be proved by very simple experiments within the power of any poultry-keeper. *A. B.*

Apiary.

MR. CULVERWELL'S experience, especially so far North, must, I think, be very unusual, as so far South as this swarms have been but few. Last year my first was cast upon May 4. So far this year neither myself or neighbours have had one. It is not improbable that the long cold winter kept the insects in a highly comatose state, and thus egg-laying commenced later than usual. It is but right, however, to state that I believe certain action of my own in relation to my hives checked the strongest stock from swarming ere this, and as it is matter of interest I invite the attention of beekeepers to it. Three stocks stood during the winter close under a south wall. As the summer advanced it was found desirable not only to remove them a few feet forward, but I also shifted them a few feet in the other direction, so that the hive to the left was brought immediately in front of the spot occupied previously by the hive to the right. This latter was the strongest hive, and showed signs of early swarming, the farther or left-hand hive being apparently very weak. As during the succeeding day the bees from the stronger hive returned from their journeys in search of food they were unable to recognise their own home, being evidently guided entirely on their return by position, and not by any knowledge of their hive. They buzzed about the weak hive, and eventually it would seem settled with its inhabitants, as the stock has been much stronger ever since, whilst the other stock shows now no signs of swarming. Is my conclusion correct, and is this result in any way peculiar? *A. D., Bedford.*

Garden Operations.

KITCHEN GARDEN.

The almost unexampled nature of the present season, with its preponderating influences, will materially tend to intensify the ordinary difficulties which usually occur in this department at this busy period of the year. At the present time the excessive amount of moisture is producing its effects in an exuberant growth in most kinds of vegetable plants, weeds not excepted, and whilst prevailing conditions last, all our ordinary efforts to eradicate these pests entirely will be neutralised. On the other hand there are, no doubt, some advantages to compensate in some degree for such a state of things. These are to be found in the suitability of the conditions for the completion of the thinning-out of the different seedling crops, as Carrots, Onions, &c., and also for putting out the plantations of Broccoli, Cauliflowers, and other winter stuff. These and such matters as the preparation of trenches for Celery and the pricking out of the same can, when it is fine overhead, be proceeded with under the most advantageous conditions. Let therefore all such matters be finished off-hand now, so that when more propitious weather comes the utmost effort can be made in that direction which is most required. Without further delay let a proportionately sized bed be sown with Parsley seed for winter use. We find this much and oft-required subject do exceedingly well when sown broadcast under the shade of trees where they are not too densely planted. Let the former sowing of this be well thinned-out if fine leaves are to be developed. In order to maintain ample supplies of good salading subjects it will now require almost unceasing attention; good sowings of Endive should now be made, and not too thickly, as unless the plants are removed

immediately they are fit they so soon become drawn. Continue to sow Lettuce seed in shallow drills, and select for Radishes a cool and moist place. Finish off the earthing-up of Potatoes before the haulm falls, and proceed to plant out the Brussels Sprouts, &c., between them at once if it is intended. Should the weather be more favourable during the ensuing month—which in all probability it may after so much rain—we may perhaps escape the disastrous consequences which result from it coming at that time to this important crop. Assuming that by this time the out-of-door Tomatoes are in the places allotted them, let the surface of the soil about them be well mulched with manure, and the plants be properly started; if three or more leaders are required stop the plants at once, and afterwards regulate the shoots at proper distances so that sunshine to the fullest extent can freely operate about the fruit to ripen it perfectly. The cultivation of this estimable edible under glass receives much more attention than it did formerly; under these conditions the stopping and training will need frequent attention, and so also will such details as watering and surface dressing. *Geo. Thos. Miles, Wycombe Abbey.*

FRUIT HOUSES.

PINES.—Attend strictly to the watering and airing of any section of these plants at this season, and especially those which are swelling off fruit. If the plants be grown in moderate sized pots the state of the soil in them should be examined by the hand at least once in every week, and others in lesser ones more frequently. Whenever water is needful give the plants a plentiful supply of it, with some stimulating agent intermixed, in a weak form and in a tepid state; we prefer the best guano for this purpose. In the process of watering let it be poured into the plants well up the stems, so that the axils of the leaves may have the benefit of it as well as the roots, and be careful to see that the space above the soil in the pot is well filled at this time. When the fruit is closely approaching maturity and begins to soften, it should be kept as free from condensed or other moisture as possible; this is especially needful during the fore part of the day, when sunshine is likely to abound, as its powerful rays will at times scald tender-skinned varieties, such as the Queen and other kinds of a similar nature. To mitigate the mischief which generally results from this cause let the house be slightly ventilated betimes in the morning, or otherwise apply a slight shade on the plants until the fruit is perfectly dry. All young stock will now be growing vigorously: see that every detail in management is fully carried out, as if from neglect the plants become drawn up weakly at this stage of growth, no after-treatment can fully repair the injury they will sustain. If we should be favoured with sunny weather, it will not be amiss to shade slightly any plants which may be placed in near proximity to the glass, for a few hours at mid-day. *Geo. Thos. Miles, Wycombe Abbey.*

ORCHARD-HOUSE.—No structure of this kind should be without a shelf or two for Strawberries. In many cases the owners of orchard-houses have but little convenience for forcing this fruit, and it can be obtained several weeks in advance of that grown out-of-doors. In the second week of June we had President ripe on a shelf quite close to the glass; it will probably be the second week in July before that variety is ripe out-of-doors. We pursue a plan with these Strawberries that is not always followed, but whether for pot culture or out-of-doors the best way is to support the fruit above the leaves with small branchlets cut from the ends of any brushwood. The sticks are inserted in the ground much in the same way as Pea sticks, the stalks of the fruit resting on the forks of the sticks. Out-of-doors Strawberries are safely preserved from slugs and decay in this way. I need not say how fond the red-spider is of the leaves of Strawberries, and that it should not be allowed to appear on the plants at all. The plants should be thoroughly well syringed up to the time the fruit begins to colour, when it should cease. Peach and Nectarine trees in the late house should be abundantly supplied with water both on root and branch, surface-dressings to be applied when it is necessary. There is considerable difficulty in getting good water in many places. I have seen the leaves quite white with the deposit from unsuitable water, and it is not likely that the trees treated in that way can be so healthy as those watered and syringed with rain-water. How are you to get rain-water? may well be asked; all I can say is that we seldom use any other, and our rainfall does not average 24 inches in twelve months. Knowing well the importance of good water, we had a tank made of brickwork set in Portland cement; it is nearly the whole length of the house, 54 feet long, 4 feet deep, and as much wide. This tank is outside, and is covered in with boards, which are most useful as a place on which to stand plants. This outer tank is connected with two smaller tanks inside, which are kept constantly filled. Occasionally, in very hot dry seasons, the rain-water has been supplemented by pump-water for a few weeks

about midsummer—in such a season as this we do not run short. Indeed, all our houses, vineries, stove, greenhouse, &c., are supplied in the same way; not a drop of water from the roofs is wasted. There is, of course, a considerable first expense incurred, but this is more than compensated by the convenience of always having a good supply of water when it is wanted. Now that the weather is warm and the growth rapid, the cultivator must thoroughly understand the requirements of every one of his trees: some require much more water than others, and the surface-dressing being mostly moist, while the mass of roots underneath may be quite dry, even the experienced may be deceived. Still syringe freely night and morning, shutting up the house between 4 and 5 o'clock in the afternoon.

ORANGE-HOUSE.—It is now a good time to repot any trees that require it, and it is better to underpot than to overdo it. Of course, if the houses are large, the trees must be in proportion, but the largest proportion of growers would do well to reduce the roots, and give a small shift. The Orange tree likes good moderately heavy turfy loam, enriched with at least a sixth part of rotten manure, with the addition of a handful of crushed bones to every peck of the compost. Free drainage is quite indispensable. After repotting, the trees should not be placed in a dry, airy house, but in one where they can be freely syringed twice a day; they will do well in the orchard-house at present; they must not be in the shade. Those who attempt to grow Oranges under the dense leafage of a well-furnished vinery will have to make up their minds to be unsuccessful. Oranges, Figs, Peaches, Nectarines, and all such fruits require all the sunshine they can get, not only to ripen the fruit, but, what is of quite as much importance, the young wood and fruit-buds for the ensuing season, and just as the leaves are freely exposed to the sun and light all round so will the result be highly satisfactory, or the reverse. No amount of attention as regards the cultural requirements of the trees will avail if the rays of light and heat from the sun are in any way obstructed. Keep up a night temperature of 70° where the fruit is ripening, and supply the roots occasionally with manure-water. *J. Douglas.*

STRAWBERRIES IN POTS.—With the present continuation of rainy weather the stock of runners for next year's forcing will soon be strong enough for layering into small pots, but before I treat of that operation I would like to point out to Strawberry forcers what a fallacy it is to suppose that the earliest runners are to be obtained from forced plants that have been planted out, as a writer in last week's *Gardeners' Chronicle* would have us believe. My practice has been for some years back to make a young plantation every year for yielding runners the following season. The runners are first layered into small pots, and are planted out not later than the middle of August, and I will guarantee that these plants will produce runners a fortnight at least earlier than old plants. In the next place I would observe that perhaps the general custom of hastening on plants that are grown say in 5-inch pots for early forcing is not the best practice, for this reason: the roots of the plants being restricted into small space the balls of earth become literally matted with roots long before the growing season is over, and after a short rest, if the autumn is mild and showery, plants that are potted so very early have a tendency to start into second growth. We are now satisfied if our early plants are ready for the final potting off from the middle to the end of July, leaving a margin for cultivators who are more or less favourably situated as regards climate. The recent dull weather has been more favourable to the development of Strawberries in houses with a south aspect, but in case a sudden change of weather should take place to bright hot days it will be advisable to throw a slight shade of thin tiffany or canvas over the glass during the hottest part of the day. The reason why Strawberries are sometimes disfigured at this time of year is because they are set too near the glass, and are half baked under the action of a midsummer sun for want of a proper circulation of air. During the tropical weather of last June, when the heat was oppressive, I grew a large supply of fruit of the finest quality for exhibition and other purposes in an east Peach-house, where the sun had little effect after 12 o'clock in the day, the fruits being turned from the glass after they had swollen to half their size, and were so firm that some of them travelled in their pots a distance of over 80 miles quite fresh and plump. *W. Hinds, Canford.*

PLANT HOUSES.

ORCHIDS.—One of the first things which a beginner in the culture of these plants learns for himself is that some of his plants grow very freely with but a minimum of trouble, while others refuse to progress satisfactorily, take what trouble he will with them. Where diligence and common-sense are at work, those plants in a bad condition will be but a small percentage of the whole collection. Among this minority will probably be some plants that his next-

door neighbour experiences no trouble at all in growing, and who accordingly is the best person to interview and get a wrinkle from. A hint as to water, light, or temperature, from a competent person, has put many a grower on the right track to grow with ease, plants which before had quite beaten him. The interesting *Cypripedium caudatum*, now in flower, is a plant occasionally met with in excellent condition, but far more often in a deplorable state. This plant should never be placed at the hottest end of the East Indian-house, where such plants as *Saccolabium giganteum* grow well; it will there languish and die, principally for the want of fresh air. Neither should it be put alongside of the dwarf-growing *Cattleyas*, for the light will prove too strong for it. The best possible position for it is on the north-side stage of the *Dendrobium*-house, where it will get plenty of fresh air and a suitable light. Even during winter the bottom ventilators near to this plant must be often opened. The end of this month is the best time to repot plants of this species. If healthy they will require pots two sizes larger, which will allow the roots an inch or more new compost. The pots must be one-third full of drainage, secured by a layer of moss. Peat and sphagnum, in equal parts, mixed with a sprinkling of small broken crocks and charcoal, is a good compost, and it may be pressed, not rammed, moderately firm. A few heads of sphagnum may rise here and there about the peat: in time they will grow all over the surface, making a neat finish. Unhealthy plants should be entirely cleared from any old compost, the dead roots cut off, and the living ones put in a pot just large enough to hold them, with a little of the compost as used for healthy plants. In both cases liberal and frequent waterings must follow, as this plant is unable to bear the least dryness at the roots. *Uropedium Lindenii* is very closely allied to *Cypripedium caudatum*, and it should be treated exactly the same. *Cattleya superba*, which will now be flowering from the present year's growth, is also a difficult plant to grow thoroughly well. Very seldom is it to be met with under cultivation making growth of equal strength to those made in its native habitat. The flowers of this species are borne upon a stem which raises them just clear of the foliage. In form, size, and colour, they much resemble those of *Lælia anceps Barkeri*, but are even brighter than that lovely Orchid. *Cattleya superba* should in every case be grown upon a portion of the stem of a Tree Fern. Choose that part where many roots have grown down the stem, as the *Cattleya* roots are fond of growing in and out of such fibre. From the time this plant starts into growth until it is in flower it requires liberal supplies of water, and should be suspended at the hottest end of the East Indian-house. When in flower it should be removed to a more light and airy position; and here it may remain to mature its growth. In cases where it breaks away again, almost before the flower has faded, it must be returned to its growing quarters, and kept there all the winter. Should yellow thrips attack the young breaks, clean them with a damp sponge daily. The vestita section of *Calanthes* will now be making rapid growth, and will take a good soaking at the roots once or twice a week; no liquid manure should be given them until they have filled their pots or pans with roots. If their foliage can be got within a foot of the roof glass it will just suit them, as a good light is indispensable to their well-doing. *Thunia Marshallæ*, *alba*, and *Bensoniæ*, should, as they go out of flower, be placed in a light position in the *Cattleya*-house. They will also finish up well in a vinery where the Grapes are colouring, providing the leaves overhead are not too dense. They will want an occasional watering at the roots so long as their leaves keep green. Any *Thunias* that have missed flowering and are growing to an unreasonable length may be treated the same as those that have bloomed. Any one who has only seen these plants in a weak state can form no idea what handsome objects they are when well done. *Pleione lagenaria*, *Wallichiana*, and *concolor*, will do well in the same position as the *Thunias*; *P. Reichenbachiana* and *maculata* will take a little more heat, while *P. humilis* and *Hookeri* should be suspended close to a ventilator in the cool-house. The whole lot must have enough water to keep them decidedly wet. So long as the sun does not scorch them these *Pleiones* will enjoy a bright light, and will retain the tips of their leaves better than when grown more in the shade. *J. C. Spyers, Burford Lodge, Dorking.*

VEGETABLE IVORY.—We learn from *The Colonies* that the importation of vegetable ivory nuts (*Phytelephas macrocarpa*) is largely increasing, and that the uses to which they are put, more particularly for buttons, rings, and small ornamental articles, are becoming very extensive. We are informed that Birmingham alone often uses as much as a ton of these seeds in one day, and the annual import into this country amounts to a value of at least £100,000, while equally large quantities are used in France and in other parts of the Continent.

THE Gardeners' Chronicle.

SATURDAY, JUNE 21, 1879.

APPOINTMENTS FOR THE ENSUING WEEK

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| MONDAY, June 23 | Sale of Orchids, Stove and Greenhouse Plants, &c., at Stevens' Rooms. |
| TUESDAY, June 24 | Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M., and Scientific Committee, at 1 P.M. Sale of Plants at Dangstein, by Mr. J. C. Stevens (three days). Farnham and South Hants Horticultural Society's Show. Halstead Horticultural Society's Show. Farnham Rose Society's Show. Burton-upon-Trent Floral and Horticultural Society's Show. Croydon Horticultural Society's Show. Brighton and Sussex Horticultural Society's Summer Show (two days). Leeds Horticultural Society's Summer Show (three days). Maidstone Rose Show. Richmond Horticultural Society's Summer Show. |
| WEDNESDAY, June 25 | Brockham Rose Show. Aylesbury Floral Society's Show. Brentwood Horticultural Society's Summer Show. |
| THURSDAY, June 26 | Scottish Pansy Society's Show. |
| FRIDAY, June 27 | National Rose Society's Show at Crystal Palace. |
| SATURDAY, June 28 | |

THE recent admission of the Rev. M. J. BERKELEY to the Fellowship of the Royal Society affords us an opportunity of presenting our readers with an excellent portrait, engraved by Mr. W. G. SMITH, of this most distinguished and, if possible, still more respected botanist. To some it may be a matter of astonishment that a man of such wide and well-founded reputation had not years ago the honour of election into the leading scientific Society of the kingdom. Suffice it to say, the delay cannot be counted as blame to the electors, and that when Mr. BERKELEY'S candidature became known his election became almost a matter of course. The Society, moreover, several years ago showed its sense of the value of Mr. BERKELEY'S labours by the award of a Royal Medal, the highest award it could make.

There must be many also among the Fellows of the Royal Horticultural Society who will recall with gratitude the services rendered to that Society by Mr. BERKELEY, and to whom this portrait will be an acceptable *souvenir*. To the *Gardeners' Chronicle* "M. J. B." has been as a tower of strength from its commencement to the present time, and we rejoice in this opportunity of expressing our admiration of Mr. BERKELEY'S encyclopædic knowledge, and noble, manly character.

We have, as we have said, special reasons for expressing our own gratitude to him for the important services he has rendered to the conductors and readers of this Journal for near upon forty years. May the consciousness that he has enlarged the borders of knowledge in many and varied directions; that he has diffused a knowledge of natural history far and wide; that he has contributed in an eminent degree to the welfare of his fellow-men; that he has secured the heartiest tributes of admiration from those with whom he has come into contact in his various relations as parish priest, scientific observer, professor and writer; may such memories as these now crowd upon him, and cheer and soothe his declining years.

— THE PELARGONIUM SOCIETY. — We are requested to remind the exhibitors of seedlings especially, that although the Society's show has been postponed from June 24 to July 8, in consequence of the lateness of the season, it has been arranged that the censors and executive committee should meet on the former as well as on the latter day, for the purpose of awarding the Society's Certificate of Merit to deserving novelties, in all the classes of the Pelargonium, in order to ensure their being adjudicated upon in their best condition.

— EXAMPLE BETTER THAN PRECEPT. — Mr. W. H. ROGERS, of the Red Lodge Nursery, Southampton, is a believer in the doctrine that what is

beautiful in Nature has in it "the charms of gentleness," and something of the charities that soothe, and heal, and bless. To this end he recently invited the children of the Southampton poorhouse schools to visit his nurseries, and inspect the Rhododendrons now in bloom, of which he has a very fine collection. To make the visit more agreeable to the little ones, some slight refreshment was provided at the expense of Mr. ROGERS. In addition, Mr. ROGERS has sent to the workhouse a large number of bedding-plants to be used in the gardens and yards of the house. In such praiseworthy ways this well-known South of England nurseryman "makes his heart's love understood by kind deeds."

— THE LATE LOUIS VAN HOUTTE. — We regret that the bust of LOUIS VAN HOUTTE shown in the recent exhibition of the Central Horticultural Society of France is considered very unsatisfactory as a likeness. This is a misfortune; but the want of success of the artist will not seriously impair the value of the monument as a memorial of work accomplished.

— THE CITY OF LONDON FLOWER SHOW. — The committee of this popular show are under the necessity of abandoning the show for the present year, owing to the refusal of the Finsbury Circus Garden Committee to allow the use of the gardens for the purposes of the show. This annual exhibition has done much to promote the culture of plants in the City, and especially in many of the courts and alleys, and it is matter for regret that no open space is available for the show. Had the show been held this year it is very probable Her Royal Highness the Princess BEATRICE would have been present to distribute the prizes.

— THE PLAGUES OF THE GARDENER. — We often hear weeds spoken of as one of the inflictions resulting from the disobedience of the first gardener. Those of the craft for some time following were not, we suppose, bothered with gardening under glass, or there is another pest they would have been likely to find a difficulty with, that is mealy-bug, which, through its unaccountable perversity, refuses to die out, notwithstanding the existence of such numbers of infallible remedies that at the present day continually make their appearance. Gardeners with only a limited number of plants affected know the incessant attention required to keep this insect down; but when, as in a nursery known to us, the particular exigencies of the business require a stock of some 3000 plants of *Gardenia*, filling a couple of large houses, the work of bug-killing is a serious matter. We understand a man and a boy are employed the whole year round doing nothing else, and are often unable to cope with the pest, so much so that two years ago it was determined to destroy the whole stock and commence afresh with clean plants confined to houses equally clean. The plants, large and small, all grown in pots, present an appearance such as is never seen when subject to the cleansing process where this nuisance to heat-requiring plants is present.

— THE POTATO TRADE WITH FRANCE. — The British Consul at Brest reports that the exportation of Potatoes to England is becoming every year a trade of more and more importance, and towards the close of the season of 1878 the price rose very considerably. The best qualities grown at St. Nicholas in the district of Kershuon, not far from Brest, which were formerly quoted at 5 fr. per 50 kilos., ran up rapidly to 7 fr. 50 c., and 8 fr. The Potato export to England amounted in 1878 to about 21,380 tons, usually sent from Pont-Labbé, Roscoff, and the neighbourhood of Brest, principally to coal ports in the Bristol Channel.

— TEA, COFFEE, AND CINCHONA IN CEYLON. — According to the Ceylon correspondent of *The Colonies* the cultivation of Tea, Coffee, Cinchona, and Cocoa are all progressing satisfactorily in the island. A new company has been recently started for the purpose of cultivating all these useful plants. The rains had been excessive in some of the hill districts, and the Coffee crops had suffered in consequence. From Uva, Dimbula, and some other districts, however, the reports as to the prospect of the expected crops continue to be most favourable. The prices realised in London for Ceylon-grown tea are considered in the island as extremely satisfactory, some

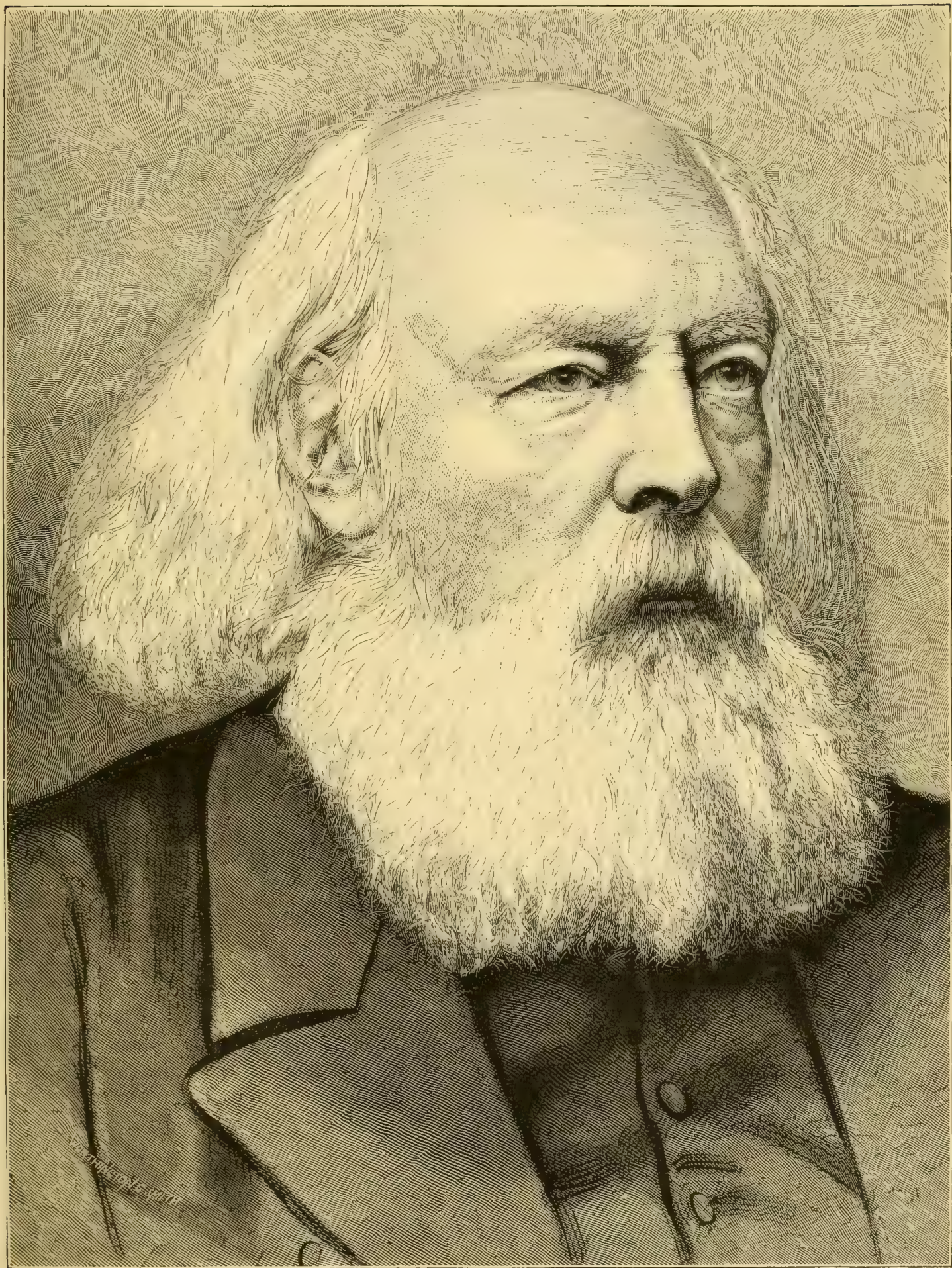
Orange Pekoe having fetched 1s. 8½d. per pound. Ceylon Cinchona also, it is stated, upon analysis showed such unusually high quality that 10s. per pound had been refused for it. The finest sorts grown in the Indian Government plantations at Ootacamund rarely fetch more than from 7s. to 8s. per pound. These results, it is considered, will help largely to extend the cultivation of both these products.

— BERBERIS STENOPHYLLA. — This is a hybrid between *B. empetrifolia* and *B. Darwini*, and was till lately in splendid flower in the dell by the flag-staff at Kew. It is one of the very finest of the known kinds—even equal or superior to *B. Darwini*, which in the milder parts of the country reaches a large size, and is really superb. It appears much hardier than this species. At Kew it grows freely, and during the past winter has been quite uninjured, while *B. Darwini* is more or less stunted, frequently dies back, and loses many or all of its leaves. There are scarcely any of the latter in flower now, and many much cut are breaking from the old wood. Those who plant *B. Darwini* for game covers should try this hybrid. It is extremely graceful in habit.

— RICE CULTIVATION IN QUEENSLAND. — From the *Brisbane Courier* we learn that Rice has been harvested there for the first time in anything like merchantable quantity. The crops yielding this produce were grown on the grounds of the Board of Inquiry, at New Farm, near Brisbane, and included about twenty varieties. The Rice was grown on both flooded and dry land and on the whole did well under both conditions, producing heavy ears and standing upon healthy stiff straw from 2 to 5 feet in height. Considerable difference was apparent in the straw of the different varieties, and it is considered that a careful selection would do much towards securing sorts suitable for the different districts of the colony. In appearance the Rice at maturity looks something like particularly well grown Wheat. In Java the average is about 500 lb. clean merchantable rice per acre. At the price usual in Queensland, one half of this weight, or 300 lb., would pay handsomely.

— ITALIAN SUGAR REFINERIES. — In a report on the trade of the consular district of Genoa reference is made to the enormous strides in a short period of time that have been made in the locality in sugar refining; one establishment of this kind—namely, the Ligure Lombarda Sugar Refinery, situated in the suburb of Sampierdarena—is said to employ about 600 hands, 35,000 tons of refined sugar being turned out of this refinery during the past year. As a proof of the competition that now exists between England and other nations in the produce of machinery, it may be well to quote the following from the report above alluded to. The reporter says:—"In going over the works of the Ligure Lombarda, and the distillery annexed to it, I was sorry to notice nothing English about the place. The two very fine driving engines were from the United States, and all the rest of the valuable plant was from Prague and from Vienna; nothing British but the coal, and the Jute from Dundee for making the bags (some 400,000 a-year), and I heard that even this sacking is in future to be made at Voltri, from Jute imported direct for the purpose."

— SWEET-SCENTED FLOWERS FOR THE LONDON TRADE. — Some idea of the quantity of sweet-scented white or light-coloured flowers required for a single London flower business may be formed from the quantity grown by Messrs. STANDISH & Co., at their Ascot establishment. The four *Stephanotis* planted in the respective corners of the large house (50 feet by 20 feet) they occupy now cover the roof completely. Except a small space under the ridge, there are ten wires on each side running the entire length of the house, with from six to a dozen shoots to each wire. The earliest flowers are ready by the middle of April, and the plants keep on without intermission until the end of August; as much as 1200 bunches of open flowers have been counted on them at once. Four thousand Tuberoses are annually forced. By potting the roots at intervals, keeping some until late, this sweet-scented favourite is here present nearly the whole year round. When we saw them recently the quantities of plants coming on were the stoutest and least drawn we have met with. Bouvardias, struck from cuttings as early in the new year as these can be obtained, now fill a number of



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low pits, in which they are planted out and kept as hot as they will bear through the early summer, with more air as the season advances, and potted in September; 6000 are yearly propagated, but these are not all required for home use. The varieties grown are *Vreelandii jasminiflora*, *Elegans*, *Humboldtii corymbiflora*, and *Hogarth*. *Eucharis amazonica* is grown in proportionate numbers; a long low span-roofed house has lately been planted out with it. These, with *Gardenias*, and thousands of *Roses* and *Carnations*, filling long span-roofed houses, *Trachelospermum jasminoides*, *Azaleas*, *Myrtles*, and others having agreeable perfume, give sufficient evidence that the fashionable London bouquets and button-holes of the present day are in a great measure composed of sweet-smelling flowers. To deck them off with greenery another big house is filled with 2000 large plants of *Adiantum cuneatum*.

— THE CURRANT TRADE OF PATRAS.—It is stated that in consequence of the low prices realised for the inferior qualities of Patras Currants during the past season, taken in conjunction with the failure of many of the vineyards of France from the ravages of the *Phylloxera*, that a large export trade in Currants between Patras and Marseilles has been established, and it was estimated that during the season of 1878 about 6000 or 7000 tons would be consumed for distilling into wine and spirits, realising about £8 or £9 per ton.

— THE GENUS *ARISEMA*.—This is one of the most select of the *Arum* family, uniting with fine foliage a very curious form of spathe, frequently attractive in colour and marking. An interesting selection from Sikkim is in flower at Kew. First of interest is the male plant of *A. concinnum*, lately received for the first time. Instead of the pale green spathe of the female, it has a deep purple or claret-coloured one, ornamented, however, quite in the same way with white lines. No other difference but in the sexual organs can be detected, and the contrast in this respect is curious. One of the finest is *A. speciosum*, having a remarkable tail to the spadix and a broad ornamental spathe of deep claret. It seems to be distinguished from at least the introduced species by a red marginal line to the leaves, which is never absent, and is contributive of some beauty. *A. præcox* is one of the most curious in the form of the spathe, and came from one source as *A. Sieboldii*, to which it is nearly allied. The least ornamental of this set is *A. helleborifolium*; it has a self-green spathe, but with a curious erect appendage to the spadix reaching above. All these are in flower, and *A. nepenthoides*, recently noticed when another plant was received from H. J. ELWES, Esq., has only just withered. The Sikkim species are almost hardy, and *A. speciosum* has been safe through some winters in the open ground at Kew. They are best, perhaps, grown in a greenhouse, though they will flourish with greater warmth, and then flower earlier. The best soil is fibrous loam, with a good proportion of vegetable humus.

— SCOTTISH PANSY SOCIETY.—The thirty-fifth annual show of this Society is to be held on the 27th inst., and as so many different prizes are offered it should be an inducement to competitors from the South to exhibit, especially as the season is late. We understand that competitors can enter their stands on the show day without any previous intimation.

— THE RHODODENDRON SHOWS.—The annual exhibitions of these gorgeous hardy shrubs made by Mr. ANTHONY WATERER, of Knap Hill, in the Royal Botanic Society's Gardens, Regent's Park, and by Messrs. JOHN WATERER & SONS, of Bagshot, in Cadogan Place, Chelsea, will be at their best during the ensuing week. Intending visitors should make a note of this, and take an early opportunity of inspecting both.

— PLANTING OUT YOUNG AZALEAS.—The Continental method of growing young *Azaleas* planted out in summer is now being carried out at the Ascot Nurseries with the best results. Every one who has had to do with large quantities of young stock grown in little pots is aware of the amount of labour and attention required in watering, and how persistently these small plants get dry in bright summer weather, when its effects have such a tendency to induce a stunted condition. Mr. JOHNSON, the able manager at this place, seeing what was done in the Continental nurseries, thought that by modifying the practice a little so as to make up the difference caused by our

clouded climate and shorter summers he could secure the freer growth resulting from planting out and effect a saving in the labour of watering. The beds, occupying a warm sheltered position, are made 5 feet wide by 30 yards long, the soil composed of peat reduced to a fine state, with a little leaf-mould and sand, the surface sunk about 2 inches below the dividing paths. Some 6000 of last summer's grafted plants are turned out of their pots about the end of May, and planted 6 or 8 inches apart, the soil pressed firmly to them; all the attention they receive or require through the summer is to water the beds freely once or twice a week according to the weather. The growth made is nearly double that resulting from pots. Towards the end of September the whole are taken up and put in pots as small as their roots can be got into, and they are at once transferred to houses kept warm for about six weeks, by which time the greater portion are set with flower-buds, and the largest big enough to sell; the smaller remaining ones again in May are taken out of the pots, the balls soaked, a considerable portion of the soil removed, and planted as before, giving them more room, treated during the summer, and potted in September as previously, with warmth under glass in like manner. At the end of this second season the plants have attained a size quite equal to what would have been the result of three summers in pots, and are full of free growth. Turned out clear from thrips, with their heads in close proximity to the damp earth, these pests cause little trouble.

— THE DANGSTEIN COLLECTION.—We may remind intending purchasers that the dispersion, by sale, of the famous collection of plants at Dangstein commences on Tuesday next, and will be continued on the two following days. The second portion will be sold on July 1 and two following days. Mr. J. C. STEVENS is the auctioneer, and the plants will be put up without the slightest reserve.

— PUGIONUM CORNUTUM.—Dr. BRETSCHEIDER forwarded to St. Petersburg seeds of this curious Cruciferous plant, which inhabits the interior of China. Unfortunately none of the persons amongst whom the seeds were divided succeeded in bringing the plants to flower, although a considerable number of the seeds grew. This is an exceedingly rare plant in herbaria, and its affinities are not exactly known, therefore it is to be regretted that all the plants died off before attaining maturity. Dr. REGEL took the precaution of dividing the seeds amongst some of his correspondents most likely to succeed.

— THE PLAGUE OF SLUGS.—We often think that gardening has more than its share of erroneous notions taken for facts, which time and an unlimited amount of rebutting evidence seem incapable of removing. Had we a dozen hard winters in succession, such as the one we have recently passed through, we verily believe there would still, during the time the earth was frost-bound, be the same general expressions of gratification that the slugs and other vermin were sure to be reduced to small numbers. Yet, so far from this being the case, we should think there are few, if any, who can recollect a spring when these mischievous pests were present in such quantity, or so voracious—nothing seems to come amiss to them, almost every conceivable thing in the kitchen garden as well as flowering plants. We see many people who, in their small gardens, keep on dusting their vegetables and flowers with lime and soot, until the plants are all but poisoned with the repeated dustings, which are washed off by the rain that keeps oncoming at short intervals. For choice flowers the zinc collars that have been recommended are no doubt very useful, but these cannot be used for everything, or rather can only be employed for a few. Anything laid on the ground to prevent the approach of the slugs needs to be of a nature that will stick to their bodies even when wet; in addition to the different materials generally known we have used wheat chaff, which these slippery visitors particularly dislike even when it is wet, but nothing we ever used is so effectual as the bristle clippings from the brush-maker's. As a matter of course these could not be had in quantity sufficient to apply to everything, but as a protection for the choicer things most people would be willing to make an extra effort. It is not a little tantalising after giving 7s. 6d. or 10s. 6d. each for new Dahlias, to find some of their heads eaten off, or to see the shoots of *Lapagerias* just above the soil demolished. The brush clippings are also a

powerful and lasting manure, quite equal as we have proved to hoof parings from the shoeing forge; the bristle ends can be had at any brush manufacturer's. Anent slugs, it is often said there is nothing like catching and destroying them, which is so far correct as regards those we do catch, but in such a season as this has been you may keep on catching morning and evening without intermission, killing them by thousands, and your cherished plants disappear all the while, unless something is done to protect them.

— FLOWERING TREES.—In spite of the continued heavy rains, and rather largely perhaps because of them, the bloom on ornamental flowering trees this year has been unusually fine and abundant, the bunches, trusses, or racemes of flowers, as the case may be, being large, and as seen specially in the *Laburnum*, the whole of the raceme being expanded, at once giving a very brilliant aspect to the trees. The white Hawthorn, blooming with wonderful profuseness, has belied its familiar designation of "May" by being at its best in the middle of June, but then it is only in keeping with all hardy flowering trees and shrubs, all being very late. Travellers by road to that sporting centre of attraction, Ascot, found after passing the straggling town of Egham a singular wealth of beauty on either side in grand masses of the double golden Furze of the most auriferous hue. *Laburnums* all aglow with their rich yellow pendent blossoms; *Lilacs*, scarlet and white *Horse Chestnuts*; *Wistarias* trained over cottages, and other flowering trees, with gorgeous masses of *Rhododendrons*, and not least beautiful the varied foliage shades on the trees singularly full, dense, and luxuriant. The present is in any case a fine tree season, and thousands that had begun to feel premature age, owing to a succession of dry summers, are now realising a renewed existence consequent upon the abundant moisture and the luxuriant leafage. The scenery through the broad expanse of Windsor Great Park, as the shades of evening fell and the shadows of the noble masses of the trees were thrown broadcast over the grassy glades, was truly sublime, and a fitting finale was found in the *Wistaria*-decorated lodge at Bishopsgate, than which anything more beautiful as an entrance lodge could not be conceived.

— *BOLBOPHYLLUM MINUTISSIMUM*.—Baron F. VON MÜLLER writes:—"From the enclosed letter of Canon KING (son of Admiral KING), you will perceive that this gentleman was the original discoverer of the *Bolbophyllum minutissimum*, of which until now I was not aware, but you will also notice that the genus *Bolbophyllum* was in Mr. W. S. M'LEAY's time not known and recognised as Australian, the plant having been lost during the last twenty years, during which period I successively published the ten *Bolbophylla* now known. I was not aware of the suggestion of Canon KING that the plant might be called *Dendrobium nummifolium*, a designation which would have been more suitable than *D. moniliforme*, if the leaves or pseudobulbs were only larger, for they are flat and thus certainly more coin-like than bead-like. In saying 'leaves or pseudobulbs,' I must add that I hesitated from the beginning to acknowledge the disk-like leafy organs as leaves, and considered the probability of their pseudobulbous nature, but did not introduce the ambiguity of the subject, as I ought to have done, in the designation. What led me to assume them to be leaves was the affinity of *B. lichenastrum* to the minute species under discussion, the leaves of the former being also very small and depressed, and also unaccompanied by pseudobulbs. Still the leaves of *B. lichenastrum* are nearly basifixed, whereas the disk-like bodies of *B. minutissimum* are half adnate to rootlets. Possibly the extremely minute awl-shaped processes, occasionally arising from the disks, may indicate rudimentary leaves, and may sometimes assume larger size and expression of really leafy significance. Sir GEO. M'LEAY, whose friendship I also enjoy, must, after so long a time, be misled by his memory in stating that the *B. minutissimum* was always known, as he says in the *Gardeners' Chronicle*, as *B. moniliferum*; this I would like to mention publicly, that it may not appear as if I had usurped a name for this dwarfest of all Orchids, given by his venerable and learned brother. Perhaps this memorable Orchid should rather be called the dwarfest than the smallest, inasmuch as the roots are elongated, and as thus one individual plant is provided with a multitude of disk-

like pseudobulbs or leaves, although in height even *Malaxis paludosa*, in its smallest forms, is a giant compared to it.

"I obtained it in a ravine at the back of Kulebutter's Bay, Port Jackson, where it was growing on sandstone boulders in moss almost within the reach of the drip from the overhanging rocks above. The locality has since been desecrated by the march of suburban improvements. As I have never found the plant elsewhere I was the more rejoiced to hear that you had obtained it from your correspondents. My plant was in seed, the pods being comparatively large (about $\frac{3}{8}$ inch), while the pseudobulbs are small (about $\frac{1}{8}$ inch). I have never seen the flower, but Mr. W. S. M'LEAY, who very kindly permitted me to place the plant on one of the rocks at his residence, Elizabeth Bay, told me that it flowered with him, but he regretted that the flower had not been preserved. The only connection I had with the name was a suggestion made to Mr. M'LEAY that the specific name, nummuliforme, would very aptly describe the round, flattish pseudobulbs. I supposed at the time that it was a *Dendrobium*, the genus *Bulbophyllum* not being known to me as a genus. But as I never published the name I had no "rights" whatever on the subject. I think that Mr. M'LEAY changed my nummuliforme to moniliforme, which I thought not so descriptive. Robert King, Gladsville, Pirramatta River, near Sydney, April 1, 1879."

— CHINESE METHOD OF RAISING WEeping TREES.—It is stated in REBEL'S *Gartenzeitung*, on the authority of Dr. BRETSCHNEIDER, physician to the Russian Embassy at Peking, that the Chinese raise weeping trees by reversing their extremities. Dr. BRETSCHNEIDER describes the operation, which he asserts he has himself repeatedly witnessed, as follows:—"To raise weeping trees of *Sophora japonica*, they plant two young seedlings side by side. The tip of one of them is then bent downward and inarched on the base of the other, tip downward. As soon as the graft has properly taken, the tree that was doubled down is dug up, roots and all, and the roots, denuded of the soil, turned uppermost, and the stem attached to a stake in this reversed position. The stem of the tree, which serves as stock, is then cut off at the point of union of the two, and the roots of the reversed tree form the crown of the artificial tree. In this novel position they require shading from the sun until they have formed some branches. In this manner, we are assured by Dr. BRETSCHNEIDER, the Chinese obtain all their weeping trees.

— TRITONIA BRILLIANT.—This beautiful form—which is probably a variety of the early flowering *T. crocata*—is an object of great beauty at Gunnersbury Park just now, where, in common with some of the choicest forms of *Ixia* and *Sparaxis*, which have been most successfully done during the spring, it is grown for its obvious excellent qualities. Pots of *Sparaxis* and *Ixias*, grown in those known as 32-size, eight to twelve bulbs in a pot according to their size, and potted in September in sandy loam and leaf-mould, with a good supply of drainage, and given cool treatment during the winter, have bloomed with great freedom and been objects of great decorative beauty. The *Sparaxis* were the first to flower; these were followed by the *Ixias*, and as these decline the *Tritonia* takes up the floral tale, and gives the greatest quantity of flowers of the brightest hue. This particular variety has been described as of a "rich luminous orange-scarlet," but orange is the prevailing tint; the flowers are large and borne on spikes, seven and eight to a spike, and the flowering stems throw off small side blooming spikes also. We sometimes hear of the difficulties which beset the cultivation of *Ixias*, *Sparaxis*, and *Tritonias* in pots; but Mr. ROBERTS has proved in the most conclusive manner that these beautiful Cape bulbs can be grown with ease if properly attended to. After the plants have done flowering, they are stood out-of-doors where they have the benefit of the sun for half the day, and as the foliage ripens off water is withheld. The bulbs are repotted in September as above stated, and plunged in an ash-bed, or cold frame, till the winter comes on, when they occupy a shelf near the glass in a cold house. There are few subjects more worthy the attention of lovers of hardy flowers than these lovely and satisfying Cape bulbs.

— ORCHIDS AT GUNNERSBURY PARK.—In the East Indian-house there is a splendid example of *Aerides Veitchii*, bearing a very fine branched spike heavily laden with large and beautifully coloured flowers

of a rich rosy-purple colour. A more exquisite *Aerides* can scarcely be imagined, so perfect is it in all its parts, and Mr. ROBERTS deserves great praise for the high cultivation which manifests itself in the condition of the plant. An *Aerides Schroederi*, in similarly fine condition, has four large spikes of bloom, two of these branched; this when fully developed will be an object of great beauty. *Oncidium Papilio major* is also flowering; the second flower, which was open when seen, was pretty well as large again as the first. In the cool-house the fine specimen of *Odontoglossum vexillarium* is progressing most favourably, and will be in full beauty a month hence. With it are some of the best varieties of *O. Alexandre*, throwing up large spikes of bloom that will be in flower at the same time. The *Masdevallias* are getting very gay, a form of *M. Veitchii* is remarkable for the large size and splendid colouring of the flowers. In the East Indian-house there is a bed of cocoa-fibre beneath the plants and about the bottoms of the pots, which appears to suit the specimens well as they all look wonderfully healthy.

— SELF-FERTILISATION OF PLANTS.—SILLIMAN'S *American Journal of Science and Arts* for the current month contains a rather lengthy critical examination of the Rev. GEORGE HENSLOW'S memoir on this subject, which lately appeared in the *Transactions of the Linnean Society of London*, from the pen of Dr. ASA GRAY. Mr. HENSLOW, as our readers are aware from his contributions to this paper, is the champion of the theory of self-fertilisation, and is, to some extent, opposed to the Darwinian axiom, "Nature abhors perpetual self-fertilisation." The author of the critical notice in question endeavours to show that Mr. HENSLOW'S deductions are not warranted by the evidence adduced, and points out that some of the reported facts will not bear scrutiny. *Gentiana Andrewsii*, Mr. HENSLOW assumes, never opens at all in America, but it opens in sunshine in the middle of the day in New England, and Dr. GRAY has observed a humble-bee emerge from a closed flower. With regard to "FREMONT pathetically describing the solitary bee that rested on his shoulder at the top of Pike's Peak," Dr. GRAY retorts: "The pathos is wasted as respects all but this particular bee; for the entomologists find the alpine region of the Rocky Mountains to be as well stocked with flying insects as are alpine regions in other parts of the world. They do not superabound, but if from the alpine flora we subtract the evidently entomophilous and the anemophilous blossoms, the remainder will be nearly nil." Mr. HENSLOW states that *Gaura parviflora* has no corolla, and is cleistogamous, &c., but Dr. GRAY says in America the flowers open freely and have rose-coloured petals; and he thinks if Mr. HENSLOW examines fresh specimens of *Scrophularia* he will soon perceive that he was mistaken in his idea that the flowers are self-fertilising.

— FOREST RESOURCES OF WESTERN AUSTRALIA.—The indefatigable Baron VON MÜLLER is the author of a quarto volume bearing the above title, just published by REEVE & Co. It consists of thirty pages of letterpress illustrated by twenty lithographs. The author in some introductory remarks insists upon the desirability of the Government exercising some control over the forests, and initiating that control before the forests are destroyed, and it is to be hoped the powers will see the wisdom of taking such a step. Some initiatory measures are suggested for establishing a forest administration. The book is almost entirely devoted to the genus *Eucalyptus*, seventeen species of which are figured in natural size, lithographed by Mr. J. N. FITCH. For a genus so difficult as *Eucalyptus*, these excellent plates will be very useful. The Yarra-tree—*Eucalyptus marginata*—is the most valuable timber tree of the colony, and is spread nearly all over it, extending from the Moore River to King George's Sound and Cape Leeuwin, forming the main forests. It sometimes exceeds 100 feet, but rarely 150 feet in height, but its wood is most valuable, as it resists the boring insects, chelura, teredo, and termites. Baron VON MÜLLER thinks that this tree is destined to supply one of the most lasting hardwood timbers for a long time to come, at the least costly rate, to many parts of the globe. *E. calophylla*, *ficifolia*, *diversicolor*, *loxopheba*, *redunda*, *cornuta* *gomphocephala*, *rostrata*, *rudis* *decipiens*, *brachypoda* (which takes precedence of VON MÜLLER'S adopted name, *microtheca*), *oleosa*, *longicornis*, *salmonophloia*, *salubris*, *angustissima*,

megacarpa, and *pyriformis*, are the other species described, nearly all of which are figured, including their fruits, and the very different foliage of the young and adult stages. *E. calophylla*, the Red Gum-tree of Western Australia, is an exceedingly handsome umbrageous tree, differing from most of its genus in presenting the surface more than the edge of its leaves to the zenith. *E. diversicolor*, the Karri-tree, is remarkable for the large size it often attains. The author states that its maximum height is certainly not over-estimated at 400 feet. Messrs. MUIR measured trunks 300 feet long up to the first limb; and Captain PEMBERTON WALCOTT found the circumference of one particular gigantic tree to be 60 feet around the base. When closely growing the young trees have a very slender trunk, so much so that a tree 180 feet high and with comparatively little foliage may have a stem not over a foot in diameter. *E. redunda*, the Wandoo-tree, sometimes attains a large size, and its wood is extremely dense and heavy. Some of it when seasoned weighs as much as 70 lb. to the cubic foot. The Yate-tree, *E. cornuta*, furnishes a handsome tough wood, which for cart-shafts is regarded as equal to the best English Ash-wood. *E. rostrata*, the Flooded Gum-tree of the interior, is noteworthy as being one of the few species of the genus which stretch from the west coast to the east and north-east coasts, and its timber is only excelled in durability by the Yarra. Moreover it is easily raised, and is of rapid growth. It is valuable to explorers and pastoral settlers, as it indicates the lines of creeks and watering places. *E. megacarpa* and *E. pyriformis* have remarkably large seed-vessels, though the former is only a tree of moderate size, and the latter is a shrub. Among West Australian timber-trees belonging to other genera VON MÜLLER enumerates; *Casuarina Fraseriana*, *C. glauca*, and *C. Decaisneana*; *Agonis flexuosa*, *Melaleuca leucadendron*, *Frenela verrucosa*, *Banksia verticillata*, *Santalum cygnorum*, *Acacia acuminata*, *A. saligna*, and *A. microbotrya*. The wood of several of the foregoing is handsome and used for cabinet-making. The work concludes with an enthusiastic chapter on "cultural measures to enrich the West Australian forests."

— LIVISTONA MARIE.—This name was given to a Palm discovered by GILES in Western Central Australia, and the only species hitherto discovered in that region. Baron VON MÜLLER, in a communication to REBEL'S *Gartenflora*, states that the geographer J. FORREST collected fruits of a Palm in the Hamersley range, where it had been previously seen by GREGORY. It appears to be identical, as far as the material will permit of identification, with the Palm collected by GILES, and Baron VON MÜLLER publishes a detailed description of all the material in his possession in the seventy-ninth number of his *Fragmenta Phytographiæ Australis*. It is allied to *Livistona australis*, but the flowers are still unknown. It is of course specially interesting on account of its geographical position. Respecting the southern and western limits of Palms in Australia, Baron VON MÜLLER takes the opportunity of correcting the boundary given by Dr. DRUDE, in PETERMANN'S *Geographische Mittheilungen*, which was also repeated in the *Gardeners' Chronicle*. Long ago, it appears, VON MÜLLER published the fact, which he has since often repeated, that *Livistona australis* had been discovered on an eastern affluent of the Snowy River, in East Gipps-Land, in 37° 30' S. latitude. VON MÜLLER hopes shortly to succeed in introducing *Livistona Marie* into Europe, where its peculiar pale green colour will contrast well with its more highly coloured eastern congeners.

— FEEDING EXPERIMENTS ON DROSERA LONGIFOLIA AND D. ROTUNDIFOLIA.—The *Gartenflora* for April of the current year contains a full account of some experiments carried out by Dr. REBEL on the above-named plants, to ascertain whether they derived any benefit from animal matter placed on their leaves, and whether they really absorb and assimilate animal matter at all. Dr. REBEL is an avowed anti-Darwinian, so in order to give his experiments due weight in the scientific world, he put them under the control of scientific colleagues holding contrary opinions. We need not follow the operator, or describe his mode of operating, beyond mentioning that he appears to have taken all the care he thought necessary to make all the conditions equal and avoid error. Dr. REBEL is undoubtedly a conscientious opponent of all theories or so-called new

discoveries that upset long-nurtured ideas and I disturb views hitherto considered unimpeachable. He claims to have successfully combated the assertions that Wheat had descended by evolution from *Egilops*, that hybrids between species yield no fertile pollen, that parthenogenesis occurred in the vegetable kingdom, that such a thing as an intermediate form ever results from grafting, &c. A little further on he states that he never believed in insectivorous plants from the first, "because the root is the organ of absorption and the leaf the organ of assimilation." Moreover, he is strengthened in this belief by the unanimous verdict of all observant cultivators. Now with regard to the experiments in question, although, as we have already said, Dr. REGEL appears to have exercised all the care he considered necessary, still his experiments were evidently not conducted with that elaborate detail bestowed upon those made by Mr. F. DARWIN, whose results Dr. REGEL sought to refute, and claims to have refuted. These are the results obtained by Dr. REGEL from four pans of plants, two of each species, one fed and one unfed:—

Dracaena longifolia.—The unfed plants bore exactly twice as many seed capsules as an equal number of fed plants, and these forty-two capsules contained three times as many seeds as the twenty-one capsules, or 3720 seeds against 1320 seeds. On the other hand, 1000 seeds of the unfed plants were somewhat lighter than the same number from the fed plants, being as 25 to 27.

Dracaena rotundifolia.—In this experiment the fed and unfed plants produced an equal number of seed capsules; but the thirty-four capsules of the unfed plants contained nearly three times as many seeds as those of the fed plants. On the other hand 1000 seeds of the unfed plants weighed little more than half as much as an equal number of the fed plants.

Dr. REGEL assumes that these figures prove his point, and adds that, although Mr. FRANCIS DARWIN states that the specific weight of the seeds of the fed plants exceeds that of those of the unfed ones, he says nothing about the number; but if Dr. REGEL will refer again to Mr. DARWIN's paper, he will find that the numbers were as 122.7 to 100 in favour of the fed plants. In conclusion, the author expresses the wish that the results of his experiments will induce people to cease calling plants that entrap insects carnivorous.

— COFFEE CULTIVATION IN COSTA RICA.—

The cultivation of Coffee in different countries, and the various diseases to which Coffee is liable, has attracted so much attention of late that every scrap of information regarding the prospect of the crops in Coffee-growing countries is of interest. Thus from San José we learn that Coffee-growing continues to occupy the chief attention of agriculturists, notwithstanding that less success has been attained latterly than heretofore, owing principally to a considerable change in the seasons. Last season's crop in the above locality was expected to have been exceptionally large, but owing to a long and very wet season it suffered to a great extent, nevertheless a very large crop was anticipated though of an inferior quality. Several experiments have been made in this locality with Liberian Coffee, but with indifferent success, the climate in the interior being too cold for the plant. It is said to grow to greater perfection on the coast, but it has not yet been sown long enough for any decided results to be ascertained. In the early part of last year and the latter part of the preceding year a good deal of fear was experienced, and some loss was caused, by the appearance of clouds of locusts, which made considerable havoc with the crops of Maize, Sugar-cane, and black Beans: fortunately they did no damage to the Coffee trees.

— THE INTRODUCTION OF ESPARTO GRASS

INTO SOUTH AFRICA, AUSTRALIA, AND NEW ZEALAND.—The introduction of various economic plants into our colonial dependencies receives from time to time a good deal of consideration at the hands of our contemporary, *The Colonies and India*. Quite recently the subject of the introduction of Esparto grass into the South African, Australian, and New Zealand possessions have been discussed. It is stated that a short time ago there was such a dearth of paper in the South African colonies that several of the newspapers were obliged either to suspend publication or to appear reduced to half their ordinary size, while the material rose to "famine prices," and yet

South Africa possesses abundant supplies of grasses and Restios of various kinds containing a large percentage of fibre, and admirably suited for paper-making purposes. Besides this the climate and soil of the Cape Colony is said to be admirably suited for the growth of Esparto, which has within the last twenty-five years formed the principal substance used in paper-making. At the present time it is grown principally in Spain and Algeria, and as many as 100,000 tons are annually imported into England, besides large quantities to France, Germany, America, and other countries. The quality of the African produce has fallen off, but the price of the best grass is steadily rising. So great indeed is the demand for good paper-making materials that all kinds of produce, grown in all manner of countries, are being tried one after the other. South Africa therefore affords an excellent field for the culture of Esparto, and it might also be taken up and tried in Australia, New Zealand, and even in India, both with a view for export and for supplying their own markets with home-made paper. On the question of the cultivation of English vegetables in the West India islands our contemporary says:—

"As England is dependent on the islands on the European side of the Atlantic for the greater part of her supply of early spring vegetables, so America has in the same way to rely on the islands of the Western Atlantic. The Bahamas, and those outlying pickets of the West Indies, the Bermudas, supply large quantities of Potatoes, Tomatoes, Onions, and other early spring vegetables, the former to the Southern and the latter to the Northern States. The Bahamas, at one time the resort of wreckers, dependent on the waifs and strays of the ocean for their means of subsistence, are now largely cultivated with the produce not only of the tropical but of the temperate zones; and Sugar-canes, Pine-apples, and rare tropical fruits are grown alongside of Oranges, Apples, Potatoes, and other European produce. In the Bermudas, again, whose inhabitants thirty or forty years ago were possessed of a merchant fleet of upwards of one hundred ships, agriculture is now the mainstay of the population. Instead of ploughing the ocean with their keels they have taken to ploughing the land with the ploughshare. Agricultural implements have been imported from America, and the curious soil of the islands—a limestone deposit, cast by the waves of the sea into the clefts of the rocks—is made to bring forth abundance of produce. The moist, warm atmosphere of the winter months is well adapted both here and in the Bahamas to this branch of agriculture; and the islands are to America what the Scilly Isles and the Azores are to Europe. Some of the other West India islands, though not quite so favourably situated as regards climate, might with advantage follow the example of these groups, and largely extend the cultivation of English vegetables, for which they are chiefly dependent on supplies from without."

— INDIAN MANGOS.—We have received, by the favour of Mr. F. A. DICKSON, of Covent Garden, some very fine fruits of the Mango, *Mangifera indica*, brought from Bombay by Captain JOHNSON, of the Peninsular and Oriental Company. The samples are in perfect condition, large, and of a bright orange colour; the flesh melting, and the flavour delicious—a combination of Melon and Apricot.

— THE WEATHER.—From the report issued by the Meteorological Office for the week ending June 16 we learn that the weather was again generally dull and very showery, but with occasional intervals of bright sunshine. A good deal of fog was reported on several days in the northern districts, and some in the south on Sunday. Thunderstorms were very general during the early part of the week. The temperature was at its mean value in "Scotland, W.," but a little below the mean in all other districts, the deficit being least over Ireland and in "England, N.W.," greatest in "England, S.W.;" maximum low generally for the season, but slightly above 70° over the midland and eastern districts on one or two occasions. No very low minimum reported. The rainfall was more than the mean almost everywhere; in the more northern districts the excess was considerable, but over the midland counties it amounted to twelve-tenths of an inch, while in "England, S.W.," it was as much as 2 inches. The greater part of the fall in the latter district occurred on the 14th and 15th. The wind was generally southerly (south-east to south-west) during the early part of the week, but easterly at all but the most southern stations on the 15th or 16th. Winds generally light or moderate in force.

NEW ZEALAND FLAX.

IN a recent number of *The Colonies* attention is drawn to the probability of a widely extended future trade in New Zealand Flax (*Phormium tenax*). In New Zealand, as is well known, several distinct varieties of this plant are found; the three principal forms of which, the "marsh," or "swamp" variety, the "Tihore," and the "lesser," are the most characteristic. The leaves of the first variety are about 10 feet long, and produce a coarse fibre largely used in the colony for making cordage and paper. The last two produce leaves about 5 feet in length, and the fibre, though strong, is fine and soft. The leaves of all the forms are said to attain to their full size in about three years. These plants, it is said, will grow on almost any land, even on the side of a rock, or on the sea-beach; they may be left to themselves, and no animal will interfere with them. The richer the soil the stronger, of course, is the growth of the plants. Occasional showers are beneficial, but it does not require to live continually in water; and in marshy lands, in which it will nevertheless thrive, it is necessary for the soil to be drained to carry off the excess of moisture.

Hitherto no very great attention has been paid to the cultivation of this plant, but the natural supplies obtained in New Zealand are insufficient for the demands of commerce. It is a mistake to suppose that an illimitable supply can always be obtained because no cultivation has been necessary in the first crops of the wild produce. This is not to be regretted, for careful cultivation cannot fail to greatly improve the fibre, and the best kinds alone will be worth the trouble of proper rearing. Steps are, however, being taken to cultivate the plant in New Zealand, and in other countries which have been fortunate enough to acclimatise it—in the Azores, at St. Helena, in Algeria, and the south of France, where it thrives well and has been easily naturalised.

The Maories produce a ton of fibre from 4 tons to 4½ tons of leaves. An acre of ground planted with *Phormium* about one yard apart gives about 1500 lb. of fibre. These figures refer to the plant in its wild state; with cultivation the yield of the plant improves so much that an equal area of land will produce half as much again. In Russia 1½ ton of Hemp from five acres of ground is regarded as a good crop. This quantity of Hemp is worth on an average £45, and at a low valuation £20 per ton; five acres of *Phormium*, at only 1 ton per acre, are worth £100. The growth of the trade in New Zealand Flax is shown by the following figures:—Previous to 1867 the export of the fibre from New Zealand was not sufficiently large to merit record in the trade returns of the colony; in 1867 the quantity exported was 127 tons, valued at £4256; six years later it was 6454 tons, worth £143,799; and the trade has gone on rapidly increasing ever since.

Great difficulties have had to be overcome in the extraction and preparation of the fibre from the leaves. The native method is to split the leaf with a sharp shell, or piece of iron, and by alternate scrapings and washings to separate the fibre; but this system is, of course, impracticable where labour is dear; and besides this mechanical obstacle there is a chemical difficulty in the presence of a resin, or gum, only partly soluble in warm water, which resists nearly all chemical agents that do not at the same time affect the quality of the fibre. The natives reduce this material by means of an oil called "weka." If any of this resin is allowed to remain in the fibre it renders it brittle, and the material will not bear rubbing. Its existence, indeed, is one of the obstacles to the more general use of the fibre. The want of labour and of mechanical appliances prevents the manufacture of Flax on the spot, and in the course of its transmission in a roughly-dried state to Europe it deteriorates in value, and ropes made in England of the fibre, though of fine quality and texture, and very white, do not possess the tenacity which is the characteristic of the native-made ropes and cords. Probably when the manner of treating the leaves is more thoroughly understood this resin will be turned to some commercial account. A similar gummy substance is formed all over the leaves and stems of the plants; and, besides all this, the seeds yield a large quantity of oil. It will thus be seen that with careful cultivation and improved appliances, both in its growth and manufacture, New Zealand Flax will become a very valuable commercial article, rivalling in usefulness the common Flax, Hemp, and even Cotton itself. Its transfer to and acclimatisation in other lands suited for its growth will be a source of benefit to those countries, and may at the same time probably improve the growth of the plant itself.

THE CULTURE OF ROSES.*

Situation.—A place apart from other flowers should be assigned to them, if possible sheltered from high winds, but open and not surrounded by trees, as closeness is very apt to generate mildew; where they cannot have a place to themselves, any part of the garden best fulfilling these conditions will answer.

Soil.—A most important item in their successful culture. That which they especially delight in is a rich unctuous loam, that feels greasy when pressed between the fingers; where this is not to be had, the soil must be improved—by light, by the addition of loam, or even clay, well worked in; where heavy, good drainage, and the addition of coal ashes, in small quantities, will help it, but in such places draining is most important.

Stocks.—For standards (which are generally a mistake for non-exhibitors) the Dog Brier is the stock; dwarfs may be either (1) on their own roots, (2) on the Manetti, (3) on the seedling Brier, (4) on Brier cuttings. 1 are a much longer time in making plants, and only some do well; 2 a very suitable stock for all soils, but apt to be too vigorous for weakly growers, and of late 3 has taken its place to a large extent, suits many varieties better, makes very strong roots, and does not throw up suckers; 4 is very nearly similar, and generally suitable for all soils. For Teas and Noisettes, either 3 or 4 are unquestionably the best.

Planting.—November is the best month, but it may be done any time when the ground is in good order during the winter months. In planting budded plants, place the point of junction beneath the soil, as the Rose will then make roots, and the plant has a double chance. Mix some loam and well-rotted manure together, open a good-sized hole and fill it with the fresh soil; plant firmly. Tea Roses should be protected by Fern loosely scattered among them. Shorten any very long shoots, and, if exposed to winds, secure the plant by short stakes.

Manuring.—Roses are strong feeders, and will take almost any amount of manure; pig manure is the best, except in hot soils, when cow-dung is preferable; stable manure is generally available and good. Exhibitors generally apply a top-dressing in spring, but it does not improve the appearance of the beds; a good top-dressing may be laid on the beds in autumn, and be dug in in the spring.

Watering.—When coming into bloom, if weather is dry, give a good drenching twice or three times a week, continue after blooming to prevent mildew; if greater size is required, liquid manure may be used. Syringe daily for greenfly.

Pruning.—This may be done any time after the beginning of March, according to the season; cut out all wood over two years old and all weakly shoots; weak-growing kinds should be pruned hard, *i.e.*, down to three or four eyes, stronger growing kinds may be left longer; cut to an eye that points outwards, so as to keep the inside of the plant open. Tea and Noisettes require less cutting back, the tips should be shortened and weak shoots cut out, and they should not be pruned until May. Use a good pruning knife in preference to a *secateur*, it cuts cleaner and does not bruise the wood.

RADISHES AT CHISWICK.

ANOTHER illustration of the value of the trials carried out at Chiswick with so much care and success was afforded by the large and representative display of Radishes made on the occasion of the Great Exhibition of the Royal Horticultural Society at South Kensington on the 27th ult. They were at a great disadvantage in competing with Orchids and other valuable plants, fruit, &c., but they furnished a timely and instructive lesson notwithstanding. As usual, a large number of samples of Radishes were sown. It must be so where thoroughness is one of the prime characteristics of a trial. Samples were obtained from many sources at home and abroad, and the various types in cultivation were represented at Chiswick. Among the Turnip Radishes the earliest Erfurt Scarlet Turnip was a very notable one, because of its adaptability for forcing in frames and for small gardens: it is quite early, has a very short top, much shorter than the ordinary red Turnip Radish: too short perhaps to be

available for bunching for market, but a very useful one notwithstanding. It is paler in colour than the ordinary Turnip Radish, and does not run to seed too soon. The round Rose hatif (early rose) (Leroy), is a very fine stock of a bright rosy-red colour, such a colour as is taking to the eye, and gives a fresh appearance to the bulbs. It is somewhat Olive-shaped, and makes a distinct and first-rate variety. The round Ecarlate hatif (Leroy) (early scarlet) is a rich-looking dark red Turnip Radish of quite a striking colour. There were many samples of ordinary scarlet Turnip Radishes, some better and truer to a good character than others, as might be expected. The French Breakfast Radish is a rather small and crisp red Turnip variety, with a blotch or spot of white at the bottom of the bulb. It is mainly used as an early forcing variety. The scarlet Olive-shaped Radish, which is doubtless an oval-shaped selection from the red Turnip, is as early as any, but it soon ages and becomes coarse and hollow. The half-long deep scarlet is of a bright red colour and longer than the Olive-shaped, coming intermediate between it and Wood's Early Frame, but has no particular merit. The rose Olive-shaped does not differ from the ordinary Olive-shaped Radish. The half-long rose appears the same as the half-long scarlet, only a little paler in colour. The violet Olive-shaped Radish (Veitch's Gem) is both handsome in shape and distinct in colour, and, like the French Breakfast, tipped with white. A sample from Ernst Benaty was identical with the foregoing. All the Olive-shaped Radishes appear to go pithy, and they should be eaten quite young, and the seed sown successively. The early purple Turnip Radish is not so attractive-looking as the red Turnip, but does well to mix with, by way of giving a little variety. It is quite distinct in character. A Radish named Violet de Tournay is a long purple Olive-shaped Radish of no merit. The long purple has a long neck, is coarse-looking, and apt to run quickly to seed. Of Wood's Frame Radish, which is a stouter and shorter Radish than the long scarlet, and also of the latter, there were many samples. The London Particular Long Scarlet Radish (who could have given it this barbarous name?) is just the ordinary long scarlet. The long scarlet-salmon is the same as Wood's Frame. The long scarlet rosy-salmon is a pale scarlet. If any difference may be said to exist between the long salmon and the long scarlet, it is simply one of colour, and it is a matter of selection only. Beck's Long Scarlet Radish, as known some years ago, was an extra long Radish of a deep bright red colour. The long white Naples Radish was represented by several samples bearing differing names. The white Russian Radishes, a pure stock of this: and the large white Vienna is the same. The white Hospital Radish of Vilmorin & Co., is a long white Olive-shaped type. The Rave de Marais of Leroy is a long white Radish with a purple top and coarse looking, certainly not so nice in appearance as the pure white Naples.

Among the white Turnip Radishes the early white short-leaved is a white counterpart of the Early Erfurt Scarlet Turnip, differing only in colour; it, too, has a very short top, and will do well for growing in frames. It may here be said that the white Turnip Radishes appear to last longer in good table condition than any other, the common Turnip not excepted. Among many samples of white Turnip Radishes the foregoing was the only one of them worthy of special mention, except to say that generally the stocks were very good. The yellow Turnip Radishes are no doubt selections from the white Turnip. A sample from Messrs. Carter & Co. had quite a deep yellow rind, and a very fine, firm, sweet, crisp white flesh. Ernst Benaty's Olive-shaped yellow summer Radish is also very good. Then there are grey round Radishes, which are also selections from the white round, while the black Turnip Radish is of a dark grey colour tinted with purple, and, like the yellow, of a very good quality. An earlier sowing, in which a good number of the samples had gone to seed, showed that the early white short-stemmed or short-leaved stands well, and is a long time getting away to seed; and the same remark applies to the earliest Erfurt Scarlet Turnip Radish of Benaty, which appears to be of a very hardy character also. The young men of our large seed-houses, whose opportunities for getting practically acquainted with very many of the subjects they are constantly handling in the form of seeds are few, would do well to get a lesson on Radishes at Chiswick just now. Prob-

ably every facility would be afforded them in the way of admission to the gardens, where so much knowledge lies at their service if they will only avail themselves of it. R. D.

HYPOXIDACEÆ.

MR. BAKER, in a recent part of the *Journal of the Linnean Society* (Botany), vol. xvii., p. 93, gives an elaborate synopsis of the plants of this order, many of whose representatives are grown as greenhouse plants in this country. On this account we have extracted the following brief list of the species and varieties, with their synonyms, and with references to figures. So large a proportion are or have been in cultivation, and so few remain to be introduced, that we have given the complete list, even though it comprises several species not yet grown in gardens. Of the four genera *Hypoxis* and *Molineria* have no flower-tube above the ovary, and the stamens are epigynous; *Hypoxis* has capsular, *Molineria* baccate, fruit. *Curculigo* and *Pauridia* have a long flower-tube above the ovary, and perigynous stamens—six in the former, three in the latter genus.

HYPOXIS.

1. *H. stellata*, Linn. Cape Good Hope.
Var. 1. *albiflora*.
- Var. 2. *elegans*, H. *stellata*, Jacq., Ic., t. 368; Bot. Rep., t. 236; Bot. Mag. 1223; Fl. des Serres, 1027. *H. bidentata* and *cœrulescens*, DC. in Red. Lil., t. 169.
- Var. 3. *Gawleri* = *H. stellata*, Bot. Mag., t. 662; DC. in Red. Lil. 169; Bot. Rep., t. 101.
- Var. 4. *linearis*, Andr. Bot. Rep., t. 171 = *H. serrata* B. Gawl. in Bot. Mag., t. 917.
2. *H. minuta*, Linn. fil. Cape.
3. *H. alba*, Linn. fil. Cape.
Var. *gracilis* = *Hallea*, Lodd. Cab., t. 1074.
4. *H. aquatica*, Linn. Cape.
5. *H. serrata*, Linn.; Jacq. Ic., t. 369; Bot. Mag., t. 709, excl. var. *β*. Cape.
6. *H. ovata*, Linn. fil.; Bot. Mag., t. 1010. Cape.
7. *H. Andrewsii*, Baker = *H. obliqua*, Andr., Bot. Rep., t. 195, non Jacq. Cape.
8. *H. pusilla*, Hook. fil. New Zealand, Tasmania.
9. *H. glabella*, R.Br. Tasmania, South and East Australia.
10. *H. occidentalis*, Benth. W. Australia.
11. *H. Baurii*, Baker. Kaffraria.
12. *H. milloides*, Baker. Natal.
13. *H. platypetala*, Baker. Natal.
14. *H. membranacea*, Baker. Natal.
15. *H. juncea*, Smith. Southern U.S.
16. *H. erecta*, Linn., Bot. Mag., t. 710; Red. Lil., t. 355; Bot. Cab., t. 710. Southern U.S.
17. *H. decumbens*, Linn. Tropical America.
18. *H. hygrometrica*, Labill. Tasmania, S. and E. Australia.
Var. *elongata*.
Var. *pratensis*. Queensland.
19. *H. marginata*, R. Br. N. Trop. Australia.
20. *H. aurea*, Lour. = *H. minor*; Royle, Ill., t. 91, f. 3. Temperate Himalaya.
21. *H. monanthos*, Baker. Angola.
22. *H. filiformis*, Baker. Cape, Natal.
23. *H. canaliculata*, Baker. Angola.
24. *H. Kraussiana*, Buchinger. Cape, Natal.
25. *H. graminea*, Willd. Madagascar.
26. *H. Schimperii*, Baker. Abyssinia.
27. *H. Gerardi*, Baker. Natal.
28. *H. argentea*, Harvey. Cape.
29. *H. cuanzensis*, Baker. Angola.
30. *H. angustifolia*, Lam. Mauritius, Madagascar, South Africa.
Var. *Buchanani*. Natal.
31. *H. sericea*, Baker. Cape.
Var. *Dregei*.
Var. *flaccida*.
32. *H. Zeyheri*, Baker. Cape.
33. *H. Arnottii*, Baker, G. C. 1877, ii. 552. Cape.
34. *H. Jacquinii*, Baker. Cape.
35. *H. parvula*, Baker. Natal.
36. *H. setosa*, Baker. Cape.
37. *H. villosa*, Linn. Cape.
Var. *recurva*. Cameroons.
Var. *sobolifera* (sp.), Jacq., Ic., t. 372; Red. Lil., t. 170; Bot. Mag., t. 711. Cape. = *H. Krebsii*, Fisch.
Var. *scabra* (sp.), Lodd. Bot. Cab., t. 970.
Var. *obliqua*, Jacq. Coll.
- Var. *pannosa*, Baker, Gard. Chron. 1874, 130.
Var. *canescens*, Fisch. and Mey. Cape.
38. *H. obtusa*, Burch., in Bot. Reg., t. 159. Cape, South Tropical Africa.
39. *H. polystachya*, Welwitsch. Angola.
40. *H. latifolia*, Hook., Bot. Mag., t. 4817. Natal.

* Brief Hints on the Culture of Roses, issued by the National Rose Society.

41. *H. longifolia*, Baker, in Bot. Mag., t. 6935. Cape.
 Var. *Thunbergii*.
 42. *H. Ludwigii*, Baker. Cape.
 43. *H. angolensis*, Baker. Angola.
 44. *H. rigidula*, Baker. Cape.
 Var. *filiosissima*. Natal.
 45. *H. irridifolia*, Baker. Tropical Africa.
 46. *H. microsperma*, Lallemand. Cape. Hort. Petrop.
 47. *H. multiceps*, Buchinger. Cape.
 48. *H. stellipilis*, Ker, in Bot. Reg., t. 663. Cape.
 49. *H. Rooperi*, Moore. Natal.
 Var. *Forbesii*.
 50. *H. hemisphaerica*, Fisch. and Mey. = *H. elata*, Hook. f., in Bot. Mag., t. 5690, non R. and S.
 51. *H. costata*, Baker. Orange River.

MOLINERIA.

1. *M. recurvata*, Herb. Amaryll. 84 = *Curculigo recurvata*, Dryand. in Ait. Hort. Kew., ed. 2, ii. 253; Bot. Reg., t. 770; *Molineria capitulata* and *plicata*, Herbert. Indian peninsula, Malaya, China, North Australia.
 2. *M. gracilis*, Kurz. Himalaya.
 3. *M. crassifolia*, Baker. Sikkim.
 4. *M. Finlaysoniana*, Baker. India.
 5. *M. rhizophylla*, Baker. Seychelles.

CURCULIGO.

1. *C. plicata*, Dryand. Cape.
 2. *C. veratrifolia*, Baker = *Hypoxis plicata*, Jacq., Ic., t. 367, non Linn.
 3. *C. gallabatensis*, Schweinfurt. Angola, Abyssinia.
 Var. *major*.
 4. *C. scorzonifolia*, Benth. Tropical America.
 5. *C. orchioidea*, Gaert. Roxb. Cor. Pl. 114, t. 13; Bot. Mag., t. 1076 = *C. malabarica*, Wight, Ic., t. 2043; *C. brevifolia*, Dryand. in Ait. Hort. Kew., ed. 2, ii. 253; Wight, Ic., t. 2043; *C. firma*, Kotschy; *C. ensifolia*, R. Br.; *C. stans*, Labill. India, Polynesia, North Australia.
 6. *C. seychellensis*, Baker. Seychelles.
 7. *C. latifolia*, Dryand. in Ait. Hort. Kew., ed. 2, vol. ii., 253; Bot. Mag., t. 2034; Bot. Reg., t. 754. = *C. sumatrana*, Roxb. Bot. Cab., t. 443; *Molineria sumatrana*, Herb. Amaryll. 84. Indian Archipelago, Malaya.
 Var. *villosa*.

PAURIDIA.

1. *P. hypoxidoides*, Harvey. Cape. = *Ixia minuta* of authors; *Galaxia minuta*, Ker; *Romulea minuta*.

Home Correspondence.

A Roseless June.—It almost seems as if a winter of unexampled length and severity—a season without a spring—were to be followed by a June without a Rose; not but what there are a few Teas in warm nooks and corners struggling forth into blossom, but the Hybrid Perpetuals are in an April state rather than June condition, and the broad result will be a Roseless June. It is difficult to realise it in all its full significance, and it is unprecedented I should suppose in the memory of that traditional authority, the oldest inhabitant. The plants are picking up wonderfully, and look healthy and well, but many of them are hardly yet (June 13) showing bud, and it is impossible, unless with the advent of weather that might fairly be called miraculous for the Roses to bloom in June this year. Of course in the sunny South—if such a locality exists in England this season—and in the milder west it may be different, but throughout the greater part of Britain the matter stands as here put—a Roseless June. The most eccentric of all the eccentric seasons of modern times leaves this final eccentricity a great gap in our gardens—a Roseless June. There is but one consolation under the circumstances—the Roses being later may perchance prove better, and will probably last longer as they come to us in July. The recent heavy rains have been useful in preventing and clearing off aphides, and the plants look fresh and strong. The Briers also look well, and though the budding must be later than usual, it promises to be successful. *D. T. Fish.*

Fritillaria.—Mr. Fitch's charming drawing of "snake's-head" and Marsh Marigold in the last issue of the *Gardeners' Chronicle*, and the remarks thereon lead me to put on record the fact that even up to last year *Fritillaria Meleagris* was not extinct in the locality—or, at any rate, in the immediate neighbourhood of the locality—mentioned by Mr. Fitch. In the herbarium of Mr. J. Leighton, now foreman of the herbaceous department in the Royal Gardens, Kew, is a specimen gathered in 1878, and localised "wet meadow, Mortlake." Although I have very carefully explored this district, I never met with the plant myself. With regard to *Epipactis palustris*, I can speak very definitely. About five years ago this

pretty Orchid grew in some quantity along the side of the ditch which skirted the towing-path between Kew and Mortlake. It was, however, never very conspicuous, owing to the rank herbage surrounding it, and the fine coating of Thames mud deposited by the high tides on the leaves and flowers. As the ditch has now been filled up and an embankment several feet in height piled along its whole length, the Marsh Helleborine is, as far as this locality is concerned, thoroughly exterminated. Rank crops of Dandelion and South European casuals appeared the following season, and these have again given way to cultivation and native weeds. *George Nicholson, Royal Gardens, Kew.*

Double Gorse.—I have never found the double Gorse here to suffer from frost in the way Mr. Coomber mentions, although, as I stated, they always became brown and shabby through age if kept long without being headed down or cut back. This causes them to break again from the naked stems, and soon reclothe themselves with fresh verdure. To get them to make their growth and bloom freely the following year, the pruning should be done early, or they have no time to ripen, and it is probably owing to the immaturity of the wood that the cold laid such a hold of those Mr. Coomber referred to. In our light sandy soil the young shoots get well hardened, and the young plants rarely make a second start at midsummer unless we get a good deal of rain at the time. Heat and dryness appear the things to bring the flower. *J. S.*

Arrangement of the Interior of a Greenhouse.—If your correspondent (p. 762) who has a conservatory 55 feet by 30, and three Camellias to feet in diameter, should derive any useful hints as to the inte-

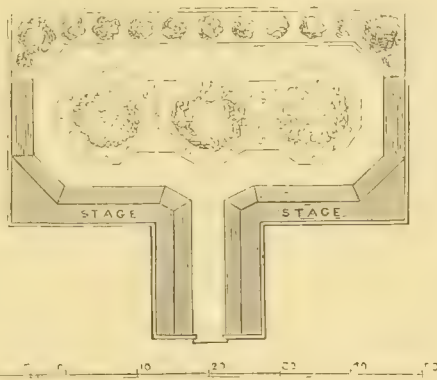


FIG. 115.—GROUND PLAN OF A CONSERVATORY.

rior arrangement from the enclosed plan (fig. 116) I shall be pleased in having served him. *H. Howlett, Horticultural Architect, 6, Waterloo Place, Pall Mall, S.W.*

Fruit Prospects.—Strawberries, Raspberries, Gooseberries, and Currants of all kinds are, or will be, grand crops. Peaches and Nectarines will be sufficiently abundant; the Royal George, Early Ascot, Princess of Wales, Noblesse, and specially Dr. Hogg, will yield full crops. Among Nectarines Rivers' Orange is to the fore. Nectarines do not do so well here as Peaches. Slugs and snails do much mischief to Nectarines. Pears, Plums, Cherries, are failures. I have nice crops of Pears on Beurré Hardy, Gratioli of Jersey (these two never fail), Comte de Lamy, and Beurré Clairgeau. B. Hardy is one of the finest and best Pears in England. People are, I fear, misled about Apples. My opinion is that the failure will be pretty general. All the time the trees were in bloom it rained torrents, and I think the pollen must have been washed away. The blossoms were not hurt by frosts. The Roses are forward and beginning to bloom, and they are very healthy. *W. F. Radclyffe, June 18.*

—The fall of Pears, as recorded in a recent issue, is I fear not confined to Chiswick and the London market gardens, but is general throughout the country, and what is even more serious and of greater importance is that Apples are coming down in showers, for on shaking some of our trees to-day the ground was at once strewn with shrivelled embryo fruit that has perished from the frost and cold. Beautiful and plenteous as were the blossoms, the promise of a full harvest they held out to the sight was a most deceptive one, for it is only too evident that the greater portion have been unable to set, and of those that have done so it yet remains to be seen what will swell. I have always noticed that after seasons similar to the present many of the fruit become distorted from frost-bite, and if they stand never acquire their proper size and shape, and more especially does this occur among Pears, the

skins of which appear more tender than Apples. With this I send you some, that you may see the effect it has on them, but although it shows itself now, the mischief is more apparent later on, when it results in hard knotty excrescences, and quite spoils the quality of the fruit. Plums on walls are a thin crop, but on standards they promise to be abundant. As to Strawberries, I never saw them look better, and it is evident, therefore, that although the winter was destructive to the old foliage, it did no harm to the crowns or the bloom nestled therein, which, owing to the copious rains, have pushed forth with great vigour. To prevent the escape of the moisture now in the earth, no time should be lost in littering down the beds, which will shade and keep the roots cool. *J. S.*

—As far as I can see, experience about here quite coincides with the remarks in this paper respecting the unpleasant dropping off of young Pears. The promising bloom on most other fruit trees has also dropped in a mouldy condition, leaving only a very ordinary crop. As it is, one hardly can see how it could be otherwise, considering the excessive moisture of the weather so far, and if it should continue much longer there will be not only a poor crop, but an excess of gross shoots, which the pruner must carefully repress in time. If this be done, then, probably, the trees will be benefited by a thorough washing—except in ill-drained borders, of course. Peaches on open walls here are a failure, except where good glazed copings have warded off both wet and cold. Sheets, in addition, have been little needed during the day. In short, this is just the season where skill and attention to atmospherical changes is valuable. It is important also to select such varieties of fruit trees as are hardy setters of their bloom, the difference between these being greater than is usually thought. By attention to all the above-mentioned matters, and to others suggested by local peculiarities, the fruit-grower may still expect an average return. *T. C. Brehaut, Guernsey.*

Coleus.—One would have thought that the floral public had become almost tired of buying new Coleus, and that hybridists had turned their attention to something else; but endless as are the varieties, and beautiful as many of them are, it is evident, from the illustration given in last week's number of the *Gardeners' Chronicle*, and the remarks made therein, that Mr. Bull has yet some good things in store for us. What is wanted is not so much new kinds for pot culture as for bedding; the only one adapted to this purpose up to the present being the old *Verschaaffti*, now so largely used, and which has such a rich, telling effect in flower-garden arrangements. *C. pictus* and *C. multicolor*, that have lately come under my notice, bear a close family likeness to this, and I should think are either sports or seedlings from it [Both are imported plants, we believe. Eds.]; but judging from their finely-divided leaves, most probably the former. Be this, however, as it may, certain it is that they in a great measure possess the hardy constitution of the above-named, and should they stand out as well, as I fully believe they will from the appearance of some I am trying, they will be quite an acquisition, and afford a new and striking feature in beds. Another, named *Kentish Fire*, is likely to do outdoors, and if those who have Mr. Bull's will test them or any others during the present summer and report, they will be rendering good service. There is nothing like full exposure to sun and light for developing the colours of these plants, as may be seen by *C. Verschaaffti* when compared with those under glass, unless the position the latter occupy happens to be more than usually favoured. Although a moist atmosphere is essential to their well-doing, syringing or damping overhead is fatal to bright leaf markings and fine depth of tint, the water making them look washy, especially if the sun catches them soon after, and before they are dry. *J. S.*

The Slaughter of the Apricots.—There were not a few complaints this spring of the scant flowering of Apricots; others, however, and those here especially, flowered remarkably well. Screened carefully with boughs of shrubs and trees they also set a good crop; all, in fact, went well with them until about the middle of May, when suddenly, and without any apparent cause, whole limbs and entire trees died. Had they been uncovered when this happened the changed conditions would have gone far to account for the unprecedented mortality. But they were not. Neither was the weather exceptionally severe—it has often been far worse in May. The case also seems widely different from the usual types of branch perishing. With these we are only too familiar in the Eastern Counties, where this weakness or disease reaches a virulence utterly unknown in most other localities. But in this case whole trees in robust health, and not more than from four to eight years old, have perished, as it were, in a day, and with a rapidity as if struck by lightning. Had only a few been killed, that would have seemed the only reasonable explanation. But seldom or never

does lightning destroy whole trees in such a wholesale way as these have perished. Limbs, too, of older trees have been killed to an extent, and with a suddenness, quite unknown in my past experience. Some of these, however, were on trees of a mature age, and are less to be wondered at in a climate and site peculiarly liable to branch perishing. But the destruction of young trees in a night or so, as if fire had passed over them, is a marvellous phenomenon which deserves chronicling, and, if possible, explaining in your pages. I have no explanation to offer, excepting the electric one, which, it must be admitted, is more convenient than philosophical, for though science has enabled us to harness the lightning to the service of man, it has not yet empowered us to demand an answer from it as to whether it has really burned or blasted our Apricot trees this spring—or rather winter, for we have had no spring—and now the months tell us we are in midsummer. *D. T. Fish*

The London International Horticultural Exhibition for 1880.—The edict that was placed in the hands of the doorkeeper at the entrance to the Cave of Adullam and the list of names of those who could be admitted, the smallness of the cave selected, and the determination of the few occupants to follow the same course they began many months ago—namely, that a grand International Show should not be held in London next year—plainly show the obstructive character of this small body of gentlemen. If they had been willing that a fair and open discussion should take place, why did they object to a more representative deputation from the large meeting which took place in the Royal Albert Hall? [The meeting was not for discussion, but to receive and consider certain resolutions passed at a previous meeting, which the chairman of that meeting and Mr. Wills—no other persons—were deputed to explain. It was in no sense a public meeting. *EDS.*] Why was it that a score or more of our best horticulturists were sent away and told that they could not be admitted? Why should this committee still wish to maintain a position so much out of character with the present times? and after being asked to dissolve and give place to a committee of progress, why should they still assume to themselves a position so adverse to the progress of horticulture in this country? See what can be done in a city like Manchester, and under the guidance of one determined man only. Sixty thousand people visited the exhibition at Old Trafford in Whit week, and there was a clear profit of £800. Surely if 60,000 visitors could be induced to visit an exhibition in Manchester, it clearly shows that if a grand exhibition were properly organised in London, the number of visitors to the Manchester exhibition might be multiplied by ten [This does not follow by any means. *EDS.*], thus showing that there would at least be a clear balance of £10,000 after all expenses were paid, supposing the expenses in connection with the proposed exhibition to amount to £20,000 (I believe the figures I have before stated, £16,500, would quite cover everything). O ye Adullamites of little faith, why have you lost such a golden opportunity!—why should your obstructive principles be allowed to scotch the wheels of horticultural progress? Such another opportunity may never occur again. The first gentleman in the land looked favourably upon the scheme, Her Majesty's Commissioners for the Exhibition of 1851 were willing that you should have the finest site in Europe for such a purpose, and a gentleman who will most likely be the first City dignitary next year, and a power in himself, offered his great aid in the cause, and also offered to become a liberal guarantor; many other noblemen and gentlemen also offered their willing support, and their names are down for a very considerable amount. I fear the opposition shown by some exhibitors must be attributed more to the fear of being defeated by younger men of the present day, and the dread lest the star of their past successes should pale before the talent and energy which would undoubtedly be brought out by such an exhibition as that proposed to be held in 1880. That the depression of trade can have but little to do with the success of a great international horticultural exhibition properly organised is proved by the success attending the Manchester exhibition this year, and must plainly be evident to all whose vision is not obscured by prejudice and who are not afraid to compete in a fair and open field. *John Wills, June 14, 1879.*

—There is one reason against the proposal to hold an International Exhibition next year that may have been considered by the committee that met at South Kensington last week, or it may not have been thought of. It is this—that a great political convulsion, or election contest, is inevitable, and that it will take place at some time next year may be regarded as certain. That this contest will be one of universal excitement and evoking more than the usual party spirit on both sides there can be little doubt, and not only will it for a time materially derange men's minds, but it will also tend to the withdrawal of an immense sum of money from ordi-

nary purposes, as it is anticipated from £1,500,000 to £2,000,000 will be expended over it. Until after this has taken place, let the result be what it may, there will be but little advance in trade or general confidence inspired. It is evident, therefore, that it will be wise not only to allow this time of disturbance in the body politic to pass over, but that also a considerable period afterwards should elapse, and things generally should have become quiet and progressive ere a move is made to reorganise such an important undertaking. Under all circumstances it was impossible that the committee could have arrived at any other decision than they did. Outside of all cliqueism or feeling that may have arisen out of the action taken by Mr. Wills, it is not possible to refuse a token of admiration for the undoubted energy he has displayed—an energy that is perhaps too largely misunderstood, because the bulk of persons in the world move only as they are propelled, whilst the few who are impetuous and full of energy constitute the motive-power that keeps the cold-blooded part of humanity from becoming stagnant. Mr. Wills is only a little in advance of the age, but his onward earnestness will be of immense service presently, when horticulturists shall universally agree that the time for holding a Great International Exhibition has at length arrived. As far as suggestions have gone, they seem to be based upon what appear to me to be two immense mistakes. First, the holding of the show in May or thereabouts; second, the place being the Horticultural Gardens at South Kensington. A spring show is essentially a plant show, and that exclusively; it thus becomes a nurseryman's exhibition, or theirs in alliance with the comparatively few plantsmen of eminence found amongst amateurs. The great horticultural products of this country—fruit and vegetables—are practically excluded, inasmuch as in the month of May these are at the lowest ebb, and can only be produced in very indifferent quantities; further than this, a strictly plant-exhibition requires an enormous outlay, whilst an exhibition that introduces very largely fruit and vegetables can be secured at one-half the cost, whilst the beauty and interest is not less, and the encouragement given to horticulture, nationally, is so much the greater just as the exhibitors are spread over a wider area. The prime reason for a spring or early summer show is doubtless the production of a grand display, and this can only be accomplished by means of huge masses of plants. [The Rhododendron season would be a good one from many points of view. *EDS.*] Then, as the exhibition is to be held in London, it is regarded as essential that it should be held in the "season," although there are at all times enough people in London, if they can be induced to attend, to make a success of twenty such exhibitions. The problem at all times before the promoters is not to secure the "swell" element—draw the red herring of a little Royalty across the scent and that will come fast enough—the difficulty is to get the millions. It quite makes one's mouth water to hear that 60,000 people visited the recent Manchester show; could half as many be got to visit any similar show in London just now? This remarkable fact seems to indicate that Manchester, and not London, would after all be the place whereat to hold the show—the Botanic Gardens there—and not at the effete and utterly people-forsaken place at South Kensington. The objections to this latter spot are found in the enormous outlay required to convert a portion of the gardens for the purpose, then in reconverting them to their present aspect. In the divided authority that now prevails, a division both in fact and feeling that must be greatly intensified let the result of the approaching lawsuit be what it may, the enormous difficulty that would be found in reconciling the conflicting interests of Council, Fellows, debenture-holders, and the Commissioners, all of whom would have to be conciliated, and that too with a promise of a formidable share of the spoil. Because of all these things the project must of necessity be more heavily handicapped at South Kensington than elsewhere. Some persons have forgotten that the show of 1866 was holden on land belonging to the Commissioners only, and not in the Royal Horticultural Society's Gardens. London being essential as the place, what other sites are there available? At the Botanic Gardens, Regent's Park, there is ample space and only one authority to deal with, but there may be grave objections to going there. More immediately in London the finest and best site is that spot sacred to shades of past royalty, Buckingham Palace Gardens, within the walls of which the horny-handed public have never been. Could the influence of the Prince of Wales, which has already been so freely flashed before our eyes, not be exercised upon his royal mother to secure this spot for the exhibition? Get that and its success is assured. Farther out there is Kew Gardens, where the Director's assistance and co-operation as the undoubted head of the botanical portion of the scheme being assured, the Government may assent to a portion of the outlying grounds being enclosed for the purpose. Failing these there is the grandest building for such a purpose in the universe—the palace which envious foreigners have coveted

—the palace of glass at Sydenham, where all the exhibition congresses and other bodies can be taken in and done for, except sleeping, with the greatest ease. Why such a place, with such grand gardens, having such railway facilities, a place so popular with the metropolitan public, should be overlooked by the promoters seems difficult to understand. [Too far off, and handicapped by a railway fare.] There is but one authority, the directors, who are ever ready to aid in any great national scheme, and there, in preference to the catacombs of the modern Egypt at South Kensington should be the place of the show. *B. D.*

Arundos and Pampas-grass.—The former of these turns out to be the hardest of the two, for while the Pampas-grass has in most places suffered severely through the long continuance of winter, Arundo conspicua appears little the worse. From what I have seen of the way many treat their Pampas-grass, I am convinced that the majority of plants are lost through the severe trimming they undergo in the autumn, whereby they are deprived of their natural protection, which leaves the vital parts exposed to the action of the weather just at a time when they most require shelter. Rather than diminish it then, it is always advisable to add to it; and to prevent any covering that may be used proving an eyesore, it is an easy matter to hide it by sticking in a few Laurel or other evergreen branches, and renew the same whenever they become discoloured or shabby. If for appearance sake the old foliage has to be cleared away, the doing so should always be deferred till quite late in the spring, and only the loose projecting *débris* ought to be removed then, as the portion within acts as a powerful nonconductor and keeps the crown cool and moist. Left to itself, the whole structure and habit of the plant seems specially adapted for its own preservation, the long, finely serrated sharp-edged leaves arching over and shading the ground around, and when they die away they lie so close and snug as to preserve all warm and safe within. Arundo conspicua is of much the same character, and is a grass which, owing to its exceedingly ornamental appearance and the time at which it blooms, is even more valuable than the Pampas, as its beauty may be enjoyed at least three months before we get bad weather, whereas the inflorescence of the Gynarium is so late in coming that it is often spoiled before reaching its full stage of perfection. The transplanting of these grasses is generally considered a very ticklish operation, but most of the failures arise through carrying it out at the wrong time, as when the plants' energies are at a low ebb and they are going to rest instead of spring or early summer when young growth is forming and the roots are in a state of activity. Dug up then and planted quickly, without being allowed to dry and flag, they will bear separating to almost any extent, as every piece that has a living crown will take, it shaded and kept watered for a week or two till it gets a fresh start. Pulled about in the autumn or winter, the large fleshy roots die, and the enfolded embryo leaves, having nothing to support them, wither up before others are formed. *Y. S.*

Pinus insignis and the Frost.—Plants of *Pinus insignis*, ranging from 3 feet to 10 feet, have suffered severely here from the frost of the past winter. Some of the trees are killed half-way down, while others are entirely destroyed. They were planted in a low situation about three years since, and were growing well. The frost seems to have gone downwards through the plants, as the bottom parts of several are still green and growing; so their death is not attributable to the low situation, as regards the soil or its dampness, so much as to the severity of the cold in the air. But what is apparently unaccountable is that several plants intermixed and side by side with the dead are those unhurt and making vigorous shoots; and in not more than 10 feet higher elevation are plants from New Zealand and other places which are considered somewhat tender but are not killed. *Henry Mills, Enys.*

Strawberries for Forcing.—After trying many sorts of Strawberries for forcing I have arrived at the conclusion that there are none to beat the old Keens' Seedling as a first early, for it is a sure setter and cropper, and bears fruit that when properly finished off is always of fine quality. Next to this I should place Viscountess Héricart de Thury, or Garibaldi, which is the same thing, and a Strawberry in every way superior to President, except perhaps that it does not bear quite so freely, but this is more than compensated for by the extra size of the fruit as well as its much better flavour. For late work British Queen stands unrivalled at all points, as the fruits are not only large and fine looking but such as all real connoisseurs delight in. Dr. Hogg and Sir J. Paxton come nearest to it of any I know, and are good substitutes where Queens will not succeed, they being seedlings from that variety with a more robust habit and better constitution. As to Sir Charles Napier, it is a coarse-looking kind and too acid to find flavour with many,

but where this is not objected to it makes up a showy-looking dish, and sells well in the market on that account. To be successful with Queens they require a higher temperature and a drier atmosphere when setting than most of the others, resembling Muscat Grapes in that respect, for although the anthers are very prominent the pollen does not ripen in a low degree of heat, and the fruits therefore remain unfertilised, hence the gappy surface in the berries we often see through having no seeds in those parts. I have heard James Veitch spoken highly of, but as yet have not tried it for pots. Of one thing we may be pretty sure, which is, those that are best out are the best to grow for indoor work, and I think it will be generally admitted that the three first named are equal to any, to come in the order they stand. *J. S.*

The Calceolaria.—It is refreshing to find that old favourites are not quite forgotten—that, notwithstanding the pressure and puff put forth, still the sterling qualities reassert their worth, and those jostled on one side for a season are wanted in due time to take their place, so the herbaceous Calceolaria acts an important part in greenhouse spring decoration: but I now write more particularly respecting the section called “shrubby Calceolarias,” and alluded to by Mr. J. Douglas in your last paper. Several years ago I had a very large conservatory to keep gay all the year round, and had to look about me for something suitable to answer my purpose. I found the herbaceous Calceolarias very useful, but the shrubby ones took another and higher position, and formed a striking feature in my floral arrangements. I had shades of yellow, crimson, bronze, maroon, and all these colours intermixed, and for colour arrangement they were very effective. Some were seedlings from Kentish Hero and Magnifica. I have had them 6 feet high by 4 and at times 5 feet through, with bunches of flowers quite a foot long. So grand and brilliant were they that they held their own amongst Azaleas and every other thing, and were produced at a fourth of the cost. Such results could not be produced from the herbaceous section. I have had them in 14-inch pots, and kept them for years. I should much like to see them again. Last year, with the view of raising some of the “shrubbys,” I sowed seed and raised several; they are decidedly shrubby. Out of the batch I have selected six. Their colours run from lemon to deep crimson; they bloom immensely. The flowers individually are small; to some (indeed to many people) this is attractive rather than otherwise. I intend trying them out-of-doors this year; they will, I think, stand the rain. Those alluded to for conservatory decoration would not suit out-of-doors. *William Payne, G., to J. Marshall, Esq., Belmont, Taunton, June 7.*

Strawberries for Forcing.—The note at p. 761 is both seasonable and sensible, and, acquiescing in the suggestion, I beg to state that here we force two varieties only, Vicomtesse Héricart de Thury and President, and after well testing other good forcing varieties against these, there are none, all points considered, to equal them. We gathered Vicomtesse in quantity the second week in March, and daily ever since. I send you a sample, which are a fair average of the size they have been the whole of the season, to show you that Vicomtesse Héricart de Thury is not such a small fruit as it is often represented to be. President is larger, equal in flavour, not quite so early, nor yet so prolific, but a grand forcer. *W. Wildsmith, Heckfield.* [The sample was a very good one. *EDS.*]

Testacella halliotidea.—This mollusc is, or used to be, very common in the Durdham Down Nursery, where I frequently came across it many years ago. Just lately I have met with it here, and some few days since saw one with at least the half of a large worm projecting from its mouth, thus showing unmistakably its carnivorous propensities. It appears to have the power of burrowing in the ground and drawing itself under heavy pots or stones where there is moisture and a chance of food. Being perfectly harmless, and more a friend to the gardener than otherwise, it is a pity to destroy it. *J. S.*

Adverse Criticism: Insects and Orchids.—There must be many who, like myself, regret to see the rough-shod style of over-riding the opinions of others adopted by many of those who are in one sense the best writers for the horticultural Press. This lack of courtesy is much to be lamented since the fear of receiving either a rude rebuff or a covert insinuation of ignorance on their part in return, prevents many sensitive lovers of flowers and gardens, amateur and professional, from recording their observations in the recognised gardening journals, and in this way much original knowledge is either lost altogether for the time or extended to the few rather than to the many. There must ever be differences of opinion on many points connected with gardening, and of all things it is most desirable that all

should be free to record the impressions derived from their own experience or knowledge, but let this be done with some consideration for the impressions and feelings of others. What Mr. Payne writes (see p. 760) as to the use of shavings instead of coal or coke embers for fumigating purposes is deserving of careful consideration, and were it possible to fumigate all hothouses thoroughly, without entering the choking atmosphere within, it would certainly be a great convenience to many gardeners who suffer from nausea after being a few minutes in a tobacco-laden atmosphere. What I complain of in Mr. Payne's note is, that he misquotes what Mr. Spyers really wrote on fumigation for thrips (see p. 659), and his conclusions are drawn from what he infers Mr. Spyers meant rather than from what he really stated. Now, at p. 659, Mr. Spyers writes:—“The many dead ones [thrips] which may be seen lying on the surface of the leaves prove that they have met with heavy losses,” and from that very indefinite word “many” Mr. Payne arrives at the conclusion that there are “multitudes;” and after insinuating in a most ungenerous manner that “there is something rotten in the state of Denmark,” he adds, “I affirm that such multitudes of insect life in an Orchid-house is a clear proof to me the gardener does not know how to grow Orchids, and they [the “multitudes,” not the Orchids] are in a large measure the result of his mismanagement.” I cannot really believe that Mr. Payne deliberately intended to cast an imputation on a successful and intelligent Orchid grower, and yet what he has written at p. 760 really is calculated to be injurious, inasmuch as it is practically inferred that Mr. Spyers neglected ordinary precautions in preventing the appearance of insect pests. Thrips are often imported into clean collections when plants are brought from sales or elsewhere, and are not observable until the plants are placed in heat, since, as Mr. Spyers points out, they shelter down in the young growths or leaves. Mr. Payne is quite right in preaching the—in his own case successful—doctrine of “prevention being better than cure;” but when prevention is impossible, and the insect pests are actually in possession, as so often happens in the best managed of Orchid-houses, well, then the sooner Mr. Spyers' advice is followed the better. Judging from the result of Mr. Spyers' practice, as seen by me from time to time, I should say that all that Mr. Payne recommends is well understood at Burford Lodge: and I may add that the Orchids under Mr. Spyers' management are, in point of cultural excellence, second to none. I am afraid that but few practical men will agree with Mr. Payne's dictum, “Killing insects with brush, sponge, fumigation is a waste of time.” Would that it were always possible to keep insect enemies in check by preserving “a sweet, humid, not over-hot atmosphere, frequently changed and kept pure by judicious ventilation and a free use of the syringe.” Were that formula generally efficient, insects would be much less numerous and formidable than they are now. Mr. Payne has done such good and useful work in his time, and generally writes so well, that one is the more pained to find him so hard on a younger brother of the craft. I trust, however, that Mr. Spyers will undergo his little “baptism of fire” bravely, and that he will not be deterred from writing down his notes on Orchid culture as tersely and as much to the point as before. *F. W. Burbidge.*

The Economic Museums at Kew.—For many years I have enjoyed periodical visits to the Kew museums, and always with pleasure, but after a rather longer absence than usual I was much pleased to find a great improvement in the way of arrangement has been effected in them, and especially in No. 1, the large building near the pond. There are perhaps a less number of individual objects than formerly, but those now retained are more strictly typical, and there is not any danger of mistaking the label of one object for that of another, as used to happen now and then under the old régime. In a word, one may now obtain a far greater amount of information in less time than formerly, and with a great deal more ease and pleasure. Many new objects are now added to replace those removed, and these include a valuable collection of woods and other Indian forest products. Many coloured drawings of medicinal plants by Mr. Blair have been added, and the characteristic Kafir and other South African pictures painted by the late T. Baines, Esq., are just now of especial interest. *Visitor.*

Setting Grapes.—Allow me by way of relieving the mind of the writer of the note on this subject at p. 762 to say, that I rarely have recourse to what he calls a “barbarous way;” this he might have inferred from “Z.'s” note; at the same time, I know, as do many others, that gently drawing the hand down the bunch is a certain aid to fertilisation without danger to the “tender skin of the young berries,” for the obvious reason, that when this is required to be done there are no berries, hence there can be no “tender skins” to injure. I am at one with the writer as to the best way of aiding fertilisation, but

he will yet grow wiser, and eventually learn that in horticulture, as in every other calling, there are various ways of attaining the same end. *W. Wildsmith, Heckfield.*

Strawberry Cultivation.—I see your correspondent “J. S.” is of opinion that I have dealt rather hardly with “Observer,” who in the *Gardeners' Chronicle* for May 31 recommended a system of cultivation which I think is entirely out of date, superseded, and, in fact, totally eclipsed by more modern practice. The paragraph written by “Observer” was headed “Strawberry Cultivation,” and appeared to me to be intended as general information. The writer did not say that his remarks were only applicable to market cultivators; the reverse, in fact, was my opinion, from the amount of “scraping” that was to be done in propagating the plants, which no grower for market could ever find time to perform. The fact of a few market growers dividing their plants and replanting them is no reason why others should follow in their footsteps. I know market growers who do not even divide their plants, but are satisfied with such fruit as they can get from old plants for years; but I don't call their system cultivation. I happen to be a private grower, and I believe in that system of cultivation which yields the greatest possible return of the finest fruit at the least possible expense. However, no one would object to “Observer's” system being recommended to cottagers, or small amateurs, or even to market growers, if the heading of the paragraph had only indicated to what particular class of cultivators the writer referred; but to represent that such a system could be accepted or tolerated in private gardens is entirely out of the question, so long as there are more profitable ways of securing better results. *Cultivator.*

Transplanting and Root-pruning Figs.—To transplant or root-prune a deciduous tree or shrub in the spring would be regarded by many as an act of sheer folly, and yet it is the only time that the Fig will bear that kind of interference with safety, as after removal during winter there does not appear to be a sufficient flow of sap to keep the soft pithy wood plump, and if this shrivels the chances are that the greater portion of it dies back or the plant is lost altogether. Lifted just as they are starting into growth, after the cold drying winds are over, they get to work at once, and in the majority of cases are much benefited by the change, the general tendency of Figs being to grow too strong instead of making short stumpy shoots with the joints about an inch or two apart, in which condition they are always most fruitful. No amount of pinching back or top pruning will bring about this desirable habit, for the more one cuts out of them the more they appear to produce, and instead of Figs following there is only an increase of timber. This, I believe, is the experience of most people who essay to grow these delicious fruits out-of-doors, unless they happen to be so situated as to have a hard impervious subsoil of gravel or chalk, the latter suiting the Fig far best, as calcareous matter appears to have a favourable influence in consolidating the tissues of the wood and checking any undue luxuriance of habit. Round about Shoreham, on the chalk formation, they are exceedingly fertile, as also in paved yards where the roots are restricted, in which places I have known immense crops gathered from plants that never receive the least attention. This shows clearly the treatment they require in this mild climate of ours, and if instead of trying to tame the top we take the bottom in hand, we shall meet with much greater success. It is an acknowledged axiom that what is worth doing at all is worth doing well, and this certainly holds good with regard to the management of the Fig, for if boxed in properly at starting they are no further trouble afterwards. In order to confine them to a limited space, the best way is to concrete the bottom where they are to be planted, or make it impervious to roots by a layer of bricks, in the joints of which some thin cement should be poured. The two used in that way will make a solid floor to build a 4½-inch wall on, the bricks composing which should likewise be bedded in cement, or the Figs will not be long in finding their way through. A pit formed in this manner to hold a cubic yard of soil will be quite large enough for any Fig to grown in, for after it has filled the circumscribed space it can easily be afforded assistance when carrying a heavy crop of fruit by giving a soaking of liquid manure. Except for getting trees to a large size in a short space of time poor soil is best adapted for Figs, and if it is incorporated with about an eighth of its bulk of fine chalk and well rammed in at the time of planting it will induce masses of fibre instead of encouraging the formation of those long thong-like roots they usually emit when they have access to a more liberal diet. The habit of gross-growing Figs may be much improved and fertility brought about by digging a trench within 2 or 3 feet of the stem, according to the size of the plants to be operated on, and severing all the roots at that distance that may be met with; but

as this requires repeating annually it is much the best way to restrict growth by bricking them in. In cold inland districts Figs do not generally succeed grown as bushes away from the shelter of walls, but if treated in the manner above specified, so as to bring about a thorough hardening of the wood, there would be no difficulty with them whatever. As they always suffer more in spring just when showing fruit than at any other time, they should be planted in warm sunny corners, and if it can be managed to have them near tall buildings the protection afforded will be a great help. In a general way I look on April as the most suitable time for transplanting Figs, but until the terminal buds have started there need be no hesitation in carrying out the work, for if syringed for a week or two once or twice a day and well watered at the time of removal they are sure to grow and bear good crops next year, unless the season should turn out more than usually unfavourable. *J. S.*

Herbaceous Plants at Fulham.—The following hardy plants are now in flower in the herbaceous borders, or in pots, in the Fulham Nursery:—

| | |
|--------------------------------------|--|
| <i>Anemone pennsylvanica</i> | <i>Orobis niger</i> |
| <i>Asperula odorata</i> | " vernus |
| Alliums | <i>Polemonium coruleum</i> |
| <i>Asphodelus luteus</i> | " pulchellum album |
| <i>Aster altaicus</i> | " reptans |
| <i>Anthericum Liliago</i> | <i>Potentilla tridentata</i> |
| " " major | <i>Pulmonaria virginica</i> |
| " " Liliastrium major | <i>Rhodiola americana</i> |
| <i>Anchusa italica</i> | <i>Smilax bifolia</i> |
| <i>Centaurea montana albida</i> | <i>Symphytum officinale variegatum</i> |
| " " rubra | <i>Veronica gentianoides</i> |
| <i>Coronilla montana latifolia</i> | " Guthrieana |
| <i>Corydalis luteus</i> | " Loudonii |
| <i>Dianthus hybridus floribundus</i> | " neglecta |
| " " Highland Queen | " prostrata |
| <i>Dielytra eximia</i> | <i>Viola cornuta</i> |
| <i>Euphorbia Cyparissias</i> | <i>Muscari cornutum</i> |
| <i>Geranium cristatum</i> | " " monstrosum |
| " " laucastriense | <i>Lupinus nootkatensis</i> |
| " " phaeum | <i>Chrysobactron Hookeri</i> |
| " " platypetalum | <i>Myosotis rupicola</i> |
| " " sanguineum | <i>Armeria montana alba</i> |
| <i>Geum v. vale</i> | <i>Verbascum phoeniceum</i> |
| " " coccineum plenum | <i>Lithospermum purpureo-ceruleum</i> |
| " " montanum | <i>Achillea Clavenae</i> |
| " " pyrenaicum | <i>Ajuga reptans atropurpurea</i> |
| <i>Hemerocallis flava</i> | " " variegata |
| " " graminea | <i>Silene quadrifida</i> |
| " " rutilans | <i>Veronica saxatilis Grievei</i> |
| <i>Heuchera americana</i> | <i>Viola calcarata</i> |
| " " cylindracea | <i>Arnica montana</i> |
| <i>Lychnis, vars.</i> | <i>Erigeron philadelphicus</i> |
| <i>Meum athamanticum</i> | <i>Borago laxifolia</i> |
| <i>Nepeta violacea</i> | <i>Ranunculus uniflorus</i> |
| <i>Thalictrum aquilegifolium</i> | <i>Potentilla lupinoides</i> |
| <i>Papaver orientale splendens</i> | <i>Crucianella coccinea</i> |
| " " bracteatum | <i>Iberis Tenoreana</i> |
| <i>Lupinus polyphyllus</i> | <i>Erius alpinus albus</i> |
| " " macrophyllus | <i>Houstonia coerulea</i> |
| <i>Orobis aurantius</i> | |
| " " luteus | |
| O. | |

Japanese Gardens.—The love of flowers, shrubs, and trees, is widely spread in Japan; even in the narrow streets of the busy commercial quarters of the large towns almost every house has its little green spot with its tiny dwarf shrubs. These dwarf shrubs and trees probably owe their origin to the narrow limits of space, and their production is carried on to such a ridiculous degree that a Dutch merchant was shown a box 3 inches deep, and with a square inch of surface, in which a Bamboo, a Fir, and a Plum tree, the latter in full bloom, were growing and thriving. The price asked for this botanical curiosity was £60. The method of dwarfing is by checking the circulation of the sap, cramping the extension of the branches, and chilling the roots in flat porous pots, which are kept constantly cold and wet. Many dwarf plants have striped or variegated leaves, and the production of such varieties, both dwarfed and in natural size, is a favourite hobby with Japanese gardeners. Japanese gardens are laid out in a style very similar to the French style of the seventeenth and eighteenth centuries, with low hedges and stiffly cut shrubs. It is not improbable that this taste spread from Japan to Holland, whence, because it harmonised with the fashion of the century, it extended to the adjoining countries. It is to be commended in Japanese gardens that, corresponding to the architecture of the dwelling-houses, they are less painfully regular than the French, but they are unrivalled in artificial eccentricities. In the portions of the garden immediately surrounding the house no tree or shrub is allowed to retain its natural size, but within one sees fans, ships in full sail, round tables, candelabra, large crescents and stiff rectangular walls. A soft, velvet-like turf covers the ground, and the clean gravel paths are bordered with gay stones, dwarf trees, and flower vases. From the ponds, in which gold fish swim, and from the artificial rivulets rise mossy little rocks, to which tiny bridges of every conceivable shape lead. Such spots require too much care and attention to admit of wide extension, and so they generally occupy but a comparatively small space in front of the mansion. High pruned hedges enclose these green boudoirs, where Nature is disguised and curled as conventional culture and the usage of "good society" demand. Without these hedges lie the wilder parts of the garden, where

Nature is left more to herself. Japanese gardens look most beautiful towards the end of autumn, when the foliage of the Maple assumes a bright purple hue, and the Azaleas and wax trees are clothed in dark purple tints. About this time, too, the winter Chrysanthemum is in full bloom: it is the favourite flower of the Japanese, who possess countless varieties of it. The size and splendour of its star-like flowers are often incredible. *J. Douglas, B.A., 128, Stanhope Street, Regent's Park, N.W.*

Foreign Correspondence.

CAPE TOWN, SOUTH AFRICA: May 11.—Two GOOD BASKET PLANTS.—As basket plants engage no small share of attention at the present time, allow me to add to the list two, namely, *Russelia juncea* and *Thysacanthus rutilans*, as most effective plants for this purpose. The former, when properly flowered, is, in my opinion, one of the most effective basket plants I am acquainted with, and as an instance of its lasting qualities I may mention that I have had plants (in baskets) in flower for fully ten weeks. I find that it flowers more freely if subjected to the drying-off system, that is, placing the plants outside fully exposed to the sun and gradually withholding water. When rested for ten weeks, if the baskets are hung up in a stove and liberally supplied with water, the grower will be rewarded with an abundance of flowers which can be maintained for three months if the baskets are changed into a house with a cool dry atmosphere.

The *Thysacanthus* is a fine old plant, and though now seldom met with, yet a most effective subject when grown either in pots or baskets. For basket-work young plants do best. I make a practice of growing a lot of young plants in 48-pots; as soon as the plants show signs of flowering I plant five in each basket, one in the centre, the other four being tied out to the side of the basket. When associated with Ferns, *Panicum variegatum*, and *Asparagus decumbens* it has a most striking and graceful effect. I may add that when they have done flowering the plants are cut down, and when well broke they are potted and grown on gently for pot-work. *R. Johnson, Botanic Gardens.*

JAMAICA: PLANT HOUSES FOR THE TROPICS.—It is a vexed question, I believe, generally with gardeners living within the tropics, how to afford the needed protection to cultivated plants which are natives of the countries situated therein. The protection required will of course vary with the nature of the locality and the species of plant cultivated, some situations requiring protection from rain, others from sun, or from wind, and many from all three combined. There are not a few persons who suppose that it is only necessary to take a plant from one tropical climate, and to place it in another, to get it to thrive, no heed being taken whatever of any peculiar conditions under which it had grown naturally. Botanists and collectors are of course well aware of this fact, and it is usual with them to describe the localities and altitudes from which plants come, so as to render the greatest of all assistance that can be given to the cultivator. Plants found by travellers in their native wilds usually present quite a different appearance to that which they put on after undergoing a period of culture under the hands of experienced men in an English stove. They are liable to all the vicissitudes of the weather and every wind that blows, and it needs all the experience that the collector can command to choose those varieties which are suitable; for many plants growing wild, and showing no particular beauty in their native habitats, become perfect gems under the hands of the cultivator.

The expedients resorted to for the protection of plants growing in pots for decorative purposes, cut flowers, &c., in these latitudes are numerous; among these may be mentioned arches of climbing plants, shade of thick-growing trees, Bamboo-houses, and houses wattled with split Bamboo with braided Cocos leaves for cover. Glasshouses are now, however, to some extent being introduced, and bid fair to give every condition necessary, and place at the command of the cultivator those elements of success which are essential. They afford better protection against sun, wind, rain, and even heat, than any other structure. It may seem to some an anomaly to use glass in the tropics, but it must be remembered that the use of glass in the ordinary course of European gardening is not to produce heat, but to retain it when produced; and it is

almost lost sight of, that glass is also the best material for protective purposes, and that when well shaded a cooler atmosphere can be maintained under glass than in the open air, and that during the process of evaporation, which causes the cooler atmosphere, a greater amount of moisture is induced than would otherwise be present were the plants under ordinary conditions. One of the greatest authorities on tropical and subtropical gardening has proved (*vide Dr. Schomburgk's report on the Adelaide Botanic Garden of South Australia for 1877*) that a cooler temperature can be maintained in a glasshouse than in the open air in very hot weather. He finds the thermometer 116° Fahr. in the shade outdoors, and 160° Fahr. in the sun, while inside a Palm-house the temperature by the means employed "did not rise above 100° Fahr."

In building a house for these climates the general plan of European houses must not be adhered to, but a class of house which gives free ventilation at the apex of the roof and on every side, which can be shut on any given side to exclude the prevailing wind from that quarter, and which at the same time must present the largest possible amount of evaporating surface. Such a house would, if designed by some enterprising builder, I think, find ready sale in many English colonies, and many a gardener would find the difficulty removed in the way of growing plants for decoration, and the raising of young stock for open-air cultivation. *J. H., Kingston.*

NEW ZEALAND: THE WELLINGTON BOTANIC GARDEN.—A strange natural feature of Wellington is, that with the exception of a very narrow strip indeed upon which the main street has been built, and which at one end widens out into a small flat, there is no level land at all—what little there is has been in great measure reclaimed from the sea; and some important buildings in various parts of the city were pointed out to me as standing on what was at one time below high-water mark. The background is exceedingly picturesque, consisting of high rugged hills interspersed with innumerable gullies, the general character of both being precipitous. The whole is, however, so beautifully covered with verdure that there is a softness in the appearance which counteracts in a marvellous manner the effect of scenery which has otherwise all the elements of harshness. In the gullies may be seen in tens, and hundreds, ay, and in places, in tens of hundreds, Tree Ferns of various kinds, from 6 inches to 30 feet in height; and as these are the leavings of the Goths and the Vandal in past years, the imagination may feast upon the idea of what the original aspect of the country must have been. The houses have been built on all sorts of ledges, either natural or artificial; and the endeavour to estimate the aggregate amount of rock and soil which has been shifted to find resting-places for all the private residences, would form a curious calculation in big figures. The general effect is picturesque beyond anything I have seen elsewhere; and is enhanced by the taste of the inhabitants, who, however small their share of an original gully, take pains to preserve its natural beauties, while grand specimens of the most beautiful varieties of Fuchsia, intermingled with such Pelargoniums, are to be seen in every nook and corner. I will never grow a Fuchsia in a pot again as long as I live, with the recollection, which will never leave me, of the glorious results of open-air culture in this climate. It may be as well before closing to refer to the state of horticulture here. For obvious reasons the gardener has little chance of making a show; and gardening is nearly confined to the picturesque and very successful efforts of the citizens to beautify their houses. I visited the small but well cultivated garden of one, and, so far as I could learn, the only nurseryman who makes the cultivation of ornamental plants a speciality. In the valley of the Hutt may be seen much more extended evidences of horticultural and arboricultural industry. To walk under the shade of the Elm, the Ash, and the Sycamore, between hedges of Sweet Brier and Hawthorn, was to become—only for the time I fear—rejuvenated. All the old flowers, of which the Pæony and the Lily of the Valley may be instanced as types, all the old perfumes, all the old trees and shrubs which I had not seen since the first dawn grew on my face, were there, like old associates to welcome me; and formed a bridge over many years, carrying me back to days when the very existence of Australia had yet to be hammered into me.

The term "Botanic Gardens" will hardly convey to you an idea of the institution thus designated here.

The area so called consists of a block of 100 acres, almost entirely composed of hill and gully. It is under the control of a Board, of which the Governor is chairman, who direct the improvements and control the expenditure upon it. The work hitherto done consists in replacing, chiefly with the Conifers of temperate and cold climates, the natural timber of which the before-mentioned Goths had divested it prior to its dedication to its present purpose. Fortunately the Goth is a creature who will not do mischief involving hard work, unless there is something to be got by it; and there have been left, consequently, almost intact for preservation some Fern gullies of an extent and beauty which it would take the pen of a Senior adequately to describe. To render the beauties of these grand efforts of Nature available to visitors, the Board have made some 6 miles of winding paths, bridging where requisite the little streams and limpid pools. Over these paths and among these cool retreats I have wandered for hours, always wondering and never wearying. Imagine the most beautiful collection of Ferns and shrubs which you have ever seen brought together by the art of man, then magnify it in variety and extent ten thousandfold, and ten times that, picture it to yourself before you and behind, all round you, above and below you, with all sorts of adjuncts of water, of air, temperature, and sweet smells, to enhance its beauties, and you can then faintly appreciate the delight which is to be experienced by a hard-baked Queenslander let loose in such a place. *L. Bernays, in a Queensland Paper.*

Reports of Societies.

Royal Botanic: June 18.—For the first time this season the Royal Botanic Society had a fine day for its show, and the company in the afternoon was a large one. Comparing this with the corresponding displays of the last few years we have no hesitation in declaring it to be the best the Society has had as regards plants, though still but a shadow of its former glory as regards fruits. The display of Orchids was the speciality of the day, the well-known bank being filled to overflowing with a grand lot of plants, some indeed of Sir Trevor Lawrence's taking rank amongst the finest examples in cultivation. Fine-foliaged plants and large specimen Ferns were splendidly shown, and the highest honours with both subjects fell to the lot of a talented young gardener, Mr. Hudson, gr. to H. J. Atkinson, Esq., Gunnersbury House, Acton, who beat Mr. Rann, one of the best growers of the day. Stove and greenhouse flowering plants were also fairly well represented in the classes, and especially so in the exceedingly fine miscellaneous groups contributed by Mr. Bull, Messrs. James Veitch & Sons, Mr. B. S. Williams, and Messrs. E. G. Henderson & Son, who do not often exhibit, but always do so with credit when they emerge from Maida Vale.

Reverting to the Orchids, we are compelled by the force of attraction to commence with the open class for twelve in which Mr. Spyers, gr. to Sir Trevor Lawrence, Bart., M.P., took the 1st prize easily; Mr. Denning, gr. to Lord Lonsborough, the 2d; and Mr. Heims, gr. to F. A. Philbrick, Esq., Q.C., the 3d. It was generally admitted that a finer dozen than was staged by Mr. Spyers has not been seen in the metropolis for years, and we can assure Mr. Payne (p. 760), without entering into the merits or demerits of Mr. Spyers' practice in the matter of fumigation, that there were no insects on view. The first plant to attract the eye was a grand specimen of the comparatively new *Bollea coelestis* with eighteen blooms; then a *Sobralia macrantha nana*, with over three dozen of its lovely blossoms—an exceptionally fine example; *Odontoglossum vexillarium* with over a hundred blooms on twenty-one spikes; a superb pan of *Cypripedium niveum* with over seventy blooms; *Masdevallia Harryana violacea* with over three dozen blooms, and such blooms! *Cypripedium caudatum* with seventeen splendid flowers; *C. Stonei* with sixteen flowers on five spikes; *Calanthe veratrifolia* with sixteen spikes, six of them quite a yard high; *Cattleya Mossiae aurantiaca* with about thirty blooms; *Odontoglossum Alexandræ* with four fine spikes; *Cattleya gigas* with three lovely coloured blooms; and *Dendrobium suavisimum* with nine spikes. Mr. Denning had a magnificent specimen of *Cattleya lobata* with about eighteen spikes of three blooms each; a strong piece of *Anguloa Clowesii* with about thirty large blooms; a very good piece of *Lælia purpurata* with five spikes of four flowers each, the white-flowered *Vanda Denisoniæ* with three spikes; *Odontoglossum Alexandræ* with eight spikes; *O. vexillarium*, *Dendrobium suavisimum*, &c. The best examples in Mr. Heims group consisted of *Odontoglossum citrimum roseum*, *Aerides Schroederi*, *Cattleya Mendelii*, and *Epidendrum vitellinum majus*. Mr. James Douglas, gr. to

F. Whitbourn, Esq., Loxford Hall, also competed, but reserved his strength for the amateurs' class for six, in which he came in 1st with good examples of *Masdevallia Harryana*, *Odontoglossum crispum*, *Dendrobium Devonianum*, *Cypripedium caudatum roseum*, *Cattleya Mossiæ*, and *Epidendrum vitellinum majus*. Mr. Denning came in 2d, and Mr. Heims 3d. Mr. James Child, gr. to Mrs. Torr, Garbrand Hall, Ewell, also competed, and amongst his plants was a remarkable one of *Cypripedium Stonei* with twenty-five fine flowers on six spikes. Mr. B. S. Williams was 1st in the nurserymen's classes for twelve and six respectively, showing in the group of twelve *Orchis foliosa* with about thirty spikes; *Dendrobium thyrsiflorum* with twenty spikes; *Cattleya Mendelii* with about fifteen flowers; *Vanda tricolor insignis*, &c.; and in the smaller group a *Lælia purpurata* with fifteen superb blooms, and another fine *Orchis foliosa*. The 2d prize for twelve went to Mr. H. James, Castle Nursery, Norwood.

The open class for twelve stove and greenhouse plants brought out a good competition between Messrs. Jackson & Son, of Kingston, and Mr. D. Donald, gr. to J. G. Barclay, Esq., Knott's Green, Leyton, who were placed respectively 1st and 2d, Messrs. B. Peed & Son coming in 3d. In the trade class for six Messrs. Jackson & Son were also 1st, and the corresponding class for amateurs brought out a capital lot of plants, the awards going in the order named to Mr. James Child, Mr. J. H. Hinnell, gr. to F. A. Davis, Esq., Anglesea House, Surbiton; and Mr. Bones, gr. to D. McIntosh, Esq., Havering Park, Romford; while extra prizes were awarded to Mr. D. Donald and Mr. A. Wright, gr. to E. Brightwell, Esq., Great Stanmore. The subjects exhibited were of the usual stereotyped order, and therefore need not be enumerated.

The half-dozen fine-foliaged plants with which Mr. Hudson took the 1st prize in the amateur's class were an exceptionally fine lot, including a magnificent example of *Alocasia Lowii*, measuring from 5 to 6 feet across its best side of noble leaves; a very handsome *Areca lutescens*, with four strong growths; large and splendidly furnished specimens of *Cycas circinalis* and *C. revoluta*; and large, well-furnished plants, with grand foliage, of *Croton pictus* and *C. variegatus*. Mr. Rann was 2d, with the magnificent lot which secured him first honour at the last show, and, as again put up to-day, an exceedingly strong lot to beat. The 3d prize fell to Mr. D. Donald, who had an exceedingly good group, including an enormous bush of *Croton angustifolius*.

In the nurserymen's class Mr. B. S. Williams took the lead, as usual, with a capital lot; Messrs. Hooper & Co., Covent Garden, being 2d, and Messrs. E. G. Henderson & Son 3d.

As with the fine-foliaged plants so it was with the Ferns, the nurserymen's contributions were no match for those of the amateurs, which were of the highest excellence. The 1st prize group of six in the latter section came from Mr. Hudson, and comprised exceptionally fine examples of *Dicksonia antarctica*, a grand head of deep green fronds; *Davallia Mooreana*, 6 feet across; *Gleichenia dichotoma* and *G. flabellata*, both good; *Adiantum farleyense*, 4 feet across; and a splendid pan of *Davallia bullata*, from 4 to 5 feet through. Mr. C. Rann, gr. to J. Warren, Esq., Handcross Park, was 2d with the fine set of plants that have lately placed him in the front rank; and Mr. D. Donald was 3d. In an excellent group of six from Mr. James Child was a beautiful plant of *Leptopteris superba*, 3 feet through. In the nurserymen's class Mr. B. S. Williams had no superior, and was consequently placed 1st, with Messrs. E. G. Henderson & Son 2d. The display of Heaths was a fairly good one, though calling for no special comment; while of show *Pelargoniums* there were attractive groups from Mr. Turner, of Slough, and Mr. D. Donald; and of *Zonals*, a capital half-dozen from Mr. J. Catlin, gr. to Mrs. Lermite, sen., Finchley. Tuberous-rooted *Begonias* were a new feature, and promise to become a fine one in the future. Messrs. John Laing & Co. won the 1st prize easily with large well-grown specimens of *Edith Box*, *Massange de Louvre*, *Madame Oscar Lamarche*, *Marquis of Salisbury*, *James Duncan*, and *Duchess of Edinburgh*. Messrs. Jackson & Son were 2d, and Messrs. Hooper & Co. also competed. Amongst amateurs the best six came from Mr. Tong, gr. to J. Law, Esq., South Lodge, Southgate.

In the miscellaneous class extra prizes were awarded to Mr. Bull, Messrs. James Veitch & Sons, Mr. B. S. Williams, and Messrs. E. G. Henderson & Son for large and comprehensive collections of new and rare plants; to Mr. James Douglas, for a group of his hybrid *Aquilegias* in pots, beautiful objects, which must become largely grown for conservatory decoration; to Messrs. Osborn & Sons, Messrs. Cutbush & Sons, Messrs. J. Laing & Co., and Mr. G. Wheeler, for collections of stove and greenhouse plants; to Messrs. Ivery & Sons, Dorking, for a fine group of hardy Ferns; and to Messrs. Hooper & Co., for a fine display of cut blooms of German Iris, *Ixias*, and *Sparaxis*, &c.

Botanical Certificates were awarded to Mr. E. Morse, Epsom, for *Yucca gloriosa elegans variegata*; to M. Louis Van Houtte, Ghent, for *Bertolonia Rodeckii* and *B. Killickii*; to Mr. William Bull, for *Lilium purpureum*, *Encephalartos Frederici Guilielmi*, *Croton roseo-pictus*, *Sarracenia flava picta*, *Nepenthes Veillardii*, *Dieffenbachia Leopoldii*, *Cespisodia Bonplandii*, *Carludovica Drudei*, *Blandfordia flava*, and *Bulbophyllum Beccarii*; to Mr. B. S. Williams, for *Lycopodium sp.*, *Bertolonia Rodeckii*, *Bertolonia Killickii*, and *Encephalartos Frederici Guilielmi*; to Messrs. J. Veitch & Sons, for *Torenia Baillonii*, and *Araucaria Nieprischkii*; to Messrs. E. G. Henderson & Son, for *Sonerila Hendersoni*; to Mr. Boller for *Echinocactus capricornis*; and to Messrs. Jackson & Son, for *Pteris serrulata magnifica*. Floricultural Certificates were voted to Mr. Turner for Tree Carnation, Miss James; to the Rev. T. C. Bréhaut, for *Pelargonium Amythol*; to E. B. Foster, Esq., for *Pelargoniums Queen of Scots and Invincible*; to Mr. William Bull for *Coleus Yellow Gem*, C. Princess and C. Duchess of Teck; to Messrs. John Laing & Co., for *Begonia Edith Box*; and B. Princess of Wales; to Mr. Bull, for *Pelargonium* (double-flowered Ivy-leaved) *Gazelle*; to Messrs. Veitch & Sons, for *Begonia Mrs. Arthur Potts*, and *Gloxinia Mrs. Peplow*; and to Mr. James Lye, Market Lavington, for *Lobelia Erinus speciosa Blue Beard*.

Of the fruit exhibited it is not necessary that we should say much. The best of three collections of six dishes each came from Mr. Crump, gr. to the Duke of Marlborough, who took the 1st prize with a good Smooth Cayenne Pine, excellent dishes of Sir J. Paxton Strawberries and Royal George Peaches, a Victory of Bath Melon, and good black and white grapes—Black Hamburg, and a white variety in the way of Foster's Seedling, but carrying a heavier bloom. Mr. Crump also showed the best basket of black Grapes, and Mr. James Douglas, the best white—a capital sample of the Canon Hall Muscat, weighing over 13 lb. The best single dish of Black Hamburgs (and the best finished Grapes in the show) came from Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House; while in the class for any other black variety the highest prize went to Mr. Bolton, gr. to W. Spottiswoode, Esq., Combe Bank, Sevenoaks, for a fairly good sample of Black Prince. Mr. Woodbridge was also 1st with Muscats, showing the best ripened sample in a good class of green ones. A good dish of Canon Hall, from Mr. Douglas, secured 1st honours in the other white class; and the same exhibitor also had the 1st prize for two dishes of Strawberries—exceedingly good examples of President and James Veitch. The best two dishes of Peaches, Early Admirable and Early Grosse Mignonne, came from Mr. Gardiner, gr., Ealington Park, Stratford-on-Avon; and the finest Nectarines—Lord Napier and Violette Hative, from Mr. G. Halliday, gr. to James Norris, Esq., Castle Hill, Bletchingley.

South Essex, Leyton, Walthamstow, Woodford, and Wanstead Floricultural: June 12.—The annual flower show was held in the grounds of Joseph Gurney Barclay, Esq., Knott's Green, Leyton. Some years ago it was the custom to hold an autumn show in September as well as the summer show; this arrangement did not work satisfactorily. The autumn show, as it is in many country districts, was an annual financial failure, and ever since it has been abandoned the summer shows have been increasingly successful. The Society is deeply indebted to Mr. Barclay for throwing open his grounds and extensive conservatories to the public in the most liberal manner. The gardens and grounds are at present in first-rate condition; the specimen foliage plants are very fine, and the flower-beds are mostly filled on the "carpet" system, though in some instances the spring bedding has not yet been removed for the summer occupants, *Myosotis dissitiflora* being still in very good condition. The exhibition was held in a large tent, and the arrangement of the plants was exceedingly good. The centre was filled with the largest specimens, mostly placed on the ground, side stages being erected for the fruit, cut flowers, *Calceolarias*, *Pelargoniums*, *Orchids*, &c.; the further end of the tent being devoted to Ferns, which were also placed upon the ground. The stove and greenhouse flowering plants were very fine. Mr. Donald, gr. to J. G. Barclay, Esq., gained the 1st prize with very large well-trained specimens. His *Chorozemum cordatum* was really a handsome bush covered with flowers. *Adenandra fragrans* was exceedingly healthy, and ornamented with its pretty peach-coloured flowers. *Clorodendron Balfourianum* and *Bougainvillea glabra* were also noteworthy. Mr. Bone, gr. to D. McIntosh, Esq., Romford, had a very fine *Erica Cavendishiana* and an immense bush of *Pimelea mirabilis*. Orchids were well shown by Mr. Walton, gr. to A. Borwick, Esq., Higham Hill, Walthamstow, and Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, who were placed equal 1st. Mr. Walton's plants were well-flowered and in good con-

dition. *Epidendrum vitellinum majus*, *Odontoglossum crispum*, and *Masdevallia Harryana*, were shown in both collections. Mr. Walton had a very fine specimen of *Dendrobium nobile*, also a well-flowered example of *Masdevallia Backhousiana*, a singular species of the *M. Chimera* type. J. R. Scott, Esq., of Walthamstow, also exhibited a nice group, in which was a plant with one expanded flower of a new *Angraecum* from Madagascar, named *A. Scotianum*. It is a pretty species, with pure white flowers of good substance, the lip is $\frac{1}{2}$ inch in diameter, the sepals and petals are narrow and 1 inch in length, the caudal appendage is 4 inches long. The leaves are cordate, deep green, and 4 inches long. It received a First-class Certificate. Foliage plants were well represented by handsome Palms from Mr. Douglas, *Anthurium crystallinum* and a very beautiful *Cocos Weddelliana* from Mr. Donald. Heaths were well represented, the best being sent by Mr. Donald, and comprised *Erica tricolor* Wilsoni, *Eppisii*, *eximia superba*, and *Cavendishiana*, very fine. Near the Heaths was placed a 1st prize group of four stove and greenhouse plants from Mr. Monk, gr. to W. Fowler, Esq., Leytonstone. Mr. Donald gained the 1st prize for six Ferns, and Mr. Douglas for four. The collections comprised *Davallia Mooreana*, *Gleichenia Mendelii*, and *G. Speluncæ*; *Cibotium spectabile* and *Cyathia dealbata* were very grand. Mr. Walton had six exceedingly well-grown British Ferns, to which the 1st prize was awarded. The *Axminster* variety of *Athyrium Filix-foemina plumosum* had large graceful plumose fronds, while the variety *Victoria* was singular, with its tasselled fronds. *Lastrea Filix-mas cristata angustata* has novel and pretty fronds, very narrow. Herbaceous Calceolarias were very well grown, clean and healthy, and from 2 to 3 feet in diameter; Mr. Donald was 1st, Mr. Foster, gr. to R. Johnson, Esq., of Walthamstow, 2d; Mr. Fenn, gr. to Mrs. Capper, of Leyton, 3d: there was very little difference in point of merit between the three collections. Fancy Pelargoniums were well shown by Mr. Donald, they were immense well-flowered specimens. The show section was not so well represented, Mr. Bone gaining the 1st prize in this class.

Three groups of plants were exhibited near the entrance to the tent, and formed a very interesting feature. The best came from Mr. Monk, Mr. Foster was second best, the 3d prize going to Mr. Merret, gr. to R. B. Ashby, Esq., of Walthamstow. The best cut flowers were sent from Loxford Hall. Mr. Bones had the best black Grapes, Mr. Douglas showed some well-ripened Buckland Sweetwater, and gained a 1st prize. The best Pine, Strawberries, and a basket of eight sorts of vegetables, were sent from Loxford Hall. An excellent collection of six dishes of vegetables was sent by Mr. Monk. Table decorations, bouquets, &c., were an interesting feature, facing the entrance to the tent, the principal exhibitors being Mrs. Soder, Mr. Soder, of Weald Hall, Brentwood, and Mr. and Mrs. Abbot, of Walthamstow. The stands were formed mostly of one large and one small glass dish, connected by glass standards about 18 inches in length, the flowers being principally *Star of Bethlehem*, *Rhodanthe Manglesii*, *Narcissus poeticus*, double pink *Zonal Pelargoniums*, *Epiphyllums*, *Spiraea japonica*, *Myosotis*, &c. Mr. Foster showed the best bouquet for the hand, and Mr. Merret the best button-hole bouquets. It would not be well to omit noticing a very nice group of plants from Mr. B. S. Williams, of Holloway, comprising some interesting examples of choice Orchids, rare stove and greenhouse plants, &c.

Falmouth Horticultural: June 11 and 12.—Undoubtedly one of the best, if not the best shows of horticultural skill displayed in Cornwall was that held at Falmouth in connection with the Royal Agricultural Exhibition of Cornwall. From the valuable collection of Orchids and plants sent by M. H. Williams, Esq. (gr., Mr. Murton), were the following:—*Aerides crispum*, *A. Fieldingii*, *A. Lobbi*, *A. odoratum*; *Brassia maculata*, *Calanthe veratrifolia*, *Cattleya citrina*, *C. Mossii*; *Dendrobium albo-sanguineum*, *D. moschatum*, *D. densiflorum*, *D. nobile*; *Mesospinidium sanguineum*, *Odontoglossum Alexandræ*, *O. citrosium*, *O. luteo-purpureum*; *Oncidium ampliatum majus*, *O. crispum*, *O. flexuosum*, *O. leucociliolum*, *O. sphacelatum*; *Phaius Wallichii*, *Phalænopsis Luddemanniana*, *Saccolabium Blumei*, *Vanda Batemannia*, &c. These plants were not for competition, and met the visitor at the entrance, and at once attracted attention. Orchids are not grown as plentifully as they deserve in Cornwall, and the public are indebted to Mr. Williams for exhibiting these plants. Mr. J. Jose, of Malingay, sent a good variety of well-grown plants, including Palms, Crotons, and Ferns. From Carclew, the well-known and well-kept gardens of Colonel Tremayne, came waggons-loads of good things, prominent among which were grand examples of *Latania borbonica*, *Corypha australis*, *Sabal Blackburniana*, *Cycas revoluta*, in good condition; large healthy specimens of *Alocasias*,

viz., *metallica*, *zebrina*, and *macrorrhiza variegata*; *Maranta Veitchii* and *zebrina*, a good *Phyllotænum Lindenii*, *Anthurium*, good plants of *regale* and *crystallinum*; a very handsome plant of *Sphærogyne latifolia*, a good *Pandanus Veitchii*, *Crotons*, *Ferns*, a well developed example of *Cephalotus follicularis* (New Holland Pitcher-plant), *Orchids*, &c. This group was not for competition, but called forth many congratulations to Mr. Palmer, the gardener at Carclew. Some splendid Ferns came from that Paradise of the West—Pinjerrick—Miss Fox, who has with the assistance of Mr. Evans for many years laboured to bring Pinjerrick to what it is. Col. Bull, from Marborough House, near Falmouth, also sent fine examples of Ferns, exceedingly well grown. Mrs. Shilson, of Tremough, (Mr. Gill, gr.), sent what was admitted by all the finest grown lot of plants—especially *Azaleas*. These were for competition. Beginning with the *Azaleas* there were *Roi Leopold*, 7 feet 6 inches high and 4 feet through at the bottom; *amœna* (which by-the-by is quite hardy), 9 feet high, 4 feet 6 inches at the bottom; *Barclayana*, 7 feet by 4 feet 6 inches; *Duc de Brabant*, 4 feet 6 inches by 3 feet 6 inches; *Etoile de Gand*, 7 feet by 5 feet; *Belle Gantoise*, 7 feet by 5 feet; *Admiral*, 8 feet by 4 feet at bottom; *Duc de Nassau*, 5 feet 6 inches by 3 feet; plants of *Stephanotis floribunda*, 4 feet 6 inches by 5 feet; *Allamanda nobilis*, 4 feet 6 inches by 5 feet; *Vinca oculata*, 4 feet 6 inches by 5 feet; *Bougainvillea glabra*, 4 feet 6 inches by 5 feet 6 inches; *Darwinia fuchsoides* 2 feet through, well flowered; *Erica Cavendishiana*, 4 feet by 2 feet 6 inches through. A fine example of *Dendrobium nobile* came with this lot of plants, 5 feet through, having sixty-nine flowering spikes, and on them 974 (they were counted) flowers, fully expanded: this deservedly got the 1st prize for a specimen plant in flower. There were also *Oncidium altissimum*, eight spikes, 7 feet 6 inches long, and *Dendrobium densiflorum* which had eight racemes of flowers, and which got 1st for a specimen Orchid. The 1st prize for a specimen Fern Mr. Gill also won with a magnificent plant, *Gymnogramma chrysophylla*, which was 5 or 6 feet through. The following plants won for Mr. Gill the £4 4s. cup, viz.:—*Seaforthia elegans*, 10 feet high; *Lomaria gibba*, 6 feet high and 6 feet through (are there two *Lomarias* under this name?); *Latania borbonica*, 8 feet through; *Cocos Weddelliana*, 9 feet high, 7 feet through; *Croton Weismanni*, 6 feet by 5 feet; *C. angustifolius*, 7 feet by 5 feet; *C. variegatus*, 6 feet by 6 feet; *Alcasia Lowii*, 5 feet by 4 feet 6 inches. Mr. Gill won both cups, the 5-guinea, for stove and greenhouse plants, eight 1st prizes, and two extra prizes, and one 2d prize. Mr. Leah, of Falmouth, luckily competed with the elephantine productions of Tremough, and turned out a fine lot of plants, all of which showed signs of liberal treatment and skill. He was awarded a score of prizes and the silver salver offered by Mr. E. W. Serpell, of Plymouth, for six Tricolor Pelargoniums. He also gained the 1st prize for four Palms, was 2d for greenhouse and stove plants, and 2d for ornamental-foliage plants as a collection, and 1st for six plants with ornamental foliage. Colonel Bull was 1st for six *Caladiums*, and 1st for six *Calceolarias*, and went close to getting the cup for twelve distinct Ferns, but Mr. Leah's variety beat him, he gaining second honours. H. M.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JUNE 18, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | | Hygrometrical Deductions from Glaisher's Tables 6th Edition. | WIND. | RAINFALL. | |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|--|--------------------------------|------------------|--------------------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure of Mean from Average of 60 years. | Dew Point. | Degree of Humidity. Sat = 100. | | Average Direction. |
| June 12 | In. 29.81 | In. +0.02 | 66.6 | 48.4 | 18.2 | 56.0 | - 2.5 | 49.0 | 78 | WNW | In. 0.04 |
| 13 | 29.95 | + 0.16 | 65.5 | 49.1 | 16.4 | 55.8 | - 2.0 | 48.8 | 78 | WNW N.W. | 0.00 |
| 14 | 30.00 | + 0.21 | 75.8 | 48.9 | 27.8 | 59.0 | + 0.1 | 53.9 | 84 | WNW N.W. | 0.00 |
| 15 | 29.65 | - 0.14 | 63.5 | 57.0 | 6.5 | 58.7 | - 0.3 | 57.4 | 96 | S.S.E. S.S.W. | 0.28 |
| 16 | 29.35 | - 0.43 | 68.0 | 53.0 | 15.0 | 57.9 | - 1.2 | 55.6 | 92 | S.E. WNW | 0.13 |
| 17 | 29.37 | - 0.41 | 69.3 | 50.0 | 19.3 | 57.3 | - 2.0 | 49.8 | 76 | N.W. | 0.00 |
| 18 | 29.66 | - 0.12 | 68.8 | 51.2 | 17.6 | 57.8 | - 1.7 | 51.4 | 79 | N.W. WNW | 0.00 |
| Mean | 29.68 | - 0.10 | 68.2 | 51.0 | 17.2 | 57.5 | - 1.5 | 52.3 | 83 | N.W. WNW | sum 0.45 |

June 12.—Fine; but occasionally dull and showery. Cool. Clear at night.

June 13.—Fine; but dull and cloudy till evening, then cloudless. Thunder heard at 1 P.M.
—14.—A very fine bright warm day. Overcast at night.
—15.—A very dull day. Wet morning. Occasional gleams of sunshine in afternoon.
—16.—Overcast, dull and wet till 1 P.M.; fine and bright, though cloudy afterwards. Overcast in evening.
—17.—A fine bright day, partially cloudy. Clear at night.
—18.—A fine day, though dull and cloudy at times. Clear at night.

LONDON: Barometer.—During the week ending Saturday, June 14, in the suburbs of London the reading of the barometer at the level of the sea increased from 29.60 inches at the beginning of the week to 30.08 inches by the evening of the 10th, decreased to 29.97 inches by the afternoon of the 11th, increased to 30.17 inches by the evening of the 13th, and decreased to 30.06 inches by the end of the week. The mean reading for the week at sea level was 29.96 inches, being 0.24 inch above that of the preceding week, and 0.01 inch above the average.

Temperature.—The highest temperatures of the air observed by day varied from 75 $\frac{1}{2}$ ° on the 14th, and 73° on the 10th, to 62 $\frac{1}{2}$ ° on the 11th; the mean value for the week was 67 $\frac{1}{2}$ °. The lowest temperatures of the air observed by night varied from 47° on the 11th and 48° on the 14th, to 51 $\frac{1}{2}$ ° on the 8th; the mean for the week was 49°. The mean daily range of temperature in the week was 18 $\frac{1}{2}$ °, the greatest range in the day being 27 $\frac{1}{2}$ °, on the 14th, and the least 12 $\frac{1}{2}$ °, on the 9th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—8th, 57°.8, +0°1; 9th, 55°.6, -2°.3; 10th, 57°.6, -0°.5; 11th, 54°.5, -3°.8; 12th, 56°. -2°.5; 13th, 55°.8, -2°.9; 14th, 59°. -0°.1. The mean temperature of the air for the week was 57°.7, being 1°.7 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 153° on the 10th, 151 $\frac{1}{2}$ ° on the 14th, and 147° on the 12th; on the 11th the reading did not rise above 80°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 40° on the 10th and 40 $\frac{1}{2}$ ° on the 11th; on the 8th the lowest reading was 45 $\frac{1}{2}$ °. The mean of the seven lowest readings was 43°.

Wind.—The direction of the wind was S.W., and its strength gentle. The weather during the week was somewhat dull and cool, though very fine at intervals. Thunder was heard during the afternoon of the 13th.

Rain fell on four days, the amount measured was 0.36 inch.

ENGLAND: Temperature.—During the week ending Saturday, June 14, the highest temperatures of the air observed by day were 75 $\frac{1}{2}$ ° at both London and Cambridge, 74 $\frac{1}{2}$ ° at Nottingham, 71° at Hull, and 70 $\frac{1}{2}$ ° at Leicester; the highest temperature at Plymouth was 64°, and at Sunderland was 66°; the mean value from all places was 69 $\frac{1}{2}$ °. The lowest temperatures of the air observed by night were 43 $\frac{1}{2}$ ° at Cambridge, 44° at Sheffield, 45° at Hull, and 45 $\frac{1}{2}$ ° at Wolverhampton; the lowest temperature at Plymouth was 50°, and at Brighton 48 $\frac{1}{2}$ °; the general mean from all stations was 46 $\frac{1}{2}$ °. The extreme range of temperature in the week was the greatest at Cambridge, 32 $\frac{1}{2}$ °, and the least at Plymouth, 14°; the mean range from all places was 22 $\frac{1}{2}$ °.

The mean of the seven high day temperatures was the highest at Cambridge, 69 $\frac{1}{2}$ °; Nottingham 69°, Blackheath 67 $\frac{1}{2}$ °, and Leicester 67 $\frac{1}{2}$ °; and the lowest at Plymouth, 61°, and Sunderland, 61 $\frac{1}{2}$ °; the mean from all places was 65 $\frac{1}{2}$ °. The mean of the seven low night temperatures was the lowest at Wolverhampton, 48 $\frac{1}{2}$ °, London and Hull, 49°, and Cambridge, Nottingham, Sheffield, and Sunderland, all 49 $\frac{1}{2}$ °; and the highest at Truro, 52°, and Plymouth, 51 $\frac{1}{2}$ °; the mean value from all stations was 50°. The mean daily range of temperature in the week was the least at Plymouth, 9°, and the greatest at Cambridge and Nottingham, 19 $\frac{1}{2}$ °; the mean daily range from all places was 15 $\frac{1}{2}$ °.

The mean temperature of the air for the week from all stations was 56°, being 2° higher than the value for the corresponding week in 1878. The mean temperature was highest at London, 57 $\frac{1}{2}$ °, and Cambridge and Nottingham, 57 $\frac{1}{2}$ °; and lowest at Sunderland, 53 $\frac{1}{2}$ °, and Plymouth, Wolverhampton, and Bradford, 54 $\frac{1}{2}$ °.

Rain.—Rain fell on every day in the week at Truro, Wolverhampton, and Nottingham, and on five or six days at most other places. The amounts were the largest at Bradford, 2.44 inches, Leeds, 1.99 inch, and Sunderland, 1.82 inch; and the smallest at London and Norwich, both 0.36 inch, and at Brighton, 0.55 inch; the average fall over the country was 1.19 inch.

The weather during the week was fine but dull, cool, and showery, with frequent thunder and lightning.

SCOTLAND: Temperature.—During the week ending Saturday, June 14, the highest temperatures of the air observed by day varied from 70° at Glasgow and 69 $\frac{1}{2}$ ° at Greenock to 59 $\frac{1}{2}$ ° at Aberdeen and 60 $\frac{1}{2}$ °

at Leith; the mean value from all stations was $65\frac{1}{2}^{\circ}$. The lowest temperatures of the air observed by night varied from 42° at Paisley and 44° at both Edinburgh and Dundee to $45\frac{1}{2}^{\circ}$ at Glasgow; the general mean from all stations was $44\frac{1}{2}^{\circ}$. The mean range of temperature in the week from all places was $21\frac{1}{2}^{\circ}$.

The mean temperature of the air for the week from all stations was 53° , being $\frac{3}{4}^{\circ}$ lower than the value for the corresponding week in 1878. The highest were $55\frac{1}{2}^{\circ}$ at Glasgow and $54\frac{1}{2}^{\circ}$ at Paisley; and the lowest were $50\frac{1}{2}^{\circ}$ at Aberdeen and 51° at Leith.

Rain.—The heaviest falls of rain were at Glasgow, $1\frac{1}{4}$ inch, and Paisley, $1\frac{1}{4}$ inch; and the least fall was at Dundee, $\frac{1}{4}$ inch; the average fall over the country was $\frac{3}{4}$ inch.

DUBLIN: The highest temperature of the air was $70\frac{1}{2}^{\circ}$, the lowest was $39\frac{1}{2}^{\circ}$, the extreme range was therefore 31° , the mean was $56\frac{1}{2}^{\circ}$; and the fall of rain 0.37 inch.

JAMES GLAISHER, F.R.S.

Enquiries.

He that questioneth much shall learn much.—BACON.

GARDENERS' APRONS.—*F. C.* wishes to know where the material used for making gardeners' aprons (blue shalloon) is manufactured. [The aprons, ready-made, can be bought at the leading nurseries and seed warehouses. *EDS.*]

Answers to Correspondents.

ASPARAGUS DISEASE: *G. A.* Specimens received; we will report on them in another number.

CATERPILLARS: *F. Goulburn.* Your trees are no doubt infested with the Gooseberry caterpillar. The best remedy is to dust the trees with Hellebore powder. Handpicking is a very good way of getting rid of them, if you can obtain the services of a few children, whose sharp eyes quickly detect the intruders.

CUCUMBERS DISEASED: *A Constant Reader.* Your plants are suffering from the well-known Cucumber disease. Nothing can be done but to turn out the soil, and start afresh with healthy seedlings.

GLOXINIA: *H. W.* A good useful decorative flower, but not equal in size, smoothness of form, or depth of colour, to many varieties now grown and exhibited by Mr. Wills, Messrs. Veitch & Sons, and others. The production of two blooms on one stem is certainly not a common occurrence.

HOLLIES: *Lady Amateur.* When the weather becomes hot and dry keep them well supplied with water, otherwise let them alone. They will soon come round.

LAWN MOWERS: *F. D.* There is none specially designed for mowing banks, but by taking off the collecting box in front and using a little care, any of the machines now in use will do the work.

NAMES OF PLANTS: *F. M.* Tamarix gallica.—*W. P. & Sons.* 3, Viburnum lantana; 5, Spiraea ulmifolia; 6, Lonicera xylosteum; 7, indeterminable.—*Geo. Wall.* 1, Cerastium arvense; 2, Phlox subulata; 3, Delphinium formosum; 4, Iberis Garrethiana.—*W. D.* 1, Osmunda Claytoniana, syn. interrupta; 2, Osmunda regalis; 3, Viburnum Opulus (the Gueldees Rose).—*W. S. M.* The limit, at one time, is six plants; you send about a dozen. A, Cymbidium aloifolium; B, Senecio mikanooides (German Ivy); C, Lonicera Ledebouri; E, Menispermum canadense; F, Atriplex Halimius; G, Hippophae rhamnoides.—*E. S.* 1, Limnanthes Douglasii; 3, Ledum latifolium; 4, Retinospora pisifera; 5, Scilla campanulata; 6, Spiraea Ulmaria aureo-variegata.—*G. T. Shaw.* Prunus Padus (the Bird Cherry).—*W. D. F.* Tradescantia repens.—*A Subscriber, Ayr.* Dactylis glomerata (the Cock's-foot Grass).—*C. H. D.* Taxodium sempervirens.—*F. K.* Magnolia acuminata.—*G. N.* Haemanthus abyssinicus, sometimes called H. tenuiflorus.—*R. P. A.* A poor specimen of Rhododendron fastuosum flore-pleno.

PELARGONIUMS: *W. A.* Mr. W. Brown, Hendon; Mr. Reeves, Acton; and Mr. Beckwick, Tottenham, all near London.

PEA SHARPE'S INVINCIBLE: *E. M.* As you are growing this variety would it not be better to watch its growth, and record its rate of development for yourself, rather than provoke a discussion just now?

ROCKETS: *R. Dean.* Very fine things, and, as you say, well deserving to be much grown. The old double pure white is very fine, as also the rosy-lilac double purple, and the rosy-purple double crimson. There is also the double French-white, which in showery weather becomes much flushed with purple. Few border flowers are more attractive.

SOLUBLE PHENYLE: *C. A.* This is a druggist's preparation, to be had of Messrs. Maw, Son & Thompson, 7, Aldersgate Street, E.C.; and Messrs. Bowker & King, 34, Lime Street, E.C. We are not answerable for the name.

FOREIGN SUBSCRIBERS sending Post-office Orders are requested to make them payable at the post-office, King Street, Covent Garden, London, and at the same time to inform the Publisher at the office of this Journal.

COMMUNICATIONS RECEIVED:—*H. H. C.*—*J. H. M.*—*A. C.*—*J. H.*—*W. W.*—*D. W.*—*H. W.*—*B. H.*—*D. D.*—*R. D.*—*J. G. B.*—*J. R.*—*A. B.*—*J. D.*

Markets.

COVENT GARDEN, June 19.

A great improvement has been experienced in demand, supplies still remaining short owing to the backward season, prices being well maintained. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|-------------------------------|-------------|-----------------------|-------------|
| Apples, $\frac{1}{4}$ -basket | 1 6-5 0 | Melons, each | 3 0-6 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Oranges, per 100 | 6 0-12 0 |
| Figs, per dozen | 10 0-15 0 | Peaches, per dozen | 12 0-30 0 |
| Grapes, per lb. | 3 0-6 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per lb. | 2 0-10 0 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horseradish, p. bun. | 4 0-.. |
| Asparagus, sprue, | | Lettuces, Cabbage, | |
| per bundle | 2 6-.. | per doz. | 1 6-.. |
| — Eng., per bundle | 5 0-6 0 | Mint, green, bunch. | 0 4-.. |
| Beans, French, p. 100 | 2 0-.. | Onions, new, p. bun. | 1 0-.. |
| — broad, per lb. | 1 0-.. | Parsley, per lb. | 1 0-2 0 |
| Beet, per doz. | 1 0-2 0 | Peas, per quart | 2 0-.. |
| Cabbages, per doz. | 1 0-2 0 | Potatoes, new, per lb. | 0 6-0 9 |
| Carrots, per bunch | 0 6-0 9 | Radishes, English | |
| — New Fr., p. bun. | 1 6-.. | Turnip, per 12 bun. | 1 6-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Rhubarb, doz. | 6 0-8 0 |
| Celery, per bundle | 1 6-2 0 | Shallots, per lb. | 0 6-.. |
| Chilis, per dozen | 1 0-.. | Spinach, per bushel | 2 6-.. |
| Cucumbers, each | 0 9-1 6 | Tomatos, per dozen | 2 6-3 0 |
| Endive, per dozen | 2 6-.. | Turnips, new, bunch. | 1 0-1 6 |
| Garlic, per lb. | 0 6-.. | | |

POTATOS:—Old Potatoes getting scarce, and best samples advanced in price. Best, 160s. to 180s.; Champions, 100s. to 110s.; Rocks, 90s. to 100s. New stuff from Malta, 12s. to 14s.; Lisbons, 10s. to 12s.; Jersey Kidneys, 14s. to 16s.; and Jersey Rounds, 10s. to 14s. per cwt.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Abutilon, 12 blooms | 0 4-1 0 | Lily of Val., 12 bun. | 6 0-24 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Pæony, 12 bunches. | 6 0-24 0 |
| Azaleas, 12 sprays | 0 4-1 0 | Pansy, 12 bunches. | 2 0-6 0 |
| Bouvardias, per bun. | 1 0-4 0 | Pelargoniums, 12 spr. | 0 9-1 6 |
| Cactus blms., 12 bun. | 2 0-6 0 | — zonal, 12 sprays | 0 4-1 0 |
| Carnations, per dozen | 1 0-3 0 | Pinks, 12 bunches | 4 0-12 0 |
| Daisies, 12 bun. | 3 0-6 0 | Polyanthus, 12 bunch. | 3 0-9 0 |
| Day Lily, 12 bun. | 12 0-18 0 | Primula, double, per | |
| Deutzia, 12 bunches | 4 0-12 0 | bunch | 0 9-1 6 |
| Esch-choltzia, 12 bun. | 4 0-6 0 | Pyrethrum, 12 bun. | 4 0-9 0 |
| Eucharis, per doz. | 4 0-12 0 | Ranunculus, 12 bun. | 3 0-9 0 |
| Forget-me-not, 12 bs. | 3 0-9 0 | Rose de Mois, 12 bun. | 6 0-18 0 |
| Gardenias, 12 blms. | 2 0-12 0 | Roses (indoor), doz. | 1 0-9 0 |
| Guelder Roses, 12 | | Stephanotis, 12 sprs. | 2 6-9 0 |
| bunches | 3 0-9 0 | Tropæolum, 12 bun. | 1 0-3 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberose, per dozen | 1 6-6 0 |
| Iris, 12 bunches | 4 0-12 0 | Wallflowers, 12 bun. | 4 0-6 0 |
| Ixia, 12 bunches | 6 0-18 0 | | |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Fuchsias, per dozen | 6 0-18 0 |
| ardia aethiop., doz. | 6 0-12 0 | Genista, per dozen | 6 0-24 0 |
| Begonias, per doz. | 6 0-18 0 | Hederaeas. | 12 0-24 0 |
| Bouvardias, per doz. | 12 0-24 0 | Lilium eximium, doz. | 30 0-60 0 |
| Calceolarias, per | | Lobelias, per dozen. | 4 0-9 0 |
| dozen | 6 0-18 0 | Mignonette, per doz. | 6 0-9 0 |
| Coleus, per dozen | 4 0-12 0 | Musk, per dozen | 4 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Dracæna terminalis | 30 0-60 0 | Palms in variety, | |
| — viridis, per doz. | 18 0-24 0 | each | 2 6-21 0 |
| Erica, per dozen | 9 0-30 0 | Pelargoniums, doz. | 12 0-24 0 |
| — ventricosa, doz. | 18 0-42 0 | — scarlets, zonal, p. | |
| — perspicua nana, | | dozen | 4 0-12 0 |
| per dozen | 18 0-42 0 | Rhodanthes, per doz. | 6 0-12 0 |
| Euonymus, var., doz. | 6 0-18 0 | Roses, per dozen | 12 0-42 0 |
| Ferns, in variety, per | | Saxifraga pyramid- | |
| dozen | 4 0-18 0 | alis, per dozen | 18 0-30 0 |
| Ficus elastica, each | 2 6-15 0 | Spiræa, per dozen | 6 0-24 0 |
| Foliage Plants, vari- | | — palmata, per doz. | 18 0-48 0 |
| ous, each | 2 0-10 6 | Stocks, per dozen | 4 0-9 0 |

Bedding-out Plants, per dozen, from 1s. 6d. to 3s.

SEEDS.

LONDON: June 18.—The trade continues extremely quiet; indeed, there is scarcely any business to record at all. Red Clover seed is momentarily nearly a dead letter; no concession is made by holders of American seed, and buyers will not increase their limits, so the result is an almost entire suspension of sales. English is entirely neglected, no seed of a suitable keeping quality being offered. White and Alsike are unchanged in value; there is still a fair sale for both, but the demand is dropping off. Trefoil is somewhat slow, and the inferior qualities are now extremely difficult of sale; finer sorts, however, are held firmly. Mustard and Rape sell freely at unaltered prices. Canary and Hemp seed are again very slow, the latter being slightly cheaper than was the case last week. Blue Peas continue to meet with a good sale, and stocks in London are now getting into a very narrow compass. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

COALS.

The prices current at market during the week have been as follows:—West Hartley, 13s. 9d.; Walls End—Hetton, 18s.; Hetton Lyons, 16s. 3d.; Lambton, 17s. 6d.; Original Hartlepool, 18s.; Wear, 16s. 3d.; South Hetton, 18s.; Chilton Tees, 17s. 3d. and 17s. 9d.; East Hartlepool, 17s. 9d.; Salvin's Hutton, 17s.; Thornley, 17s.; Tunstall, 16s. 3d.

Government Stock.—The closing prices on Monday for Consols for delivery were 97 to 97½, and for the account 97½ to 97½. Tuesday's figures were, 97½ to 97½ for delivery, and 97½ to 97½ for the account. On Wednesday the closing quotations were— for delivery, 97½ to 97½; and for the account, 97½ to 97½. Thursday's figures, for delivery, were 97½ to 97½, ex div.; and for the account, 97½ to 97½, ex div.

ANDERSON, ABBOTT, AND ANDERSON,

India Rubber Manufacturers,

37, QUEEN VICTORIA STREET,
London, E.C.

GARDEN HOSE and FITTINGS;
60 feet of Garden Hose and Fittings, complete, £1 1s.

HOSE REELS,
From £1 1s.

EMPRESS of INDIA GARDEN TENT,
To seat thirty persons when closed and forty-five when open. Circumference, 27 feet. Price, complete, £6 10s. Patterns of material and illustrations free.

LAWN TENNIS SHOES,
From 12s. 6d.

LAWN TENNIS BATS,
From 7s. 6d.

LAWN TENNIS BALLS,
Regulation size and weight.

HUNTING, SHOOTING, and FISHING BOOTS.

Patentees and Manufacturers of the
LEVE ANTI-PLUVIUM WATERPROOF SUIT,
Consisting of Coat, Hat, and Leggings, weighing 12 oz. Price £1 10s.

All descriptions of
INDIA RUBBER GOODS,
For Sporting, Domestic, Surgical, and Mechanical purposes.

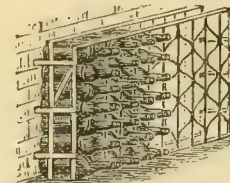
ANDERSON, ABBOTT, & ANDERSON,
37, QUEEN VICTORIA STREET, E.C.

IRON WINE BINS.

FARROW & JACKSON,
18, GREAT TOWER STREET, E.C.;
8, HAYMARKET, S.W.

EXHIBIT BINS,

Displaying Seals and Capsules of Bottles.
THE NEW "EXHIBIT" BIN.



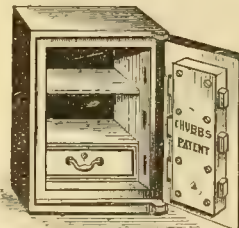
So arranged that the necks of the bottles are placed outwards, convenient to the grasp, displaying the seals, capsules, or tickets on the corks, and which obviates the difficulty in distinguishing the different sorts of wine. This is the only form of bin which offers this advantage, and renders it an almost perfect mode of storing Wine.

FRENCH BINS. SODA-WATER RACKS.
NEW PATENT DOUBLE BINS,

With same advantage.
CELLULAR BINS,
With separate rest for each bottle.
FARROW'S PATENT NEW BOTTLE CLIP for CHAMPAGNE and OTHER WINES.

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CHUBB'S



Fire and Thief
Resisting
SAFES.

THREE PRIZE MEDALS,
(including the ONLY MEDAL for ENGLISH LOCKS)
Paris Exhibition, 1878.

Patent Detector Locks and Latches.

CHUBB & SON,

123, Queen Victoria Street, St. Paul's, } LONDON.
68, St. James's Street, Pall Mall, }
AND AT
LIVERPOOL, MANCHESTER, BIRMINGHAM,
WOLVERHAMPTON, &c.

ILLUSTRATED PRICE LISTS POST-FREE.

THE "STANLEY" GARDEN ENGINE.

Simple, Effective, Durable; Easy to Work; Cheap.
Prices—12 Gallons, £3 15s.; 30 Gallons, £6 10s.
Carriage Paid.
CATALOGUE ON APPLICATION.

HYDES & WIGFULL, Limited, Sheffield.

Protect your Fruit Trees and Seed Beds.
TANNED NETTING, sent to any part of the Kingdom—50 yards by 4 yards wide, 10s. 6d.; 100 yards by 2 yards wide, 10s. 6d. Post-office Order or Cheque to accompany Order, made payable to L. WREN, 193, High Street, Lowestoft.

RALPH WALLER AND CO., 45, Dale Street, Manchester, Manufacturer of all kinds of **GARDEN NETTING**, &c., for protecting Fruit Trees from Frost; also **HOTHOUSE SHADINGS** of various thicknesses, superior to any other yet discovered for Lightness, Strength, and Durability, standing, as they do, all weathers. **TIFFANY** of various kinds always on hand. Netting and Shading in pieces 30 yards long, by 1½ yard wide. Tiffany in pieces 20 yards long, 38 inches wide. Also Tiffany mineralised. **NETTING**, No. 1, 4d. per square yard; No. 2, 3½d.; No. 3, 4½d. **HOTHOUSE SHADINGS**. **FINE NETTING**, 5d. per square yard; No. 6A, 8d.; No. 6, 9d.; No. 6, improved, 9½d. **TIFFANY**, No. 1, 3s. 6d. per piece, Mineralised, 4s.; No. 2, 4s. 6d. per piece, Mineralised, 5s. Samples on application.

HORTICULTURAL WIREWORKS.

Gardens and Conservatories fitted up with Wirework, &c.
Flower Stands. Garden Arches.
Hanging Baskets. Roseries.
Trellis Wirework. Screens.
Balloon Trainers. Summer Houses.
Aviaries, &c. Garden Fencing.
Slate Boxes. Strained Wire Fencing.
Tile Boxes, &c. Pheasantries, &c.

See Illustrated CATALOGUE.

R. HOLLIDAY,
HORTICULTURAL IRON and WIRE WORKS,
"The Pheasantry," Beaufort Street, Chelsea,
London, S.W.

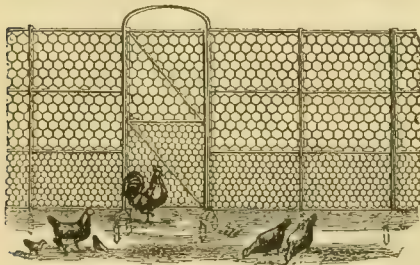


BAYLISS, JONES & BAYLISS,

Patentees and Manufacturers of Wrought Iron
CONTINUOUS BAR FENCING,
Iron Hurdles, Strained Wire Fencing,
Field and Entrance Gates, Tree Guards, &c.,
VICTORIA WORKS, WOLVERHAMPTON,
and 3, Crooked Lane, King William Street, London, E.C.
Catalogues free on application.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide, 3d. per yard, or 100 yards 20s.; 4 yards wide, 6d. per yard, or 50 yards 20s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ½-inch mesh, 4 yards wide, 1s. 6d. per yard.
TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.
LAWN TENNIS NETS from 16s. to 25s.
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

BOULTON & PAUL, MANUFACTURERS OF NEW and IMPROVED POULTRY FENCES.



This fence is a much stronger description of fencing than the lattice panels with loose standards, and is more portable, being made in lengths 6 feet long with double pronged feet. A run or pen can be formed of any length or shape without extra cost; it is easily fixed or removed; the gate can be placed in any part of the fence.

PRICES:—
6 feet high, including all necessary Bolts and Nuts ... 5s. per yard.
Doorway complete, 2 feet wide, including Standards and Arched Stay ... 13s. 6d. each.
Angle-iron Pillars for Corners, with Cast Ornaments ... 3s. each.
Carriage paid on orders of 40s. value. Orders executed on receipt.

From **STEPHEN MARTIN, Esq., Ravely, Bournemouth**.
"Gentlemen,—I am very pleased to inform you that the Poultry Fencing you supplied has given every satisfaction, being strong, durable, and neat."

To avoid delay, cash or reference with first orders is respectfully requested.

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EDGINGTON'S GARDEN NETTING, the cheapest and most durable, 1d. per square yard, or in quantities of 250, 500, or 1000 yards, carriage free. **EDGINGTON'S CRICKET and GARDEN TENTS** are the prettiest. **EDGINGTON'S MARQUEES** for hire are the most handsome and capacious. **EDGINGTON'S RICK CLOTHS** for 77 years have maintained their celebrity as the best. **TIFFANY, SCRIM CANVAS**, and every other kind of NETTING.

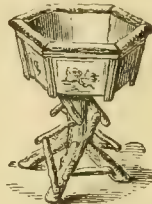
A quantity of good second-hand **GOVERNMENT TENTS** for Sale, cheap. Sample of material free on application. Re particular—**FREDERICK EDGINGTON AND CO.**, 52 (only), Old Kent Road, London, S.E.
No connection with any house using the name "Edgington."

GARDEN NETTING for Sale, in small or large quantities. Suitable for Fruit and Wall Trees. For particulars and price apply to **Mr. W. A. CURTIS**, 34, Jury Street, Great Yarmouth, Norfolk.

TIFFANY and ELASTIC NETTING (REGISTERED).—It is now twenty-five years since we introduced the article we called "**SHAW'S TIFFANY**" for horticultural shading and protecting, and up to the present all imitations have fallen short of the beauty, texture, and utility of the article. Our immense sale enables us at all times to put it on the market at a lower price than any other house.

Tiffany and Elastic Netting (**REGISTERED**), with Canvas and all other Shading and Protecting Materials, manufactured and sold by

JOHN SHAW AND CO., 29, Oxford Street, Manchester.
Samples and prices on application.



RUSTIC
Garden Furniture
IN
GREAT VARIETY.

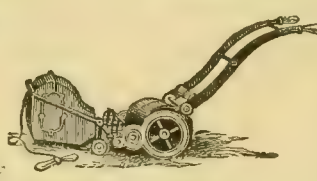


Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows, Wheelbarrows, Garden Tools, Fancy Wirework, Birdcages, Hammocks, and all kinds of Garden Furniture at lowest marked prices. Catalogues post-free. 5 per Cent. for Cash.

THE PANKLIBANON, 56, BAKER STREET, W.

A. & J. MAIN'S GARDEN FURNITURE.

Newest Designs and Best Quality.

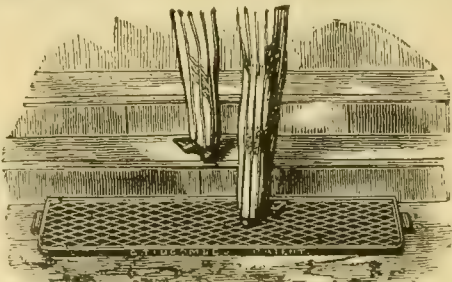


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THE GRAVEL-WALK METAL

SCRAPER MATS.—They improve the appearance of Entrances, are suitable for all kinds of Gravel-walk Entrances, in all weathers, either to remove the loose grit after summer showers, or the dirt or snow of winter. Their texture gives a firm hold to the feet in whatever direction you step. They are the width of an ordinary step, and being directly in the path cannot escape use, save much wear in other mats, floorcloths, and carpets, and their endurance is incalculable. Lengths, 2 feet 3 inches, price 10s.; 2 feet 6 inches, 12s.; 3 feet, 14s.; 3 feet 4 inches, 16s.; 3 feet 8 inches, 18s.; 4 feet, 22s. All 12 inches wide.



Tidcombe's Patent Gravel-walk Metal Scraper Mats are suitable for Mansions, Villas, French Casements, Conservatories, Hothouses, Greenhouses, Flower Gardens, Kitchen Gardens, Places of Worship, Colleges, Schools, Manufactories, Hotels, Public Institutions, and all Entrances leading from Sandy, Gritty, or Gravel Walks. Delivered on Railway on receipt of remittance, payable to **G. TIDCOMBE AND SON**, Watford, Herts.

GLASSHOUSES

OF EVERY DESCRIPTION.

In Wood of best quality only, with English Sheet or Plate Glass and best White Lead and Oil.

Estimates given on receipt of full Particulars of Size and Form proposed, or to Architects' Plans and Specifications.

Plain or Ornamental, with Straight or Curved Glass, Portable or Permanent, Cheap or Costly—all have the best attention to give satisfaction to the Purchaser.

No attempt is made to sell at lower prices than others, but good work is given at a fair price.

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LATE HEREMAN & MORTON,
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Illustrated Price **LISTS** of the Cheap and Simple **PANTON ROOFS** free on application.

A Pamphlet, with Views of Conservatories, &c., for three stamps.

Heating Apparatus fixed complete to Special Estimates.

DAVID LOWE & SONS,
HORTICULTURAL BUILDERS

AND
HOT-WATER ENGINEERS,
GILMORE PARK, EDINBURGH.
Plans and Estimates on application for every description of Horticultural Buildings in Wood or Iron.
Garden Frames and Sashes in Stock.

NEW SYSTEM OF GLAZING WITHOUT PUTTY.

80 PER CENT SAVED IN PAINTING **HELLIWELL'S PATENT** **80 PER CENT SAVED IN REPAIRS**

No outside Painting is required. Old Roofs Reglazed. "It is suitable for Railway Stations, Mills, Working Docks, &c., but is specially applicable to Conservatories, Plant Houses, and Orchard Houses, and we should be very much inclined to try the system. It is certainly worth looking to."—*Builder*.

"And will, in our opinion, supersede any other similar system before the public."—*Building News*.

"It seems to meet the end in view more nearly than anything we have seen yet."—*The Field*.

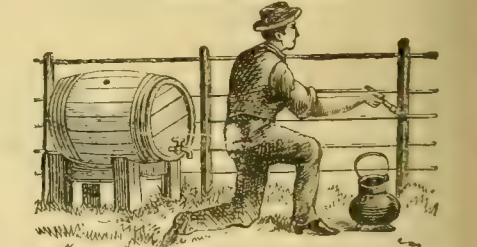
7, Mark Lane, London, Nov. 14, 1878.

"DEAR SIR,—I cannot see what Testimonial you can require from me, than the fact that I have taken off all my putty glazings, and removed Rendle's work to replace it with yours. Any one seeing the two systems would say that yours is far the superior, and that nothing yet out can touch it.—Yours,

"T. W. Helliwell, Esq., Brighouse. "W. R. PRESTON."

For Estimates, Drawings, or Particulars, apply to the Patentee, **T. W. HELLIWELL**, Brighouse, Yorkshire.

HILL AND SMITH'S BLACK VARNISH,
Oil Paint No Longer Necessary.
for Preserving Ironwork, Wood, or Stone,
(Registered Trade Mark.)



Is an excellent substitute for oil paint on all outdoor work, while it is fully two-thirds cheaper. It was introduced upwards of thirty years ago by the advertisers, and its genuine good quality, notwithstanding a host of unprincipled imitators, is fully attested by its constantly increasing sale. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon carriage paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"*Piercefield Park, June 21, 1878.* Sirs,—I have this day forwarded from Chepstow to your address a black varnish cask, to be filled and returned with as good Varnish as the last we had, which I candidly admit was the best we ever had. Address Varnish to *Piercefield Park, Chepstow*.—I am, Sirs, yours respectfully, **WM. COX.**"

CAUTION.—It having lately come to the knowledge of **HILL & SMITH** that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that it can ONLY be obtained DIRECT FROM THEM, and that every cask is legibly marked with their name and address, without which none is genuine.

Large Illustrated CATALOGUE of Fencing, Hurdles, Field and Entrance Gates, &c. sent free on application to **HILL AND SMITH**, Brierley Hill Ironworks, Staffordshire: 118, Queen Victoria Street, London, E.C.; and 180, Buchanan Street, Glasgow.

IMPORTANT TO ALL ADMIRERS OF CLEAN HEALTHY FOLIAGE

FOR PLANTS

SPEED'S

FLOWERS & C.

PARASITE ANNIHILATOR

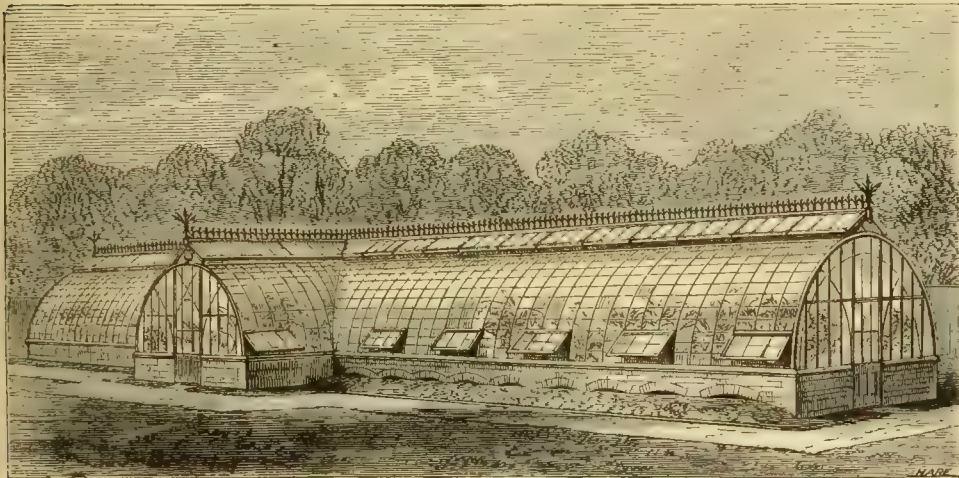
An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites infesting Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—From Mr. D. THOMSON, Gardener to His Grace the Duke of Buccleuch, Drumlanrig Castle.—“I duly received the jar of your Insect ‘Annihilator’ and sprayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied it to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into a reddish-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems ‘done for’ in about ten minutes, after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis, Dracenas, Marantas, and Crotons, and not one of these are in the least injured.” Sold in Bottles, containing one pint at 1s. 6d., 1 quart at 2s. 6d., and 2 quarts at 4s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each.

SPEED'S VINE and ROSE MILDEW ANNIHILATOR.—An effectual and instantaneous destroyer of Mildew. It is perfectly harmless to the Grape Vine, the Rose, and the Peach, and may be applied to the most tender foliage. The fruit may be dressed with it in any state with perfect safety, even before the thinning period. It is non-poisonous to animals, although it is instantly destructive to all Fungi. It is simple and easy to apply, and may be rinsed off in ten minutes after its application, leaving no sediment, taste, or smell. It will be found of inestimable service in checking all disease caused by Fungi in the Rose, Grape, Peach, Hollyhock, Potato, &c. Testimonial from ROBERT HOGG, Esq., LL.D., F.L.S., &c., Pomological Director of the Royal Horticultural Society.—“I have great pleasure in bearing my testimony to the magical effect which your mixture has upon the Mildew of the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the foliage of the Vine, was so destructive and so instantaneous, as to leave no doubt on my mind as to its perfect efficacy in destroying the Mildew. On examining the foliage with a magnifying glass after the application, I could find no trace of the disease.” Sold in Bottles at 2s., 3s. 6d., 6s., and 10s. each; to make 1 quart, ½-gallon, 1 gallon, or 2 gallons, ready for use. Full directions for use enclosed with each bottle. Vaporisers for applying the Annihilators, 2s. each.

N.B.—The “Parasite Annihilator” and the “Mildew Annihilator” are quite distinct preparations, and are prepared only by ALFRED LOWE, Chemist, Chesterfield. May be obtained through any Chemist or Seedsman. London Agents:—F. Newbery & Sons, W. Edwards & Son, J. Sanger & Sons, W. Sutton & Co., J. Veitch & Sons, Hurst & Son, Corry & Soper, Dick Radclyffe & Co.

LEGION OF HONOUR (Paris Exhibition): GOLD MEDAL.

W. H. LASCELLES,
HORTICULTURAL BUILDER,
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RANGE of PATENT BENT WOOD CURVED VINERIES, PLANT HOUSES, &c., recently erected at Croydon.

These Houses are light, strong, durable, and of elegant appearance. Can be made as cheaply as a plain, straight House, and no Bent Glass need be used.

Illustrated Sheets sent, post-free, on application, and Estimates given without charge.

THE THAMES BANK IRON COMPANY

OLD BARGE WHARF,

UPPER GROUND STREET,
LONDON, S.E.,

Have the largest and most complete stock in the Trade;
upwards of £20,000 worth to choose from.

HOT-WATER BOILERS, PIPES, and CONNECTIONS,
And all CASTINGS for HORTICULTURAL PURPOSES.

Their New Illustrated Catalogue, 8th Edition, now ready
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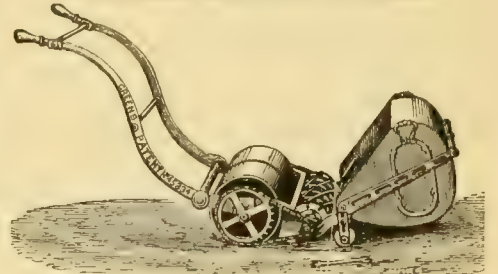


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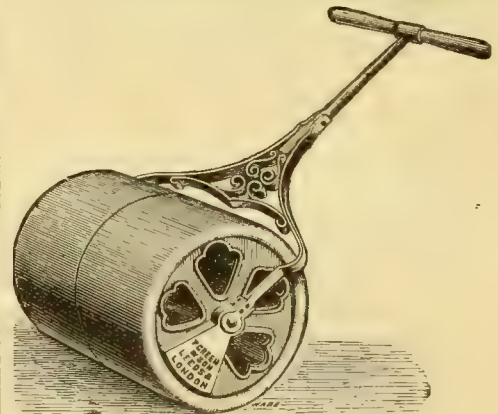
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FOREMAN (ASSISTANT), Outdoors.—Age 25. Several years' experience. In or near London.—B. J., Messrs. Phillips & Co., Torbay Nurseries, Torquay.

NURSERY FOREMAN, or to take any department indoor or out.—Eleven years' good experience in leading nurseries. Good Salesman. First-class references.—K. P., G. W. Miller, Nurseryman and Seedsman, Walorken Road, Wisbech.

JOURNEYMAN, in the Houses.—Age 21; three years in last situation, with Orchids, Stove Plants, &c. Good references and previous experience.—E. G., 107, Lots Road, King's Road, Chelsea, S.W.

IMPROVER.—A GARDENER wishes to place his son (age 18), strong and active, under a Nobleman's or Gentleman's Gardener. Highly recommended. A small Premium if required.—State particulars, wages, &c., to W. C., Wolford, near Honiton, Devon.

TO FRUIT GROWERS and FLORISTS (First-class only).—A respectable young Man, age 21, is anxious to learn the Business, and board with the family, or otherwise. References given and required.—Address, stating terms, C. C., Kensington & Co., 11, Clement's Lane, E.C.

Sydney, 1879, and Melbourne, 1880.

SEED TRADE EXHIBITORS.—Wanted, by a man thoroughly practical in all branches of the Trade.—For interview and further particulars, LEONTODON, *Gardeners' Chronicle* Office, W.C.

CLERK or ASSISTANT in a Florist's Establishment in London.—Age 18; good references.—Disengaged July 7.—W. H., 86, Rouge Bouillon, Jersey.

KINAHAN'S LL WHISKY.

KINAHAN'S LL WHISKY.

Pure, Mild and Mellow, Delicious and Most Wholesome. Universally recommended by the Profession. The Cream of Old Irish Whiskies.

KINAHAN'S LL WHISKY.

Dr. Hassall says—"Soft and Mellow, Pure, well Matured, and of very excellent quality."

KINAHAN'S LL WHISKY.

Gold Medal, Paris Exhibition, 1878; Dublin Exhibition, 1865, the Gold Medal.—20, Great Titchfield Street, London, W.

E P P S ' S

GRATEFUL

(James Epps & Co., Homoeopathic Chemists.)

COMFORTING

C O C O A .

E. LAZENBY AND SON'S PICKLES, SAUCES, and CONDIMENTS.—E. LAZENBY AND SON, sole proprietors of the celebrated recipes, and manufacturers of the pickles, sauces, and condiments so long and favourably distinguished by the name, beg to remind the public that every article prepared by them is guaranteed entirely unadulterated.—92, Wigmore Street, Cavendish Square (late 6, Edward Street, Portman Square), and 18, Trinity Street, London, S.E.

HARVEY'S SAUCE.—CAUTION.—The admirers of this celebrated sauce are particularly requested to observe that each bottle prepared by E. LAZENBY AND SON bears the label, used so many years, signed "Elizabeth Lazenby."

DINNEFORD'S MAGNESIA.

The Medical Profession for over Forty Years have approved of this pure solution as the Best Remedy for

ACIDITY OF THE STOMACH, HEARTBURN, HEADACHE, GOUT, and INDIGESTION, and as the safest Aperient for Delicate Constitutions, Ladies, Children, and Infants.

DINNEFORD'S MAGNESIA.

HOLLOWAY'S PILLS.—The Grand Secret.

—With the variable temperature of this country, ill-health will creep in unless the blood from time to time be purified and noxious matters be expelled from the body. In this the public may be its own physician. Holloway's Pills may be purchased at a trifling cost; instructions for taking them will be furnished with the Pills, and a little attention, with few instructions, will enable persons to keep themselves in health under very trying circumstances. These Pills act as alteratives, tonics, and aperients. Holloway's Medicine should be ready for instant administration when the slightest symptom gives warning of approaching indisposition.

SPECIAL NOTICE.

THE
GARDENERS' CHRONICLE

For Saturday, JULY 12, 1879, will contain

A COLOURED PLATE

OF

"GARDEN TULIPS,"

By FITCH. ALSO A

FULL SPECIAL REPORT

OF

THE ROYAL HORTICULTURAL SOCIETY'S SHOW

AT

Kensington, on Tuesday, July 8.

PRICE, FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY.



NOTICE TO ADVERTISERS.



As a large Extra Sale of this Number is guaranteed, it will be a very valuable medium for Advertisements.

APPLICATIONS FOR SPACE SHOULD BE SENT IN AS EARLY AS POSSIBLE.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, LONDON.

May be ordered of all Newsagents and at the Railway Bookstalls.

THE GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 287.—VOL. XI. { NEW }
SERIES.

SATURDAY, JUNE 28, 1879.

{ Registered at the General } Price 5d.
{ Post Office as a Newspaper. } POST FREE, 5½d.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post-offices, as all Letters so addressed are opened by the authorities and returned to the sender.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.
ROSE SHOW AND EXHIBITION OF PELARGONIUM SOCIETY, TUESDAY, July 8. Special Display of ROSES, by Messrs. William Paul & Son, Waltham Cross. Admission to Fellows at 12 o'clock, Public at 1 o'clock, on payment of 2s. 6d. Band of Royal Horse Guards.

ROYAL HORTICULTURAL SOCIETY,
South Kensington, S.W.—July 9.
EVENING FETE, 8 o'clock. Bands of 1st Life Guards and Royal Horse Guards (Blue). Part Songs by the Lombard Amateur Musical Society. Special Rose Display, Electric Lighting, &c. Admission by ticket purchased before the day, 10s. 6d.; on the day, 15s.

ALEXANDRA PALACE ROSE SHOW,
SATURDAY, July 5.
ENTRIES CLOSE THIS DAY, June 28.

LUDLOW ROSE SHOW.—The ANNUAL EXHIBITION OF ROSES will be held in the Assembly Rooms, Ludlow, on TUESDAY, July 8. Liberal Prizes will be given to Nurserymen, Amateurs, and Cottagers. Schedules of the Prizes may be obtained from the Ludlow.
Rev. V. T. T. ORGILL, Hon. Sec.

GRAND ROSE SHOW at NORWICH,
WEDNESDAY and THURSDAY, July 9 and 10.
ENTRIES for POT PLANTS CLOSE on MONDAY, June 30; for ROSES and all other Classes on WEDNESDAY, July 2.
Upper Surrey Street, Norwich. E. A. FIELD, Hon. Sec.

BRIGHTON and SUSSEX HORTICULTURAL SOCIETY.
SUMMER EXHIBITION of PLANTS, FRUITS, FERNS and CUT FLOWERS, will be held at the Royal Pavilion and Grounds, on WEDNESDAY and THURSDAY, July 9 and 10. Prizes are offered on the same liberal scale as former years. The RAILWAY CUP, value £10, is offered for 10 varieties of Stove and Greenhouse Plants.

Schedules can be obtained on application to EDWD. CARPENTER, 95, St. James's Street; or, E. SPARY, Superintendent, Queen's Graperies, Park Street, Brighton.
EDWD. CARPENTER, Secretary.

THE WINCHESTER SOCIETY'S EXHIBITION OF POULTRY, PIGEONS, DOGS, FLOWERS, and FRUIT, will be held at Winchester on JULY 9 and 10, 1879. Prize Schedules and Rules on application.
ENTRIES CLOSE.—For Dogs, June 25; Poultry, Pigeons, Flowers and Fruit, July 2.
F. RAYMOND BRYAN, Hon. Sec.
8, Great Minster Street, Winchester.

BIRMINGHAM ROSE SHOW will be held in Bingley Hall, on THURSDAY and FRIDAY, July 17 and 18 next. Schedule of Prizes and all information can be obtained from the Secretary,
Mr. W. T. SMEDLEY, 57, Colmore Row, Birmingham.

WELLINGBOROUGH.—A FLORAL and HORTICULTURAL FETE will be held adjoining the Northamptonshire Society's Show, SEPTEMBER 11 and 12, when over TWO HUNDRED POUNDS will be offered for competition. For Schedules and other information, apply to
J. PENDRED, }
G. F. BEARN, } Hon. Secs.
C. WATKIN. }

Bedding Plants, &c.

Surplus Stock. Clearance prices for cash. See
WOOD AND INGRAM'S cheap offer of the above, in *Gardeners' Chronicle* for June 21.
The Nurseries, Huntingdon.

Hyacinths, Tulips, Lilies, &c.

WHOLESALE CATALOGUE of the above is now ready, and may be had free on application to
BUDDENBORG BROS., Bulb Growers, at The House, Bloemswaard, Hillegom, near Haarlem, Holland.

THE VICTORIA COLLECTIONS of CHOICE FLOWER SEEDS, in Handsome Coloured Lithographic Wrappers, with Cultural Directions.

No. 1 contains Twelve Packets of Beautiful Hardy Annuals, 1s., post-free, 1s. 1d.
No. 2 contains Twenty-five Packets, 2s., post-free 2s. 2d.
A. W. BARNES, Seed Merchant, High Street, Skipton, Yorkshire.

To the Trade.

RAPE SEED and WHITE MUSTARD.
H. AND F. SHARPE have fine samples of the above Seeds suitable for sowing purposes, which they will be glad to submit with quotations on application.
Seed Growing Establishment, Wisbech.

FIVE THOUSAND CLEMATISES in pots, comprising all the newest and most choice varieties in cultivation, including JACKMANNI, &c., at 12s. to 30s. per dozen. Selection left to ourselves.
Descriptive CATALOGUES free on application to
WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Pot Roses.

W. B. ROWE has some thousands of **TEA** and **NOISSETTE ROSES**, in pots, unusually good; also some extra fine **MARECHAL NIEL**.
Price LIST on application.
Barbours Nurseries, Worcester.

Roses in Pots for all Purposes.

W. JACKSON AND CO., Nurseries, Bedale,
York-hire, can supply strong plants in pots, 7 to 8 inches in diameter, at 20s. to 30s. per dozen. Prize varieties, as exhibited in the 1st Prize Stand at York Gala.
Early Orders receive every attention.

To the Trade.

ROSES.—Gloire de Dijon, Maréchal Niel, Cloth of Gold, Madame Berard, Climbing Devonensis, extra fine, 75s. per 100; Madame Welch, Mabel Morrison, 12s. per dozen; New French Roses, best varieties, 15s. per dozen. **CLEMATIS**, all leading kinds, own selection, 60s. per 100.
GEORGE COOLING, Nurseryman, Bath.

TEA ROSES.—Strong healthy plants, in pots, for planting out or conservatory decoration. Fine named varieties, 9s. per dozen, 60s. per 100.
FREDERICK STREET, Heatherside Nurseries, near Bagshot, Surrey.

Tea and other Roses in Pots.

WM. CUTBUSH AND SON have a very fine lot of the above to offer, in all the best sorts.
Prices on application.
Highgate, London, N.; and Barnet, Herts.

Roses—Roses—Tea Scented.

Strong, on own roots, 2-yr. old, in 5½-inch pots.
W. M. KNIGHT, of The Floral Nurseries, Hailsham, Sussex, offers a most unique collection, either for immediate display in conservatory or open ground. The plants are quite hardy, having only had the protection of a cold pit during the late severe winter. 15s. per dozen, £5 per 100.
Price to the Trade on application.

TEA and NOISSETTE ROSES

in pots, for planting out during spring and summer, or for conservatory decoration all the year round; also new FRENCH and ENGLISH ROSES in pots. The above are a special feature in our Nurseries, and our stock is one of the largest, finest and healthiest in the country. Write for a Pot Rose LIST to
EWING AND CO., The Royal Norfolk Nurseries, Eaton, near Norwich.

ORCHID BASKETS (great reduction in).—Teakwood Rods, rounded edges, made with strong copper or galvanized wire. Every kind made for growing Orchids, at 50 per cent. less than usually charged. Sample sent carriage free on receipt of twelve stamps.
ALFRED GRANT AND CO., Steam Works, 39½, Leather Lane, London, E.C.

WANTED, 1000 Small FERNS, Market varieties, ready for potting into 48's. State varieties and cash price out of pots, to
TAYLOR AND CO., Market Growers, Timperley, Cheshire.

To Gardeners and Others.

BEST PRICES given for all kinds of CHOICE FRUITS, &c. Apply
F. A. WHITE, Fruiterer, &c., Bournemouth.

EXCHANGES.—A Lady wishing to perfect a tolerably large Collection of Hardy Herbaceous Plants, would be glad to make Exchanges. List sent on application to
A. Balrath Barry, Kells, Co. Meath, Ireland.

CARTER'S GREAT EXHIBITION of FLOWERING and ORNAMENTAL FOLIAGED ANNUALS will be on view daily in the Long Corridor of the Royal Botanic Society's Gardens, Regent's Park, N.W., until further notice. Great Exhibition of 25,000 pots.
The Queen's Seedsmen, High Holborn, London, W.C.

SAXIFRAGA WALLACEI.
Two First-class Certificates in London and Edinburgh. "A handsome Alpine." "One of the finest ornaments of the Rock Garden." Should be grown by every one. For full description see *The Garden* of May 31 and also June 14.
DICKSONS AND CO., Nurserymen, &c., 1, Waterloo Place, Edinburgh, are now booking Orders for the above, and also for **BEDDING VIOLAS** and **PANSIES** for autumn planting. Price per dozen or per 100 on application.

ANÆCTOCHILUS DAWSONIANUS.—A fine lot, freshly imported, in very fair condition. For prices apply to
HAAGE AND SCHMIDT, Erfurt, Germany.

Spiræa palmata.

BUDDENBORG BROS., Bulb Growers at The House, Bloemswaard, Hillegom, near Haarlem, Holland, beg to announce to the Trade that they have on hand a very large and healthy stock of the above, and will be pleased to give particulars on application.

TODEAS.—Healthy young plants of T. superba and T. hymenophylloides (pellucida), free and safe by post, 2s. 6d. each for prepayment. Trade price (low) per 100, or lesser quantities, on application.
ROBERT SIM, Sidcup Hill Nursery, Foot's Cray, Kent.

MUSA ENSETE.—Fine Plants in 6-inch pots. Large and fine stock. Cheap. For price, apply to **IRELAND AND THOMSON, 20, Waterloo Place, Edinburgh.**

ORCHIDS.—The most popular kinds, either established, semi-established, or imported. For particulars, see our Descriptive LIST No. 44, just published.
The NEW PLANT and BULB COMPANY, Colchester.

Primulas—Primulas—Primulas.

Tenth Year of Distribution.
WILLIAMS' superb strain, 1s. 6d. per dozen, 10s. per 100; package and carriage free.
CINERARIAS, choicest assortment, same size and price. The above are quite equal to those I have sent out in previous years. Cash with order.
JOHN STEVENS, The Nurseries, Coventry.

PRIMULA CHINENSIS, ALBA, RUBRA, and other varieties, very choice strain, strong plants, 7s. 6d. per 100.

CHRYSANTHEMUMS.—Elaine, best early white; Fair Maid of Guernsey, best late white; strong plants in 60-pots, 2s. per dozen, 15s. per 100.

G. FISCHER, Rose Nursery, High Street, Clapham, S.W.

ILLUSTRATED CATALOGUE OF FERNS.
The above, comprising 80 pages of illustrations, synonyms, "Notes on Cultivation," &c., is the most complete Fern List in the Trade, and will be forwarded on application. Postage 2d.
Ferns being our Speciality, and having an immense stock, we are able to supply them at the most reasonable prices.
W. AND J. BIRKENHEAD, Fern Nursery, Sale, near Manchester.

Bedding Plants.

JAS. HOLDER AND SONS can still supply Geraniums Flower of Spring and mixed sorts, also Coleus, Iresines, Amaranthus, Perillas, Single Petunias, White Verbenas, Fuchsias, Lobelias, Heliotropes, Gazanias, Senecios, Tagetes, Centaureas, Pyrethrums, Asters, &c. 4 dozen, 10s.; 9 dozen, 20s.; 20 dozen, 40s., hamper and packing included. Cash with order.

Crown Nurseries, Reading.

PINES for SALE.—Forty fine strong healthy Plants, Queens and Smooth Cayennes—the most of them showing fruit, some of them swelling off perfectly clean.
Price, &c., on application to
HENRY DOUGLASS, Post-office, Darlington, Durham.

Vines—Vines—Vines.

J. COWAN, The Vineyard and Nurseries, Garston, near Liverpool, is now offering splendid strong healthy VINES, from eyes this year, suitable for summer planting. CATALOGUES free. The Trade supplied.

FRUITING PLANTS of PEACHES, NECTARINES, APRICOTS, and GRAPE VINES, a large and fine stock, now offered for Sale.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

To the Trade.

ASPARAGUS, Giant, 1, 2, 3, and 4-year.
JAMES BIRD, Nurseryman, Downham.

FOR SALE, 3,000,000 selected KOHL RABI and ROBINSON'S CHAMPION DRUM-HEAD CABBAGE PLANTS, at 2s. per 1000, for cash. Put on rail at Spalding Station in quantities to suit purchasers. Apply
WILLIAM COLVIN, Moneybridge Gardens, Finchbeck, near Spalding.

Gentlemen's Gardeners, Amateurs, and Others

GARDEN POTS of best quality, are requested to send their orders to
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List on application.

SALES BY AUCTION.

Lælia præstans.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, June 30**, a splendid importation of this rare and lovely *LÆLIA*, being fine specimens in the best possible condition, just received by R.M. ss. "Elbe," from Brazil, by Mr. R. Bullen of Lewisham.

On view morning of Sale, and Catalogues had.

Rare Brazilian Orchids, &c.

MR. J. C. STEVENS has received instructions from Mr. R. Bullen, of Lewisham, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, June 30**, at half-past 12 o'clock precisely, a splendid importation of the exceedingly rare and beautiful *ONCIDIUM DASYTYLE*, just received ex R.M. ss. "Tamar" from Brazil. The Collector (Mr. H. Blunt) describes it thus:—"I have just found the greatest novelty I have seen in Orchids for years. The plant grows amongst the moss-covered trees, on the coldest parts of the mountains here. Flowers thus—Lip all yellow, sepals and petals pale yellow, spotted or blotched with a chocolate colour approaching carmine. The column is a deep blue-black, very prominent and just the shape of a bee, and seems as though a black bee were resting in the centre of the flower. The plant is very free-flowering, many of the bulbs having two flower-spikes measuring from 18 to 24 inches in length, with numerous branches, covered with its lovely flowers." The plants offered are in splendid condition.

At the same time will be offered a fine importation consisting of *Miltonia Morelana* (very rare), *M. cuneata* and *M. Clowesi*, *Warszewiczella violacea*, *Oncidium crispum*, *O. grandiflorum*, *O. curtum*, *O. Marshallianum*, and *O. Forbesii*, *Sophranites grandiflora*, *Cattleya marginata*, *C. amethystina*, and *C. Leopoldii*, *Lælia purpurata* and *L. Dayana*, and many choice varieties.

On view morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, June 30**, Twelve fine plants of *BOLLEA CELESTIS*, in full flower, from Messrs. J. Backhouse & Son, of York; an importation of *CYPRIPEDIUM IRAPÆANUM*, *LÆLIA FURFURACEA*, *ODONTOGLOSSUM NEBULOSUM*, *ONCIDIUM UNGUICULATUM*, *O. CÆSIUM*, and *O. TIGRINUM*, from Mr. F. Sander, St. Albans; Three cases of *ORCHIDS* from South America, *SPECIMEN STOVE* and *GREENHOUSE PLANTS*, *ORCHID BASKETS*, &c.

On view morning of Sale, and Catalogues had.

Odontoglossum vexillarium.

MR. J. C. STEVENS will include in his SALE, on **MONDAY, June 30**, some fine plants of *ODONTOGLOSSUM VEXILLARIUM*, in flower, from Messrs. J. Backhouse & Son, of York.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Dangstein, near Petersfield.

MR. J. C. STEVENS has received instructions from Lady Dorothy Nevill to offer for SALE by AUCTION, on the Premises, Dangstein, near Petersfield, on **TUESDAY, July 1**, and two following days, at half-past 12 o'clock precisely each day, without the slightest reserve, magnificent *SPECIMEN PLANTS*, consisting of *Camellias* and *Azaleas*, *Palms*, *Dracænas*, *Gleichenias*, *Crotons*, and a most beautiful collection of *Filmy Ferns*, *Trichomanes radicans*, in quantity, a grand plant of *Trichomanes reniforme*, *Hymenophyllum demissum*, &c., *Anæctochilus*, *Peperomias*, *Darlingtonias*, *Sarracénias*, *Platyceriums*, &c.

On view day prior and mornings of Sale. Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Conveyances on the days of Sale will meet at Rogate Station and Liss Station the train from Waterloo at 7 o'clock, arriving at Rogate Station at 9.15; also 9.30 from Waterloo, arriving at Rogate Station at 11.26; and meeting 5.11 and 7.29 trains back at Rogate Station.

Odontoglossum vexillarium.

MR. J. C. STEVENS will **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **MONDAY, July 7**, at half-past 12 o'clock precisely, a very large importation of this splendid *ODONTOGLOSSUM*; at the same time will be offered various other importations, and a quantity of *MASDEVALLIAS*, by order of Mr. F. Sander.

On view morning of Sale, and Catalogues had.

Rare Ferns, Orchids, &c.

MR. J. C. STEVENS has received instructions from A. Wills, Esq., of Esher, to **SELL** by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on **WEDNESDAY, July 9**, at half-past 12 o'clock precisely, magnificent *SPECIMEN GLEICHENIAS*, a choice collection of *FILMY FERNS* (some quite new), a small collection of *ORCHIDS* in good condition, *HEATHS* and *MISCELLANEOUS STOVE* and *GREENHOUSE PLANTS*. Also from Messrs. Wright, of Lee, a collection of established *ORCHIDS*, including grand specimen plants of *Phalaenopsis grandiflora*, *Borneo variety*, *Phalaenopsis Schilleriana*, *Vanda corulea*, *Dendrobium Wardianum*, *Odontoglossum Phalaenopsis*, *O. Roezlii*, *Cypripedium Sedeni*, and others, all in fine healthy condition, and offered for Sale for want of room.

On view morning of Sale, and Catalogues had.

Great Sale of First-Class Market Garden Stock AND LEASEHOLD PROPERTIES.

MR. MALCOLM SEARLE is favoured with instructions from the Administratrix of the late Henry Sheppard, Esq., to **SELL** by AUCTION, at 108, Evelyn Street, Deptford, Kent, on **MONDAY, July 7**, and following day, at 11 o'clock, in lots:—

The LEASE of the superior FAMILY RESIDENCE with GARDEN, 108, Evelyn Street, held for a long term at a ground rent.

The LEASEHOLD and other interest in about 14½ acres of MARKET GARDEN adjoining.

The LEASEHOLD INTEREST in about 22 acres of MARKET GARDEN, situate in Deptford Lower Road.

The LEASEHOLD and other interest in about 43 acres of MARKET GARDEN situate at Charlton, Kent; also Eight well-known English Draught HORSES, PONY, DOG-CARTS, Village CARTS, PHÆTONS, Twelve TUMBRILS, Eight VANS, IMPLEMENTS, PLANTS, 460 glazed three-light Forcing FRAMES, 390 HAND-GLASSES, Erections of Two GREENHOUSES, SHED, HOT-WATER PIPING, and Effects.

Catalogues of the Market Garden Auctioneer and Tenant Right Valuer, 2, Bond Court, Walbrook, City, E.C.

Kent, in the Parish of Cudham.

FREEHOLD GARDEN GROUND, 4½ Acres, most productive, in a charming situation, 3 miles from Westerham, 8 miles from Bromley, and 18 miles from London, occupying a very elevated position, with fine views, and in the centre of the great fruit-growing district. The property is readily accessible from London. The Land is of good quality, and is alike suited for the growth of Strawberries, Raspberries and Currants, or for the Erection of Residences, for which the picturesque scenery renders it most attractive, and it will be divided into lots of convenient area.

MR. JOHN LEES is instructed to **SELL** by AUCTION, at the Mart, London, E.C., on **THURSDAY, July 10**, at 1 or 2 o'clock, in lots, the above desirable **FREEHOLD PROPERTY**, land tax redeemed, and offering an eligible opportunity to Gentlemen, Fruit Growers, Trustees, and others desiring property for investment or occupation.

Particulars may be had of G. CARTER MORRISONS, Esq., Solicitor, Reigate; MORRISONS, 94, Cannon Street, London, E.C.; at the Mart; and of Mr. JOHN LEES, Land Agent and Auctioneer, Reigate.

Middlesex.

In the Parish of Harmondsworth, 13 miles from town by road. Excellent **FREEHOLD LANDED INVESTMENTS**, comprising 300 Acres of Fertile Land, with House and Homestead, let to a yearly tenant of thirty years' standing at the very low rental of £600 per annum.

MESSRS. BAKER AND SONS will **SELL** by AUCTION, at the Mart, Tokenhouse Yard, Bank, E.C., on **FRIDAY, July 18**, at 2 o'clock precisely, the valuable **FREEHOLD ESTATE**, known as Perry Oaks Farm, conveniently situate in the parishes of Harmondsworth and Stanwell, 2½ miles from Ashford station, 3½ from Staines station of the South-Western Railway, 3½ miles from West Drayton and Hayes stations of the Great Western Railway, and 13 miles by road from Hyde Park, in six lots, as follows:—Lot 1. 42 acres of Meadow and Arable Land, approached from the main Bath Road by Whitehead Lane, and intersected by the Queen's and Duke of Northumberland's Rivers; apportioned rent, £70 per annum. Lot 2. 110 acres of productive Arable Land, well adapted for market gardens, with a frontage of 470 feet to the high road, and abutting on the Duke of Northumberland's River; the rent to this lot is £190 per annum. Lot 3. 70 acres of Arable Land, also adapted for market garden or as a site for a public institution; it has a frontage of 2080 feet to the high road from Stanwell to Harmondsworth, and extends to the Duke of Northumberland's River; rent, £125 per annum. Lot 4. 1 acre of Arable Land in Stanwell parish, with frontage of 126 feet to the road from Stanwell to Harlington; rent, £2 per annum. Lot 5. A choice Enclosure of Arable Land, containing 43 acres, with a frontage of 2200 feet to the high road from Stanwell to Harlington; the rent to this lot is £80 per annum. Lot 6. A comfortable Farmhouse called Perry Oaks Farm, with well-arranged homestead, gardens, and orchard, and 35 acres of prettily-timbered meadow and arable land, having a total frontage of 2324 feet on two sides to the high road from Stanwell to Harlington and Harmondsworth; the rent to this lot is £133. The whole estate is tithe-free, is intersected by two rivers, and underdrained throughout, and has a subsoil of gravel. The land is exceedingly fertile, in a good state of cultivation, and would command a high rent for market garden purposes, while from its proximity to London it must yearly increase in value, thus offering unusually sound investments.

Particulars, plans, and conditions of Sale may be had at the Mart; of E. LAKE WALKER, Esq., Solicitor, 8, New Square, Lincoln's Inn, W.C.; of C. C. HORNE, Esq., Land Agent, Littleton, near Staines; and of the Auctioneers, 11, Queen Victoria Street, E.C.

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FOR SALE, a NURSERY and SEED BUSINESS. Dwelling House, four Greenhouses, Seed Shop, and 17 acres of Nursery Ground and Meadow Land. Rent £110 a year. Stock at a valuation, about £1000.—For detailed particulars apply to

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TO BE SOLD, a valuable piece of **GARDEN GROUND** at Perry Hill, Sydenham, of rich quality, with Two Greenhouses and a Large Building. First-class water supply, and a frontage of 600 feet. Freehold.

Apply on the Premises, Meadowcroft, Perry Hill, Sydenham, S.E.

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FREEHOLD RESIDENCE, Handsome, Detached. Four Reception, twelve Bed and Bath Rooms, good Offices, excellent Stabling, large Conservatory and Orchard-house, Garden of 2 acres well stocked. Close to Station. Rent moderate.

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MR. CHARLES BURLEY, HORTICULTURAL AUCTIONEER and VALUER, undertakes SALES, in any part of the country, with strict economy. Office: Brentwood, Essex.

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CARNATIONS and PICOTEES, fine named sorts, in pots, 6s. per dozen plants.

PINKS, in pots, to name, 3s. 6d. per dozen.

DAHLIAS, in great variety, 3s. per dozen, 20s. per 100.

IRISINE LINDENI or WALLISII, ALTERNANTHERA

MAGNIFICA, extra strong, in pots, 2s. 6d. per dozen, 15s. per 100; out of pots, 10s. per 100.

GERANIUMS, in sorts, our selection, for bedding, 15s. per 100.

COLEUS, including Kentish Fire, Geo. Bunyard, Lord Fal-

mouth, Royalty, Garnet, in 12 fine sorts, 3s. per dozen.

AGERATUMS, strong, from stores, 5s. per 100.

PERILLA, 4s. per 100.

GOLDEN PYRETHRUM, 3s. 6d. per 100.

BEE, Dell's, 5s. per 100.

HELIOTROPES and LANTANAS, from single pots, in variety, 2s. per dozen, 10s. per 100.

CATALOGUES post-free.

WM. CLIBRAN and SON, Oldfield Nursery, Altrincham.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

President—H.R.H. the PRINCE OF WALES, K.G.

INTERNATIONAL AGRICULTURAL EXHIBITION

TO BE HELD IN

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SEVEN DAYS ONLY,

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Salisbury Road, Queen's Park, and West Kilburn (London and North-Western Railway), and Kensal Green Station (North London Railway) adjoining; Westbourne Park (Great Western Railway) and West End (Midland Railway), 1 mile distant.

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HORSES.

CATTLE, SHEEP, and PIGS.

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| MONDAY, | June 30 .. | 5 | 0 |
| TUESDAY, | July 1 .. | 5 | 0 |
| WEDNESDAY, | " 2 .. | 2 | 6 |
| THURSDAY, | " 3 .. | 2 | 6 |
| FRIDAY, | " 4 .. | 1 | 0 |
| SATURDAY, | " 5 .. | 1 | 0 |
| and | | | |
| MONDAY, | " 7 .. | 1 | 0 |

Non-transferable Season Tickets, available for admission and re-admission on each day of the Exhibition, price 10s. 6d., may be obtained at all the principal Libraries, and at the Offices of the Royal Agricultural Society, 12, Hanover Square, W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

The NINETEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms, on **MONDAY, June 30**, at a quarter to 7 o'clock. The Right Hon. the MARQUIS of HARTINGTON, M.P., in the Chair.

Dinner Tickets, 21s., application for which must be made to the Secretary, at the Offices of the Institution, 26, Charles Street, St. James's, London, S.W.

ROYAL AGRICULTURAL SOCIETY of ENGLAND, KILBURN PARK.

June 30 and following days.

The Subscribers' Office in the Yard will be on the Horticultural Embankment, where they will exhibit an interesting

COLLECTION of CONIFEROUS TREES,

and they invite their friends, and all interested, to give them a call during the week.

The Collection will be Sold at the close of the Show, and a favourable opportunity will thus be given for Gentlemen adding to, or forming a new Pinetum, or improving their grounds.

LITTLE & BALLANTYNE, SEED GROWERS and NURSERYMEN, CARLISLE.

Legion of Honour. We have the honour to announce that our Managing Partner, Mr. MARTIN J. SUTTON, has been made a Knight of the Legion of Honour, in special recognition of the peculiar merits of our exhibits at the above exhibition. See *Times* Paris Telegram, January 11, 1879.

In addition to the above special distinction, we may mention that Five Medals, Gold and Silver, were awarded (three to ourselves and two to our Paris Agent) for our Home Grown Seeds, Grasses, Roots, &c.

SUTTON and SONS, The Queen's Seedsmen, Reading, London and Paris.

GREEN TARRAGON for SALE.—About a quarter of an acre, in good condition for cutting. Apply, with offers, to GEO. P. DAREY, Hertfordshire Seed and Plant Establishment, Watford.

Cabbage and Other Plants, Now Ready.

FREDK. GEE has much pleasure in again offering Plants of his superior and far-famed selected Stocks, which can be supplied in any quantities as follows, for cash:—**CABBAGE**, large Drumhead and Enfield Market; **KOHL RABI**, large Green; **KALE**, Thousand-head, Scotch, and Cottager's, very hardy; **SAVOY**, large Drumhead and Dwarf Green Curled; all the foregoing at 3s. 6d. per 1000. **BROCCOLI**, Purple Sprouting, 5s. per 1000; Early and Late White ditto, 7s. 6d. per 1000; **CAULIFLOWER**, Early London and Walcheren, 10s. per 1000; Veitch's Autumn Giant, true, 20s. per 1000; **CELERY** Plants, fine Manchester Red and White, all transplanted, 10s. per 1000. Package free for cash with orders. Special prices to very large buyers, stating quantity required; also **CATALOGUE** of Seeds, Plants, &c., on application to **FREDK. GEE**, Seed and Plant Grower, Biggleswade, Bedfordshire.

Special Offer to the Trade.

HARDY BULBS and FLOWER-ROOTS.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers the following:—**COLCHICUM AUTUMNALE**, fl.-pl., 14s. per 100. **CROCUS**, blue, 10d. per 100, 7s. per 1000. **VERICOLOR**, 10d. per 100, 7s. per 1000. **DIELYTRA SPECTABILIS**, fl. 5s. per 100, £10 per 1000. **HEMEROCALLIS FLAVA**, 10s. per 100. **FULVA**, 7s. per 100. **IRIS GERMANICA**, the best named varieties, 9s. per 100. **LIATRIS SPICATA**, 17s. per 100. **LILIUM AURATUM**, home-grown, £5 to £12 10s. per 100. **MARTAGON**, home-grown, £1 per 100. **TIGRINUM**, 7s. per 100. **TIGRINUM**, fl.-pl., £3 7s. per 100. **SPLENDENS**, £2 10s. per 100. **UMBELLATUM ATRO-SANGUINEUM**, £1 per 100. **GRANDIFLORUM**, £1 5s. per 100. **NARCISSUS BIFLORUS**, 2s. 6d. per 100. **ODORUS** (Campenel Jonquil), 2s. 6d. per 100. **POETICUS**, fl.-pl., 5s. per 100, £2 2s. per 1000. **ORCHIS MACULATA**, home-grown, 9s. per 100. **ORNITHOGALUM SPLENDENS**, 1s. per 100. **UMBELLATUM REFRACTUM**, 10d. per 100. **PLATYCODON GRANDIFLORUM**, flore ceruleo, 14s. per 100. **POLYGONATUM MULTIFLORUM**, 2s. p. 100, 13s. p. 1000. **SAXIFRAGA GRANULATA**, fl.-pl., 2s. per 100, 13s. per 1000. **SCILLA CAMPANULATA**, flore albo, 5s. per 100. **SCILLA**, flore atro-ceruleo, 3s. 6d. per 100. **SCILLA**, flore ceruleo, 4s. 6d. per 100. **SPIRÆA FILIPENDULA**, fl.-pl., 9s. p. 100, £3 7s. p. 1000. **TRITELEIA UNIFLORA**, 2s. per 100, 10s. per 1000.

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ALTERNANTHERA, splendid stuff, turned out of single pots: **MAGNIFICA** and **PARONYCHIOIDES**, 5s. per 100. **AMCENA** and **VERICOLOR**, 7s. per 100. **IRENE LINDENI**, 7s. per 100. **VERBENA**, 6s. per 100. **WILLIAM HOLMES**, Frampton Park Nursery, Hackney, E.

New Double Scarlet Zonal Pelargonium "Vesta."

Raised by T. Laxton, Esq., and awarded a First-class Certificate by the Royal Horticultural Society. **MESSRS. HAWKINS and BENNETT** have purchased the entire stock of this, unquestionably the finest of all ZONAL PELARGONIUMS, of compact habit, handsome foliage, free-flowering, and brilliant semi-double scarlet, adapted for all purposes. Prices, for cash, from 25s. to 65s. per dozen. Special terms to the Trade. Apply, Messrs. HAWKINS and BENNETT, Lily Gardens, Twickenham, S.W.

Hardy Bedding Begonias.

RODGER, McCLELLAND and CO. are now prepared to supply above in quantity. These were grown out-of-doors last season, have been preserved through the winter without fire, are now starting nicely into growth in the open air, and have not been under glass or coddled in any way. All are bulbs that bloomed last year. They can be supplied in assorted colours—pink and rose, magenta and carmine, crimson and scarlet, white, yellow, orange, &c. Low prices per dozen or per 100 on application. 64, Hill Street, Newry.

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SPIRÆA JAPONICA, 9d. per dozen sprays. **PELARGONIUM**, 9d. per dozen sprays. **GERANIUM**, Scarlet, 4s. per dozen bunches. **GARDENIAS**, 2s. per dozen. **ROSES**, 3s. per dozen. **MAIDENHAIR FERN**, 6s. per dozen bunches. **BOUVARDIAS**, Scarlet, 12s. per dozen bunches. **SPIRÆA JAPONICA**, 48-pots, in bloom, 6s. per dozen. **PELARGONIUM**, Duchess of Edinburgh and Reine Blanche, 9s. and 12s. per dozen. **C. WILSON**, The Nurseries, Summerhow, Kendal.

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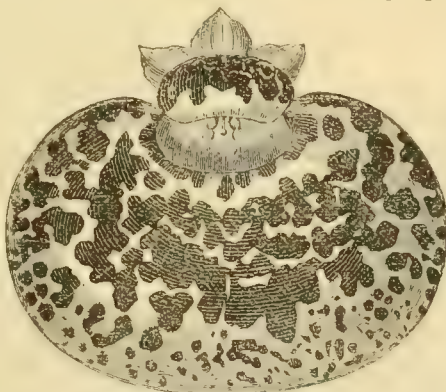
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NEW AND CHOICE SEEDS
For 1879, Post-free.

AURICULA, Show, finest mixed, 1s. 6d. per packet.
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POLYANTHUS, Wiggins' Prize Strain, 1s. per packet.

Victoria and Paradise Nurseries,
UPPER HOLLOWAY, LONDON, N.

Odontoglossum Alexandræ.
HUGH LOW and CO. have recently received from their Collector in New Granada large consignments of **ODONTOGLOSSUM ALEXANDRÆ**, and they are now in a position to offer many thousands of plants, varying in size, and in different stages of growth. Many other choice ORCHIDS have been recently received, amongst them the undernamed, many of which can be supplied by the hundred. Prices on application, inspection invited.

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| " " roseum. | Odontoglossum bicornis. |
| " " crassifolium. | " cirrhosum. |
| " " virens Dayana. | " gloriosum. |
| Calanthe vestita , varieties. | " Hallii. |
| Cattleya Dowiana. | " roseum. |
| " " gigas. | " Schleipermania. |
| " " Harrisoniana. | " vexillarium. |
| " " labiata, varieties. | Oncidium Cheiroporum. |
| " " Triana. | " Krameri. |
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| " " barbatulum (Fytchiana). | " varicosum. |
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GERANIUMS, New Double, best named varieties, may now be seen in bloom, twelve for 7s. 6d.; White Vesuvius, twelve for 5s. 6d., larger 7s. 6d. **LOBELIAS** from cuttings, Brighton and pumula magnifica, 2s. 6d. per 100. **COLEUS**, the choicest, twelve for 4s. Send for List. Carpet bedding:—**ALTERNANTHERAS**, from pots, 12s. **MENTHA**, 5s.; **STELLARIA**, 2s. 6d.; **PYRETHRUM**, golden, 2s. per 100. **ASTERS** and **STOCKS**, imported seed, 2s. 6d. per 100, 1s. 6d. per 50. Post parcels free over 5s. Cash with order to **GEO. GUMMOW**, 114, Loughborough Road, Brixton, S.W.

Hardy Evergreen Fig.
FICUS MINIMA may fairly be called a hardy plant! It has survived the severe and protracted frost of last winter on our rockwork, where it was only partially protected by snow. As a Creeper it will surely become popular, for its shoots adhere to rocks or walls like Ivy, and grow quite freely under ordinary conditions. As a covering for the walls either of warm or cool greenhouses it is also excellent, from its compact dense habit. Its leaves are scarcely more than half an inch long. Price 1s. 6d. to 2s. 6d. each, 12s. to 24s. per doz. **CATALOGUE** of Alpine and Herbaceous Plants for 1879 on application. **JAS. BACKHOUSE and SON**, York Nurseries.

FORTY THOUSAND Dwarf, Tea-scented, and other **ROSES**, in pots, at 15s. to 18s. per dozen, or £5 per 100. Extra fine Tea-scented **ROSES**, well established in 6-inch pots, for Greenhouse culture or Conservatory, at 30s. per dozen. Address **WM. WOOD and SON**, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHOICE FLOWER SEEDS.

FOR PRESENT SOWING.  FOR PRESENT SOWING.

Post-free at prices quoted. Per Packet.
AURICULA, choicest Alpine, from a fine collection of s. d. named flowers 1s. and 2 6
BEGONIA, Tuberous-rooted Hybrid, mixed 1 6
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CARNATIONS and **PICOTEE**, from finest stage flowers 1s. 6d. and 2 6
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TREES and SHRUBS,
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ORCHID and AZALEA PEAT, YELLOW FIBROUS LOAM, LEAF and PEAT MOULD, SILVER SAND. BLOOD and BONE MANURE for Roses, Fruit Trees, &c. DISSOLVED BONES, BONE DUST, and HALF-INCH BONES for Vines.

GUANO, NITRATE of SODA, CLAY'S FERTILISER. TOBACCO CLOTH and PAPER for Fumigating. RUSSIA MATS, VIRGIN CORK, SPHAGNUM MOSS. TEAK RODS for Orchid Baskets, Wood and Zinc LABELS, FLOWER STICKS, &c.

Any of the above supplied in Large or Small quantities. Write for Free Price List.

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PEAT SOIL, PEAT SOIL.—

BROWN FIBROUS, good quality, for Orchids, Pot Plants, Ferns, &c., £6 6s. per truck. BLACK, good quality for American Plants, Rhododendrons, Azaleas, Heaths, &c., 17s. per ton, or 6-ton truck for £4 10s. Delivered on rail at Blackwater, S.E.R., or Camberley, S.W.R., by the truckload. Cash with order. Sample sack, 5s. 6d., or four sacks, 20s.

HOLDER AND SON, Crown Nurseries, Reading.**PEAT.—South of England Horticultural Peat**

Lands.—C. R. HOLLOWAY, Christchurch, Hants.—BROWN, FIBROUS, Light-weighting Peat, of excellent quality, for Orchids, Ferns, &c., well cut in Turfs and carefully loaded into Railway Trucks, at 17s. 6d. per ton, in loads of 4 Tons and upwards. Sample bag, 5s.; five bags, 21s.; 12 bags, 40s. Some also, of good quality, at 13s. 6d. per ton, four tons and upwards. "Carriage rates given."

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c., £6 6s. per truck. **BLACK FIBROUS PEAT**, for Rhododendrons, Azaleas, Heaths, American Plant Beds, 15s. per ton.

Delivered on rail at Blackwater, S.E.R., or Farnborough, S.W.R., by the truckload. Sample bag, 4s.; 5 bags, 20s.; 10 bags, 36s. Bags, 4d. each.

FRESH SPHAGNUM, 10s. 6d. per bag.**WALKER AND CO., Farnborough Station, Hants.****COCOA-NUT FIBRE REFUSE, as**

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COCOA-NUT FIBRE REFUSE.—

Reduced Price:—In 4 bushel bags, bags included, at 1s., 20 bags £1, or truckload of about 250 bushels, 25s. (truckload delivered free to rail in London). Post-office Order or Cheque will oblige with all orders.—J. STEVENS AND CO., Greyhound Yard, and 134, High Street, Battersea, S.W.

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FOR PLANT CULTIVATORS.

No other insecticide will bear comparison with this in killing properties, with perfect safety to foliage. No known blight can resist it, and it is the cheapest in the market.

Price, in jars, containing 8 oz., 1s. 6d., and 20 oz., 3s.; drums, 28 lb., 25s.; and 2 oz. sample jars, 6d. each. Two ounces sufficient for one gallon of water for ordinary use.

THE LONDON GROUND TOBACCO.**THE LONDON TOBACCO JUICE.****TOBACCO PAPER, CLOTH, and CORD.**

Wholesale from the Manufacturers,

CORRY & SOPER,**SHAD THAMES, LONDON, S.E.;**

And Retail from all Seedsmen and Florists.

NEW FIG—"OSBORN'S PROLIFIC."

Fruiting Plants in Pots now being distributed.

Price, 7s. 6d. and 10s. 6d. each. The usual Trade discount.

See Description given by Dr. HOGG, in the "Gardeners' Year Book for 1879," under the heading of "New and Notable Fruits," as follows:—

"Fruit roundish turbinate, tapering into a very long neck, some specimens measuring as much as 3½ inches from the eye to the end of the stalk. Skin dark mahogany, gradually shading off to pale brown towards the neck, which is bright Pea-green. The body of the fruit is thickly dotted and speckled with grey or white dots and speckles. Flesh quite opaline without any trace of red, with a rich sugary juice and excellent flavour.

"This is a very valuable variety of the Fig, as it is not only an abundant bearer and is well adapted for pot culture, but it ripens well in a cool greenhouse. Like all Figs, however, it answers to better treatment, and the usual amount of heat will be accompanied by a proportionate increase of flavour. The fruit from which this description was taken, was grown on the back wall of a cool greenhouse along with late Peaches, and even under these circumstances it was equal to some of the finest varieties grown in more favourable situations."

The following is extracted from an article in the "Gardeners' Magazine," June 1, 1878:—

"In the collection is a very promising variety, not yet in commerce, which it is intended to distribute in the autumn under the designation of 'Osborn's Prolific'; it is distinct in foliage and in the shape of the fruit, and it is so remarkably productive that even the smallest plants are carrying fruit."

OSBORN & SONS,
THE FULHAM NURSERIES, LONDON, S.W.

**TREE FERNS and PALMS.**

THE LARGEST AND BEST STOCK IN EUROPE.

ALSO MANY OTHER

**MAGNIFICENT SPECIMEN ORNAMENTAL PLANTS**

Adapted for the Decoration of Conservatories and Greenhouses, or suited for Sub-tropical Gardening.

WILLIAM BULL, F.L.S.,

Respectfully invites the Nobility and Gentry to an inspection of the above.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

IMPORTANT TO ALL ADMIRERS OF CLEAN HEALTHY FOLIAGE

FOR PLANTS SPEED'S FLOWERS & C.

PARASITE ANNIHILATOR

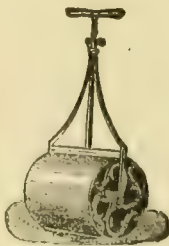
An effectual and expeditious Remedy against Mealy Bug, Red Spider, Green Fly, American Bug, Thrips, Scale, and all Parasites infesting Vines, Plants, Shrubs, &c. The following Testimonial, amongst others, has been received:—"From Mr. D. THOMSON, Gardener to His Grace the Duke of Buccleuch, Drumlanrig Castle.—'I duly received the jar of your Insect 'Annihilator' and sprayer, and after having tested it according to your directions, I find it to do most effectually all that you claim for it. I applied it to mealy-bug, the grey scale, thrips, and red-spider, and its effects are quite magical. It seems to dissolve the mealy-bug into a reddish-brown pulp in a minute, the thrips does not live in it even two minutes, and the scale seems 'done for' in about ten minutes, after which time it washes off, scale and all, perfectly clean on being syringed with clean water. We tried it on Ferns, Eucharis, Dracenas, Marantas, and Crotons, and not one of these are in the least injured.' Sold in Bottles, containing one pint at 1s. 6d., 1 quart at 2s. 6d., and 2 quarts at 4s. 6d., each with full directions for use. Vaporisers for applying the Annihilator, 2s. each."

SPEED'S VINE and ROSE MILDEW ANNIHILATOR.—An effectual and instantaneous destroyer of Mildew. It is perfectly harmless to the Grape Vine, the Rose, and the Peach, and may be applied to the most tender foliage. The fruit may be dressed with it in any state with perfect safety, even before the thinning period. It is non-poisonous to animals, although it is instantly destructive to all Fungi. It is simple and easy to apply, and may be rinsed off in ten minutes after its application, leaving no sediment, taste, or smell. It will be found of inestimable service in checking all disease caused by Fungi in the Rose, Grape, Peach, Hollyhock, Potato, &c. Testimonial from ROBERT HOGG, Esq., LL.D., F.L.S., &c., Pomological Director of the Royal Horticultural Society.—"I have great pleasure in bearing my testimony to the magical effect which your mixture has upon the Mildew of the Vine. When I was at Chatsworth a few months ago, the application of the mixture, through a Spray Distributor, on the foliage of the Vine, was so destructive and so instantaneous, as to leave no doubt on my mind as to its perfect efficacy in destroying the Mildew. On examining the foliage with a magnifying glass after the application, I could find no trace of the disease." Sold in Bottles at 2s., 3s. 6d., 6s., and 10s. each; to make 1 quart, ½ gallon, 1 gallon, or 2 gallons, ready for use. Full directions for use enclosed with each bottle. Vaporisers for applying the Annihilator, 2s. each.

N.B.—The "Parasite Annihilator" and the "Mildew Annihilator" are quite distinct preparations, and are prepared only by ALFRED LOWE, Chemist, Chesterfield. May be obtained through any Chemist or Seedsmen. London Agents:—F. Newbery & Sons, W. Edwards & Son, J. Sanger & Sons, W. Sutton & Co., J. Veitch & Sons, Hurst & Son, Corry & Soper, Dick Radcliffe & Co.

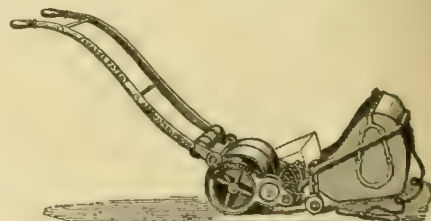
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By Special Warrant, dated December 27, 1865.



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INVENTORS AND SOLE PROPRIETORS OF THE "ORIGINAL"

STOCK-BREEDERS' MEDICINE CHESTS,

For ALL DISORDERS in HORSES, CATTLE, CALVES, SHEEP, and LAMBS,

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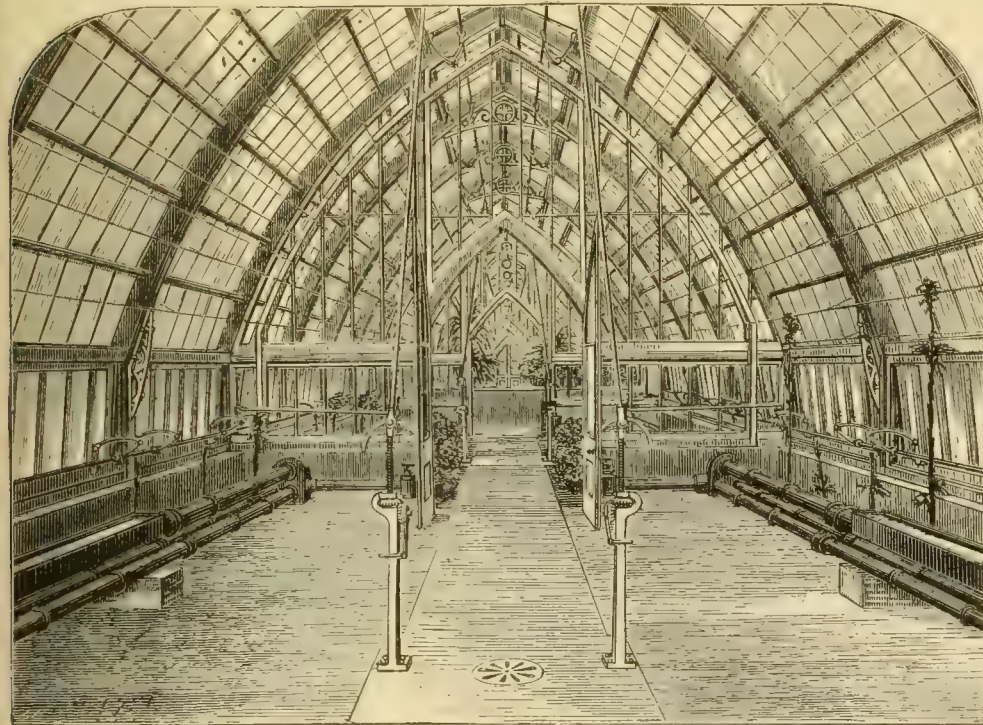
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FLORVITA.

IMPORTANT TESTIMONIAL.

"Culford Gardens, near Bury St. Edmunds.

"Gentlemen,—Some months since you were kind enough to send me a bottle of your 'Florvita,' and at a subsequent period, when your representative called here, I had not then had sufficient experience with it to be able to form an opinion of its value as a fertiliser.

"Since that time I have tried it on various kinds of plants, and I must admit that its effect upon them has very much exceeded my expectations. To apply a stimulating manure to a collection of plants of any kind, and to find that these plants succeed well, and at once to ascribe this result to the application, is an assumption not altogether justified, at all events it is not a fair trial as to the effect of the fertiliser, as it might of course be assumed that the plants might have done equally well in the absence of the application.

"My experiments have been conducted upon various sets of plants of the same species, same age, potted in the same compost (or description of soil), and growing in the same structure, applying the 'Florvita' as directed to a portion of the plants only, and the effect produced upon this portion was very soon apparent.

"Our early Cucumbers here are always grown in large pots placed upon a hot-water tank. To one half of the pots the 'Florvita' has this season been applied twice a week, and the difference between the moieties of plants is very remarkable as regards the healthy appearance of the plants, as well as the production of fine fruits.—I am, gentlemen, yours respectfully,"

"Messrs. PRENTICE BROS.

One teaspoonful of the Florvita to be added to each gallon of water used. The Plants should be watered with it three times a week or more.

Samples, post-paid, 1s. 2d. Prepared only by
PRENTICE BROS.,

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Sold by all Florists and Seedsmen in the United Kingdom, in 1s. and 2s. 6d. Bottles, and in 18s. and 36s. Jars.

EWING'S MILDEW COMPOSITION,

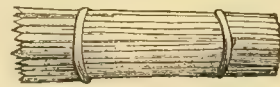
In bottles, 1s. 6d. and 3s. each; one-gallon cans (to make 104 gallons of mixture for syringing), 12s. each; two-gallon cans, 20s. each. Mildew or Red Spider are also effectually prevented or destroyed by merely painting the hot pipes with the composition mixed with whitewash; no direct application to the foliage is then necessary.

EWING and COMPANY, Royal Norfolk Nurseries, Eaton, Norwich.

GISHURST COMPOUND.—

Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen in Boxes, 1s. 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).



WOOD TRAINING STICKS and

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The above Labels are made of a White Metal, with RAISED BLACK-FACED LETTERS.

The *Gardeners' Magazine* says:—"We must give these the palm before all other plant labels, as the very first in merit."

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Gather Honey from Your Flowers.

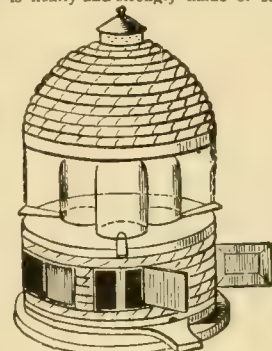
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Three Silver Prize Medals awarded George Neighbour & Sons.

The IMPROVED COTTAGE BEEHIVE, as originally introduced by G. Neighbour & Sons, working three bell-glasses, is neatly and strongly made of straw; it has three windows in the lower Hive. This Hive will be found to possess many practical advantages, and is more easy of management than any other Beehive that has been introduced.



Price, complete £1 15 0
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Also BAR FRAME HIVES of most approved construction, at 7s. 6d., 12s. 6d., to 25s. each, and Philadelphia Frame Hives, complete with Cover and Stand, 42s.

An Italian Alp Queen, with full directions for uniting to Black Stocks, at current prices.

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SPECIAL NOTICE.

THE GARDENERS' CHRONICLE

For Saturday, JULY 12, 1879, will contain

A COLOURED PLATE

OF

"GARDEN TULIPS,"

By FITCH. ALSO A

FULL SPECIAL REPORT OF THE ROYAL HORTICULTURAL SOCIETY'S SHOW

AT

Kensington, on Tuesday, July 8.

PRICE, FIVEPENCE; POST-FREE, FIVEPENCE-HALFPENNY.



NOTICE TO ADVERTISERS.



As a large Extra Sale of this Number is guaranteed, it will be a very valuable medium for Advertisements.

APPLICATIONS FOR SPACE SHOULD BE SENT IN AS EARLY AS POSSIBLE.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, LONDON.

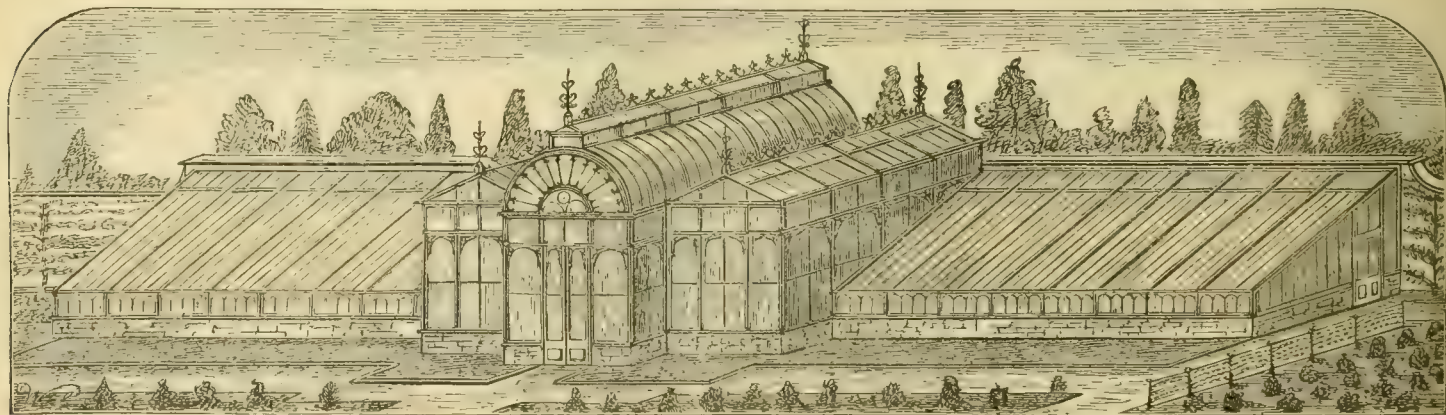
May be ordered of all Newsagents and at the Railway Bookstalls.



HENRY ORMSON,

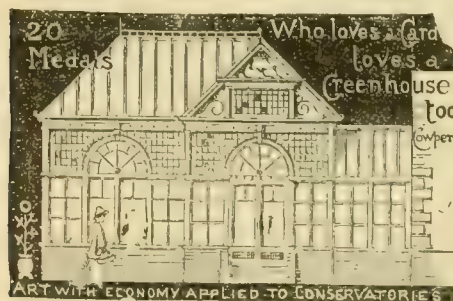


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Giant Early Marrow.

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DANIELS' DEFANCE CABBAGE. Is the finest and best Cabbage in the world for all purposes, beating every other variety for earliness, quality, flavour, and size.

Price, in our own Sealed Packets, 1s. 6d. each; 2s. 6d. per oz.

ONIONS, for Sowing in July and August.

Zitteau Giant Yellow.

A new and magnificent variety, attains a large size, and remains sound till June. Seed, with full cultural directions, 2s. per ounce, post-free.

Giant Rocca (of Naples).

Extra fine selected stock, grown expressly for DANIELS BROS., frequently attains 2 lb. to 3 lb. in weight. Seed, with complete cultural directions, 1s. 6d. per ounce, 16s. per pound post-free.

Red Wethersfield, new American variety, very late

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| keeper | 1s. 6d. per oz. |
| White Lisbon | 6d. " |
| Giant Italian Red | 1s. " |
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| New Queen, very early, for Spring use | 2s. " |

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| Bath Cos | 6d. packet | 1s. 6d. per oz. |
| Daniels' Black Seeded Texter | 6d. " | 2s. 6d. " |
| Wheeler's Tom Thumb | 6d. " | 1s. 6d. " |

All other Seeds for Autumn Sowing can be supplied.

DANIELS BROS.,

THE QUEEN'S SEEDSMEN, NORWICH.

CHOICE FLOWER SEEDS.

POST-FREE.

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| ANTIRRHINUM, choicest mixed | 0 6 to 1 0 | |
| AURICULA, choicest mixed | 2 6 .. 5 0 | |
| BEGONIA, choicest tuberous rooted | 2 6 .. 5 0 | |
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| CINERARIA, choicest mixed | 1 6 .. 5 0 | |
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(In separate colours or mixed).

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| " " Fern-leaved | 1 6 .. 5 0 |
| " " Double | 2 6 .. 5 0 |
| STOCK, East Lothian | 1 0 .. 2 6 |
| " Brompton, Double German | 1 0 .. 3 6 |
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Choice Biennials, Perennials, and all other Seeds for present sowing, in great variety.

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Descriptive and Priced Catalogue for 1878
now ready.

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ENGLISH PEDIGREE SEEDLING ROSES

BEAUTY OF STAPLEFORD.
DUKE OF CONNAUGHT.
DUCHESS OF CONNAUGHT
DUCHESS OF WESTMINSTER.
HONOURABLE GEORGE BANCROFT.
JEAN SISLEY.
MICHAEL SAUNDERS.
PEARL.
VISCOUNTESS FALMOUTH.

Are now being distributed. Price, 10s. 6d. each; the set, £4 4s.
Descriptive LIST gratis and post-free.

H. BENNETT, Manor Farm Nursery, Stapleford, Salisbury

SUTTON'S FLORISTS' FLOWER SEEDS

POST-FREE.

The Finest Primula of the Season.



SUTTON'S RUBY KING.

Awarded a First-class Certificate, and a Large Silver Banksian Medal, by the Royal Horticultural Society, January 14, 1879.

This Primula has been pronounced by those who have seen it growing by the side of the most noted varieties, as unquestionably the finest of all. It was raised by ourselves, and first offered to the public in January last.

Price per packet, 5s.

From the *Gardeners' Magazine*, January 18, 1879.

"Messrs. Sutton & Sons presented their new Primula, Ruby King, to the Floral Committee on Tuesday last, and obtained for it a First-class Certificate. Having seen the stock in the nurseries at Reading, and become fully persuaded that this is the finest strain of Chinese Primula hitherto produced, we cannot but regard the award of the committee as a matter of course."

From the *Gardeners' Chronicle*, January 18, 1879.

"The special subject invited to-day was Chinese Primulas, and a very good display was brought forward. Perhaps the group which created the greatest amount of interest was a batch of about thirty admirably grown plants of Messrs. Sutton & Sons' striking new variety, Ruby King, the merits of which we have already discussed. As shown, it well deserved the praise that has been bestowed upon it, and a First-class Certificate was awarded to it."

SUTTON'S PRIZE CALCEOLARIA.

Perfection 5s. and 2s. 6d. per packet.
Little Wonder 5s. and 2s. 6d. per packet.

From the "Garden."

"The Calceolarias of Messrs. Sutton & Sons' Nurseries, Reading, are just now beautifully in bloom, and should be seen by all who take an interest in this class of plants. The strain is one of the best, being the result of years of careful selection. Many of the individual flowers measure 2½ inches across, and are perfect in shape and colour."

"Your Calceolarias were really beautiful, and took first prize at Gosport Show."—Mr. N. WATERS, *Gr. to* Sir E. Commerell.

SUTTON'S PRIZE CINERARIA.

Sutton's Superb 5s. and 2s. 6d. per packet.
Sutton's Double 5s. and 2s. 6d. " "
Giant Hybrid 2s. 6d. per packet.

"Our Cinerarias this year were the admiration of every one."—Mr. E. LEWIS, *Gr. to* J. H. Cadman, Esq.

SUTTON'S PRIZE GLOXINIA.

Drooping Flowering 5s. and 2s. 6d. per packet.
Horizontal Flowering 5s. and 2s. 6d. " "
Erect Flowering 5s. and 2s. 6d. " "
Mixed 5s. and 2s. 6d. " "

From Mr. J. B. WARD, *Lower Edmonton*, April 8.

"Gloxinias from your seed, raised last spring, just coming into flower, are perfectly marvellous. The flowers are 3 to 3½ inches in diameter, and the colour of the bloom is quite equal to your plates."

SUTTON & SONS

THE QUEEN'S SEEDSMEN,

And by Special Warrant to

HIS ROYAL HIGHNESS the PRINCE of WALES,
READING.



SATURDAY, JUNE 28, 1879.

PRESTON HOUSE, CIRENCESTER.

A DAY not brightened by a single gleam of sunshine, a day in which dull leaden clouds poured down in a scarcely intermittent manner an all too copious rain, is not exactly the one which would be chosen whereon to inspect a notable garden. Still, such adverse circumstances are not without their compensating advantages. In the present case they compelled the visitor to concentrate attention on distinctive points, and induced him to pass over with comparatively less attention matters not so specially characteristic of this particular garden.

Those of our readers who may have noted, from time to time, in our columns the record of the numerous beautiful and interesting plants which Mr. Elwes shows before the Floral and Scientific Committees, may feel some interest in learning somewhat of the conditions under which such plants are grown. Not that there is any mystery in the matter, no wonderful "dodges," no growth-compelling devices, but simply zeal, knowledge, and judgment. The zeal is evidenced amid many other indications by Mr. Elwes' own collections in Asia Minor, in the Himalaya, and elsewhere; the knowledge is shown by the excellent selection of plants to be grown; the judgment, by the manner in which they are grown. At first sight the collections do not appear large (though this impression is soon modified), but the selection for beauty or for botanical interest is at once apparent. Little or nothing inferior or of the nature of rubbish is grown at Preston. True, numbers of plants are undergoing probation, but the novices and the awkward squad are somehow kept out of sight, and only the efficient are allowed to strike the eye. The judgment is shown not only in the careful selection already alluded to, but in the judicious avoidance of the temptation to try too much, in the abnegation required to renounce indulgence in what might prove an unmanageable variety of subjects. An ordinary greenhouse next the house with contents of a general, but, as a rule, not remarkable character, gives but little indication of the treasures to be seen elsewhere, but here, by way of exception, we may note a plant of *Disa macrantha*, one of the most *recherché* of Orchids, with a spike of helmet-shaped flowers of a cream colour spotted with lilac. This little known plant is a true gem, which in the hood-like shape of its flowers resembles some of the *Natal Gladioli*.

Another house—designed, we believe, by Mr. Green, the gardener to Sir George Macleay—is more thoroughly characteristic of the owner's tastes. It is a lean-to, with raised beds, supported by low retaining walls; one such bed runs along the back wall of the house, others are disposed at right angles to it, with paths between, so that access is easily gained to each bed; a single flow and return-pipe runs along the top of the beds, just beneath ventilators of perforated zinc, which latter are scarcely ever closed, though provision is made for doing so if requisite. The sashes are made to slide up and down readily, so that in propitious weather the whole interior of the house can be practically turned inside out! though without disturbing the contents—to the great confusion and disappointment of thrips and red-spider. Planted out in these beds, and thriving luxuriantly, is a wealth

of bulbous plants, Crinums, Pancratiums, Irids, Moræas, Watsonias, Nerines, Bomareas, Hæmanthi, Scitamineous things, such as Hedy-chiums, Roscoeas, a rare collection of elegant and curious Aroids from Sikkin, and fine plants of various species of Anigosanthis, brilliant in colour and lasting in endurance. Things appear and disappear in the beds in a way which excites the interest and sometimes the apprehension of the proprietor: a particular plant will in one season appear in its appointed place by the side of its recording tally—the next year it is not to be found perhaps, but the year after up it comes in some distant part of the border or bed in juxtaposition, perhaps, to a label which conveys a very wrong impression of the plant's name and lineage. Such accidents, however, only add to the interest, and in small private establishments are not so productive of inconvenience as they would be in a larger house. The Bhotan Primrose, *P. mollis*, was one of the prettiest ornaments of the house at the time of our visit, with its softly pubescent leaves and rosy-lilac flowers. This house is, as to its contents at least, unique in our experience; interest and variety, rather than mere effect, are here studied, the plants grown being of a select class, without intermixture with the more ordinary occupants of such structures. The health and condition of the plants show how thoroughly they appreciate the attention given them, after all much less than would be required in the case of pot plants.

Outdoors the principal features are the rockery, the bulb frames, and the herbaceous border. The rockery fills up one angle of the lawn, just where in most places a geometric flower-bed would be placed. This corner position ensures two sides and four aspects to the rockery, which is of moderate height, and so arranged as not to present any want of harmony with the severe architectural lines of the house in front of which it is placed. There is none of that unbalanced, untidy look, which some rockeries have. This has the freedom of outline that such a construction should have, duly tempered by the circumstance that it occupies a position in the dressed garden on the lawn. In the same way with singular, though perhaps unconscious art, the plants which clothe this rockery are so evenly balanced as to size and so skilfully disposed as to "habit" that each seems to fit into and fill its appropriate position without encroaching on its neighbour. We all know how in most rockeries the strong overpower the weak to such an extent that the latter are often crowded out of existence. Mr. Elwes has some system of "handicapping" by which he secures something like uniformity of growth, and no undue advantage of one plant over another is allowed. This is an evidence of constant supervision and care, and is rendered possible by the fact that the rockery is not too large to obviate easy access to every part of it. It is already well tenanted with species of which we do not intend to inflict a catalogue on our readers, suffice it to say that in addition to the characteristics we have mentioned there is this most desirable one, that there is scarcely a day in the year on which something or other may not be found in bloom. Its noblest occupant, as we saw it, was undoubtedly the stately *Meconopsis nepalensis*, concerning which more was said in a recent number.

Placed in an angle between two walls with a southerly aspect, with a dry oolite bottom, is what we may term the frame-yard. The occupants of the frames are for the most part bulbous plants from Asia Minor, from Turkestan, from the Cape, from Chili, California, and elsewhere; it seems not to matter from whence—here they all revel in the unheated frames with the lights thrown off so as to give, at this season, free access to all the light and air and, now, rain of heaven. Here then is the caravanserai whence come those numerous Tulips and Muscaris, those Fritillaries and Alliums which appear from time to time in such variety and profusion at the Scientific Committee. Here is the lovely *Cypripedium* spec-tabile, throwing up bloom after bloom in rich profusion. Here are *Galanthus Elwesii* and the *Chionodoxa Lucille* ripening their seed. Here raises

its pyramid of scarlet bells the lovely *Fritillaria recurva*, here the curiously striped *Sisyrinchium odoratissimum* compels the attentive gaze of the least appreciative flower-lover. *Ixiolirion*, *Sparaxis*, *Eremurus*, and a host of other genera, which it would require a constant reference to Kunth's *Enumeratio* or Baker's *Monographs* to determine, find here their representatives. Herbarium specimens, or even living specimens in a wild condition, tell little of the "potentialities" of this class of plants. The limitations and characteristics of these species must be learned chiefly in the garden. The borders at the base of the walls, near these frames, are filled with bulbs of the same character. Here, at the time of our visit, the most striking plants in bloom were the *Camassia* or *Chlorogalum Leichtlinii*, the *Ornithogalum lacteum*, and the *Eremurus robustus*; while, in spite of the advanced season and the pitiless rain, *Tulipa fulgens* (Hort.) was still brilliant enough to justify its name; its refulgent carmine flowers open widely as the sun catches them, exposing to view a purple eye.

Another long bed near here, sheltered by a hedge of Ribes, which, while affording shelter, supplies a wealth of flowers for cutting, is richly stocked with Lilies, with Colchicums, with Polygonatums, with— But it is time to stop. We cannot enumerate a tithe of the curious and beautiful plants here grown, nor can we catalogue the contents of the long herbaceous border, wherein *Leuciums* thrive as we never saw before. Enough, if we have indicated the class of plants grown, and the general *cachet* of this comparatively newly formed garden, which, while making no pretence to be what is called a "show place," is, nevertheless, one of the richest and most interesting that the plant-lover who should be lucky enough to have the *entrée*, could visit.

New Garden Plants.

EBERMAIERA NITIDA, *sp. nov.**

This curious small-flowered species of a little cultivated Acanthaceæ genus has just flowered at Kew. In habit it greatly resembles *Fittonia* and *Chamæranthemum*, which, however, belong to another tribe of the order known primarily by its possession of reticulate seeds. Our plant does not seem to be very closely connected with any of its congeners, though in habit one or two species from Eastern Asia somewhat resemble it. The convexity of the leaf is very pronounced, and would appear to be an adaptation to a wet climate, the rain being enabled, in consequence, to run off immediately. Its native country, Mr. Bull informs me, is Brazil. *S. Moore*.

CYPRIPEDIUM CALCEOLUS.

ONE of our rarest and most beautiful native plants—supposed to be extinct, so writers on English plants depone—and hopefully keep the name embalmed lest a specimen should turn up somewhere. It has been boldly asserted that he who would eradicate a wild specimen deserves to be gibbeted on the spot *in memoriam*. I have never seen a specimen in collections for many years back but was suggestive of some botanic garden having been its place of nurture, though "woods in the North of England" were on the reticent label. Happy the British botanist who can boast of a wild specimen he gathered, or who can vaguely indicate where it grows, or who can give the whereabouts of *Orchis hircina*, also *non est* [?]. Some years ago I was informed by a young botanist—a collector in Kew Gardens—that he knew a habitat near Ripon. As no one, I believe, has since found it, it is perhaps as well that he migrated to the Neilgherries, and escaped the extreme penalty I have alluded to. I venture to commemorate an incident illustrating the tendency of collectors: it may amuse even those who would do likewise. Once on a time I accompanied a botanical friend to Tunbridge Wells in search of mosses, Ferns, and *H. tunbridgensis*, but *Malaxis paludosa* was the desideratum. We in-

roduced ourselves to a young botanist of local celebrity, who upon being assured that we were not Eradicators, kindly joined us in a day's ramble over the places where the plant grew. At last, in a damp corner of an upland field, my friend, whose name I forbear to mention, suddenly, with a rather unscientific exclamation, sprang on a brace of plants. The words that accompanied the process of acquisition were something like, "By jingo! here they are—eradicate them"—(the last words emphasised). Our kind *cicerone's* eyes seemed to dilate—a light seemed to dawn upon his mind—and though he led us to many damp spots we found no more. My companion was "spotted," or, as the poets say, "stood confessed." *W. H. F.*

THE YORK NURSERIES.

THE Orchids at Messrs. Backhouse's nurseries are always worth seeing, not only from the number of fine things imported, but for the strong healthy vigour the plants are in. Entering one of the numerous roomy, long span-roofed houses, the first to attract our notice was a quantity of *Epidendrum erubescens*, growing beautifully, not little bits such as we so often see newly introduced imported plants reduced to, but three or four pieces in lengths from 18 inches to a yard long, tied with a little sphagnum to long blocks which are secured upright in their pots. These were pushing numerous strong growths, more like those we usually see strong established examples produce. Near them were quantities of the chaste flowered *Lælia albidia*, in immense masses from 2½ feet high by 2 feet across, in excellent condition. Associated with them are a profusion of Mexican *Odontoglossums*, such as *O. nebulosum*, *O. cordatum*, and *O. citrosomum*; with hundreds of *Cattleya Dowiana* breaking away finely. For the last month these plants have had no heat except such as was contained in the pipes and houses, as the valves have been closed each night at 6 o'clock. *Lælia anceps* was in all its shades of colour, from the deepest purple form to pure white, in plenty, and in lumps large enough to make something to look at without waiting for a number of years, which is inevitable when bits are begun with.

We noted in another house a lot of *Vanda teres* amongst *Cattleyas* and the *Dendrobiums* that succeed with a low temperature. The growth made by this *Vanda* so managed was almost as thick as one's little finger, and it blooms when not more than 15 or 18 inches high. The large house built for growing pot Vines has in part been turned into an Orchid-house. In the centre, standing on the floor, are Vines, as usual; but on the side stages are huge masses of *Odontoglossum Londesboroughianum*, from 2 to 4 feet high and 1 to 2 feet through; *Lælia peduncularis*, and numerous *Barkerias*. A long, low pit, such as is generally used for ordinary bedding plants or similar stock, was filled with *Lælia furfuracea*.

The cool *Odontoglossums* are in very light houses, but rather thick blinds are run down over them when the sun is out, not so much with a view to shade as to keep down the heat; to further effect this the canvas is held above the glass by strips of wood, and when the weather is warm they are kept constantly wet, for which purpose, and to run them up and down as often in the day as sun or cloud prevailing renders the change necessary, a boy is kept. Here, in flower, a number of *O. vexillarium* were a sight worth going some distance to see: the colour and size of many would scarcely be credited without being seen. The plant, as every one knows, is most variable, but out of the large number in bloom we could not see a small or indifferent form. We measured one, and there were many little, if any smaller, with flowers 4½ inches long, and 3½ inches across the lip; we need not say that the growths which produce such flowers are proportionately large. Amongst others we noticed a quantity of *O. Rossii* major, and in the same house a lot of newly imported *Cattleya Mendelii*: an adjoining house contained *O. Roezlii*, with a number of immensely strong *Bollea celestis*, many of which were in flower. With these was the singular *Batemannia Burtii*, in bloom; the flowers are massive and waxy, not unlike in shape to the old *Huntleya meleagris*, a stout, robust, good-looking plant. Small *Aerides* and *Dendrobiums* were doing well in this house. In another long span-roofed house, *Epidendrum vitellinum majus*, and *Odontoglossum Rossii* major, in masses 1 foot long, on blocks suspended within a few inches of the glass, as close as the space will admit of, were growing

* *Ebermaiera nitida*, *sp. nov.*—Aculescens, foliis paucis breviter petiolatis ellipticis obtusissimis, basi cordatis, supra convexiusculis pallide viridibus nitidis secus nervos vero intensioribus fere glabris, subtus late albidis ac ad nervos prominentes villulosis. Spica stricta elongata aphylla tereti pubescente superne flares parvos alternos ferente; bracteis nequaquam fillicis ovato-lanceatis puberulis bracteolis puberulis acutioribus; calycis lacinia exteriori bracteolis consimilibus reliquis subaequalibus lanceolatis puberulis una cum bractea bracteolisque fere omnino decoloratis; corollæ tubo inferne parum curvato extus puberulo intus pilosulo limbo subulabiatilabio postico 2-lobato; antherarum loculis rima ad basin attingente dehiscentibus, stigmati segmento postico fere obsolete; capsula.—*Chamæranthemum nitidum*, Hort. Bull. E. Brazil. V. in ht. Kew ex ht. Bull. deriv.

nicely; along with *Cattleya citrina*, *Dendrobium Falconeri* and *D. Cambridgeanum*, similarly treated. The stout growths, 3 feet long, of *Dendrobium chrysotis* in this house were swaying backwards and forwards in the air admitted through the roof ventilators, wide open.

To those who are fond of Orchids there is always more than ordinary interest attached to the plants at this place, from the fact that they receive very different treatment to that given and considered necessary by most people who grow them. All the houses occupied by them are large span-roofed structures, standing ends north and south in a fully open position, and all but two are glazed with clear glass,

fact that from their being first imported they have all along been subjected to treatment calculated to make growth of a stout enduring character, more like that they produce in their native countries than when grown with more heat and less light and air. We have always combated the practice of over-shading Orchids—a practice so general, and more instrumental than all other things we feel convinced in causing the destruction of such vast numbers. Yet it would not be a wise proceeding for any one with plants that have been grown in a close moisture-laden atmosphere, and heavily shaded, to expose such plants as is done in the York establishment, or the result would very likely be a serious loss of foliage. The ability of

with handsome deeply cut leaves, in habit like the Virginian Creeper, and which has every appearance of being, like it, an excellent subject for covering walls.

The singular *Chusan Akebia quinata*, that used to be treated as a stove plant, was growing on the outside of one of the houses, bearing numerous bunches of its most singular chocolate-coloured fragrant flowers. For those who require a sweet-scented climber of medium habit, with a totally different character of flower from anything else, this is just the plant.

The herbaceous ground and rockwork at Messrs. Backhouse's, with its wealth of rarities, has so often been described as to need no further mention than to



FIG. 116.—*CYPRIPEDIUM CALCEOLUS*. (SEE P. 812.)

yet, except in those wherein are grown the principal lot of *Odontoglossums*, particularly the thin-leaved section, not a particle of shade of any description is given, either by the blinds, the glass being smeared, or by plants of any kind grown on the roof; in the very big house, originally built for Vines alone, but which, as we have already said, now contains a quantity of Orchids, the Vines do not shade them in the least. Some of the plants, as might naturally be supposed, have more of the bronzy tint in their leaves and bulbs than where shaded; but we did not see a single instance where this colouring was present more than indicative of robust health, their ability to bear exposure to the sun in this way, and to make the immense stout growths and flower as they do is no doubt directly attributable to the other conditions of cultivation they exist under, and to the

Orchids to bear such treatment also depends no doubt a good deal upon the construction of the houses and the description of glass used; but when inured to it from the first, as here—where for years the shading has been more and more reduced—the plants, from the strength they exhibit, the quality of the flowers they produce, and the numbers that find purchasers, afford the strongest evidence against over-shading.

Todea superba and *T. pellucida* (hymenophylloides), grand plants, some of them a yard across, were standing plunged in a cold pit, where they have been all the winter without any heat; some of the old fronds were slightly browned, but not more than one often sees on the plants when grown too warm. The heads of young fronds coming up were such as are rarely seen for number and strength. We saw an old plant supposed to be all but lost, *Vitis striata*,

just enumerate a few of the most noteworthy plants that happened to be in flower, and which, like everything else, were this season unusually late. A clump of *Cypripedium Calceolus*, at the foot of one of the rocky mounds, was bearing some twenty-four flowers, on stalks 15 inches high. Near it was the Himalayan Poppy, azure-blue with a tuft of golden-yellow anthers: it is indeed a beauty, and this is the third year of its flowering here. *Myosotis rupicola* was a patch of deep bright blue on one of the mounds. The alpine Rose, *Rosa pyrenaica*, was decked with its beautiful single Rose blossoms; and the fine old *Aquilegia glandulosa*—there are few of the family so beautiful. Another lovely light blue flower was *Polygala calcarea*; and near it the deep rosy *Geranium subcaulescens*, and the silvery-leaved pink-flowered *Potentilla nitida*, just opening; the now much-talked-of and singular Edel-

weiss, *Gnaphalium Leontopodium*, and the beautiful reddish-purple *Allium grandiflorum*, high up on the rock—this is from the North of Italy, and the plant here was gathered there by Mr. R. Potter, Messrs. Backhouse's manager in this department, and who is an enthusiastic cultivator of these most beautiful and interesting hardy plants. The little *Pinguicula* was growing and flowering out of the clefts of the rock-work. The pretty *Geranium cinereum*, with its large white purple-pencilled flowers, was nicely in bloom, and in another place the scarce and beautiful sub-prostrate *Lithospermum tinctorium*, from the Southern Alps, was in its best dress of bright blue. Another gem is *Campanula Allioni*; this is likewise an alpine subject, but said to grow well in any fairly suitable soil and situation; its large bell-shaped flowers of bluish-purple are borne on stout stalks 3 inches high, and it appears to be a remarkably free bloomer.

In a large pan, subject to the care its rarity deserves, we met with a very old friend, *Gnaphalium dioicum*, a plant that we had lost sight of for many years, though at one time, in an old North Lancashire garden, not far from the coast, we knew of patches of it a yard across. The plant is of a close habit of growth, like some of the smaller leaved *Saxifragas*; the flowers, which are produced as freely as those of the ordinary Thrift, are very double, three to five on short foot-stalks about 3 inches high, and in the plants we knew were of a beautiful pink colour, as deep as those of the double pink *Hepatica*. Messrs. Backhouse's plant appears to produce much paler flowers; it is a real gem, and when established in large healthy masses is not surpassed by any hardy plant we have ever seen. *T. Baines.*

SPRING GARDENING AT BELVOIR CASTLE.

THE taste for hardy plants has lately been much revived in this country, and we frequently hear of fine collections, but one of the finest, that of Belvoir Castle, though often alluded to, is still not sufficiently appreciated. Here we have not only a grand collection, but we see the plants growing as nearly as possible in their natural style, so that we are able all the more to appreciate their true beauty. At Belvoir can be seen probably the finest example of spring gardening in the country. The spring being the season of the year when the owner of this rich estate (the Duke of Rutland) is mostly resident there, Mr. Ingram, who has charge of the gardens, has made this his study, and, as every one who sees them must say, with the greatest success. Mr. Ingram is fortunate in having to assist him, firstly, an employer who, being such an admirer of Nature, is exceedingly fond of his gardens, and so spares no expense in enriching them; and, secondly, he has one of the most beautifully picturesque gardens in the country—the grandeur of the surrounding forests and landscape scenery, the quiet nooks and shady dells, given by Nature, lending so much aid to the general appearance: but he has drawbacks as well. The garden is for the most part surrounded by woods, which abound in rabbits, and gardeners well know what mischievous enemies they are. In such an estate as this it is impossible to keep them out of the garden; I saw along one of the walks a bank of common Laurels completely destroyed from having been barked by them during the severe winter. Pheasants, too, are plentiful, and do a great deal of mischief if they find their way to the gardens.

On the occasion of my visit (May 12) Mr. Ingram first showed me his reserve or stock garden, which contains a fine selection of hardy perennial and alpine plants, &c. There was then in flower a fine bed of *Narcissus* Emperor and Empress, a great quantity of *Anemone apennina*, which appeared to be a very large and fine variety; also *A. apennina blanda*, and *A. Robinsoniana*, and the double Wood *Anemone* (*A. nemorosa flore-pleno*), with unusually large flowers; *Fumaria nobilis*, *Lunaria biennis*, *Pulmonaria*, *Veronica glauca*, *Doronicum austriacum*, *Violas*, *Primulas*, &c. Among the *Violas* was a very fine blue one of Mr. Ingram's raising, and Walter Scott was very fine. *Primula Golden Gem* was in perfection, and is unmistakably one of the finest yellow spring flowers. It was deservedly awarded a First-class Certificate by the Royal Horticultural Society's Floral Committee. Its habit is dwarf, and its golden flowers are produced very freely in large trusses after the style of an Oxlip. *Primula macrocalyx*, too, is

much prized by Mr. Ingram. It is a very fine form of the Cowslip, coming into flower about a fortnight earlier, and with much larger and brighter flowers. Nothing can be finer than these two *Primulas* for early spring gardening. *Epilobium angustifolium album* is extensively grown and used very effectively grouped with *Geranium Endresii* and blue *Delphiniums*. There is a large collection of Mr. Nelson's *Phloxes*, which are thought much of. The *Aubrietia* is unequalled by any I have seen. By carefully selecting from numerous seedlings, Mr. Ingram has obtained a magnificent form with very large and deep purple flowers, which are very freely produced. These were in perfection when I saw them. There is also a pink seedling which promises to make a useful variety, but it was not at its best when I saw it, having somewhat suffered from the severe winter. A select collection of *Sedums*, *Sempervivums*, and *Saxifragas* is well cared for.

We left this garden and crossed over to the pleasure grounds. On the right, high up, is the noble Castle, separated from us by several terraces and slopes of grass, and on the left forests of tall handsome trees. On one of the terraces I noticed a large vase filled solely with *Saxifraga crassifolia*. This was then full of bloom, which above the handsome foliage was very effective. All along the walks on either side were quantities of *Violas* and *Primroses*, then at their best, also *Wood Anemones*, &c. Occasionally in an open space was a bed of flowers. One of these was filled with *Victoria Regina Violet*, very fine and sweet; in another place was a mixed border of double *Wood Anemones*, *A. apennina*, *Saxifraga cordifolia*, seedling *Hellebores*, &c.; and mixed with these a quantity of *Iris reticulata* had just finished flowering. Next was a small garden which contained six heart-shaped beds cut out on the grass. These were arranged in pairs with a round bed in the centre. This may sound formal, but the appearance was anything but so. The centre bed consisted of rockwork, on which was planted a fine *Yucca*, and sundry flowering plants such as *Lamiums*, *Myosotis*, *Primroses*, *Violas*, &c., were scattered about, with fine clumps of *Sedum* hanging over the rock. The other beds were very pretty. Two had a centre of *Aubrietia græca* surrounded with yellow *Violas* and a border of red *Daisies*, and mixed in here and there was the Giant Cowslip (*P. macrocalyx*) before alluded to. Two more consisted of *Arabis albidia*, with small clumps of *Scilla sibirica* dotted over. The third pair were wonderfully striking. The centre was *Erica carnea*, a pretty pink-flowered variety which was very fine; this was surrounded by *Sedum acre aureum*, and the border was *Heuchera ruberrima*. Scattered over these were blue *Violas*. The combination of colours and general arrangement had a wonderfully pleasing effect; indeed a lady visiting the Castle remarked of them that they left "nothing to be desired." While alluding to these beds I must not forget to mention how useful *Heuchera ruberrima* is as an edging plant. It is neat, very hardy, very bright, and very quickly increased. The banks round this garden were very gay with flowers, conspicuous being *Doronicums*, *Pulmonarias*, *Anemones*, *Narcissus*, *Violas*, and a quantity of a seedling form of *Arabis albidia* of very dwarf and compact habit, and with very large flowers; one bank had a quantity of the Belvoir Castle Wallflower, a very bright yellow variety not then fully in bloom, this was accompanied by *Myosotis dissitiflora* and *Arabis*, edged with *Daisies*. Further along the walk was a sloping bed quite in the shade, looking beautifully fresh. The groundwork was *Saxifraga hypnoides*, a bright green, and planted here and there on it was *Fumaria solida purpurea*. Another somewhat similar bed consisted of *Aubrietia* and common *Primroses*.

Continuing along this shady walk we arrive at the "Duchess' garden," or "garden in the walk." This is perhaps the chief feature of interest in Belvoir Gardens. It is unmistakably a beautiful spot. It is formed in a sort of hollow, which is entered by a winding path surrounded by green banks and rock-work beautifully and naturally decorated with flowers and plants suitable for the different positions, and here and there arches covered with choice creepers are thrown across the path. It has a grand background in the woods, which, as the trees were just bursting into leaf, showed to perfection the varied spring tints. Several groups and clumps of trees are planted on the grass, amongst others are *Rhododendrons*, the early varieties of which were just open. There was also standing alone a fine plant of *Veratrum nigrum*.

This is the way to show off such a fine-foliage plant to perfection.

The rockworks here are very fine and extensive, and in order that everything may be seen, Mr. Ingram has had steps formed about them in natural style. *Omphalodes verna*, *Vincas*, *Epimedium*, *Fumaria*, *Lamiums*, and the various flowering plants previously named were here in abundance. A large *Araucaria* is very fine, as seen from the upper walk of this garden. There are several openings cut in the woods to give peeps of the surrounding country, and it is in one of these openings that the top of this tree appears. It is about 50 feet high, and in excellent condition. Looking beyond the gardens through these peeps, the eye wanders over many miles of country, park lands, woods, a winding river, and here and there a country village—all seeming to lend enchantment to the beauties of the garden. We then descended into the hollow to look at the new cascade and rockwork. This is a fine and bold piece of work. The water descends from a height of about 60 feet, and winds through masses of huge stones into a basin at the foot. The rockwork around it is not yet planted, neither is any of the new ground, for this is all a recent addition to Mr. Ingram's department, and when finished promises to be a very grand one. In the basin which receives the water Mr. Ingram is cultivating a collection of aquatic plants. Every step brings some fresh point of interest. Large clumps of *Veronica glauca* are very fine, and I particularly noticed how bright and effective was *Sedum lydium* (deep red) hanging over a piece of rockwork. *Muscari* were growing and flowering like weeds, and *Epimediums rubrum* and *grandiflorum* appeared quite at home. One of the late introductions is a large bed planted with American bog plants, &c., and among these *Liliums* were to be introduced.

There is also a Violet garden, which was then full of bloom. *Marie Louise* appears to be the favourite. Mr. Ingram tells me it flowers all through the winter, and is far superior in every way to the old Neapolitan. *Victoria Regina* ranks next, a fine single blue variety, very large and sweet. A very interesting point is a collection of *Camellias* which has passed through the late severe winter without protection. There had been 11° of frost within a week of my seeing them, and the flower-buds were then bursting. The foliage of the white varieties was slightly browned, but with this exception they appeared perfectly uninjured. Mr. Ingram showed me also that the soil was anything but a favourable one for *Camellias*. There are two beds of flowers I admired very much, and I must not pass them over as they show what may be done, even quite in the shade. One, a kidney-shaped bed, consisted entirely of seedling *Polyanthus*. It was a mass of bloom of many shades of colour, and with some enormous trusses of flowers. This was edged with variegated *Euonymus radicans*, and the whole overhung by the spreading branches of several forest trees. The other bed was crescent-shaped: its centre was *Arabis albidia*, which was surrounded by *Myosotis dissitiflora*, and edged with white *Daisies*. This was immediately under the branches of a Cedar of Lebanon. *Euonymus radicans* variegatus is much used here, in the kitchen garden as elsewhere, as an edging, and is not only effective but useful. It is not apt to die out like Box, nor does it require so much attention. It is perfectly hardy and a very free-growing plant.

I have given, as nearly as I can, from memory and the few notes I made, a description of these interesting gardens. I have made allusion entirely to their spring beauty, although the choice collection of hardy plants makes them interesting at all seasons. The spring, however, is the most considered, and I am certain that any lover of spring flowers will be amply repaid by paying Belvoir a visit next April or May, and my personal experience makes me confident that Mr. Ingram will take a delight in showing his pretty nooks, and pointing out the various objects of interest. He, himself, long as he has known them, tells me that he finds in them every day something which adds to his estimation of their great beauty, and stimulates his love of Nature. Let us hope that, as the fashions of the day alter in gardening as in other matters, there may be found more such men as Mr. Ingram, who will not only take a pride in their fruit and kitchen garden produce, but have a love for those plants which we can grow, with simple care and attention, in our own climate, and who will cultivate the taste so richly displayed by Mr. Ingram in arranging them. *Printemps.*

Garden Operations.

HARDY FRUIT GARDEN.

To keep down the filth that is now so prevalent upon fruit trees of all kinds will tax the resources of most places, nevertheless an effort must be made to cope with the enemy in its various forms as far as possible. Caterpillars upon Gooseberry and Currant trees seem to be as numerous and voracious as ever, and as the time is now past when they might safely be dusted over without risk of spoiling the fruit, the only available wholesale remedy is to make the ground beneath the bushes firm and smooth with a spade, and then apply the syringe or garden-engine with such force as to bring down the bulk of the insects, which may afterwards be destroyed by beating over the place again with the back of the spade. This will reduce their numbers considerably, but it will after all be necessary to go over the trees and pick off the remainder by hand. Hand-picking, too, will be the only resort in the case of caterpillars and maggots that are infesting other kinds of fruit trees, and aphides of various hues will succumb ultimately to frequent applications of tobacco-water or Gishurst Compound; but neither these nor any other similar remedy should be used before the strength and effects have been tried upon a small scale, or serious consequences may follow. In laying-in young growth avoid overcrowding, and be careful to allow plenty of room in the ties or shreds for the shoots to swell. Proceed with the shortening of breastwood, pinching-in of young shoots, and the regulation of growth generally. Newly grafted trees should have timely attention, to prevent the grafts being blown out by the wind. Standards that have been headed back should have a stick tied to each stump, and pointing in the direction of the graft, to which the latter as it grows may be secured. The final thinning and regulating of the young growth upon outdoor Vines should now take place, after which the closer the fruit-bearing growth is got to the wall the better, and only a moderate crop regularly distributed over the Vine should be aimed at. See that the requisite amount of netting, &c., is in hand for securing the Strawberry beds against birds, and avoid placing anything among the plants that would favour the harbouring of slugs, as these exist in myriads just now, and are sure to trouble the Strawberry beds after a while. *F. Harrison, Knowsley.*

FRUIT HOUSES.

MELONS.—For the subjects of this and other departments in the garden, and I think I might safely say for gardening pursuits in general—more especially for the killing of weeds—the weather which we have been, and are still having, has been very unfavourable, and, moreover, for the time of year most unseasonable—dull, wet and cold. In ordinary seasons firing to a great extent could be dispensed with early in June, whereas now—Midsummer Day—brisk firing is absolutely necessary in order to keep up and maintain an ordinary growing temperature. Also the linings of dung frames have been, and will still require being made up occasionally if the present ungenial weather continues—an operation which one might have reasonably expected to have been discontinued a month since. However, we are still covering our frames, &c., at night with mats, and hoping almost against hope for fine weather, but apparently without any immediate prospect of realising that for which the whole country, from John o' Groats to Land's-end, and from the Giant's Causeway to Killarney, are almost weary of looking for—a favourable change in the weather. See that former instructions are carried out, such as the stopping, thinning, tying, and otherwise arranging of, the shoots which should be regularly attended to, and with these details no pressure of work, which is felt more or less in the generality of places, should be allowed to interfere, for in no other department in the garden do detrimental results so speedily present themselves in consequence thereof. Therefore let all cultural points be regularly, not to say strictly, attended to. See that successional plantings are landed up as soon as the roots show signs of pushing through the hillocks, and that the supports are put to the fruits as they require them. Examine the plants occasionally and see that they suffer not for want of, or from too much, water at the roots; and should those plants which are swelling off their fruits require watering, give them a good soaking of manure-water in a weak state. The plants from which the earliest fruits have been cut will now in many places be ripening their second crops, and where the plants are kept clean and healthy, will continue to fruit till November, providing the autumnal weather be favourable to their growth. When each successional crop has been cut the plants should be picked over, and all dead or damaged leaves removed, the surface of the bed pricked over gently, and a couple of inches of top-dressing put on of the usual ingredients, and then watered with clear

water, shortly after which a good application of liquid manure in a diluted state should be given, after which the foliage should be syringed with clear water, in order to wash the thicker fluid off, the structures in which the plants are growing ventilated, and in other respects treated as before, and so on, each succeeding crop. *H. W. Ward, Longford Castle.*

CUCUMBERS in full bearing and in almost every stage of growth will require liberal applications of water at the roots, also plenty of atmospheric moisture in the houses, and the plants should be thoroughly syringed twice a day, and water thrown over the floor as often as occasion may require between the syringings, otherwise red-spider will be troublesome. Let other details be attended to as circumstances may require. *H. W. Ward.*

PLANT HOUSES.

FERNERY.—With the increase of sunshine we are now getting, necessitating an augmented supply of air, it will be almost impossible to overdo Ferns with water, especially all such as are confined to pots or have limited root-room and are well drained, as they should be. Not only will these require great attention to keep them in a sufficiently moist condition as regards the soil, but the atmosphere also must be maintained in that desirable state by frequently damping all parts of the house where it will not interfere with the comfort of visitors or cause a nuisance; and every night and morning, on dry days, the plants will be greatly benefited by a heavy syringing overhead, in which most Ferns specially delight, and more particularly at a time like the present, when they are making such active growth. There are a few varieties, however, having farinose fronds, as those of the Gymnogrammas, which, if not carefully managed, become disfigured by having the fine powdery particles washed off and deposited on the upper surfaces, where the accumulation is not only an eyesore, but assists in throwing the plants out of health. Although a certain amount of shade is essential for Ferns, in many cases they get far more than is requisite or desirable for their well-being, as the awnings used to obstruct the sun keep out light, and when there is an insufficiency of this the fronds must perforce become attenuated and flimsy in their texture, in which state they are of but little value for cutting. When required for this purpose they cannot have too much exposure, provided the solar rays are kept off during the heat of the day, that being the time when it tells most severely upon them. Closed and damped down, a little sun builds up the organisms and hardens the growth, thus enabling plants to pass through the winter in safety, without assuming that spotty shabby appearance they generally have under reverse conditions of treatment. The grandeur of Tree Ferns renders them almost indispensable in association with others, they and the Palms being the aristocrats among that class of vegetation, without one or the other of which no house of any pretensions can be considered complete. Unfortunately, however, except in the largest sized structures, the first-named soon get to such dimensions as to require more space than can fairly be allotted them, in which case their rapid progress and spread may be considerably checked by cutting away every frond that can be spared without causing a too naked look; but in doing this only the oldest should be removed, and such of these as will add to the general symmetry and beauty of the plants. To attempt to restrict them by a short supply of water is a very dangerous proceeding, and one which often ends in disaster, as once these flag it is seldom they recover again, to be any ornament the same season.

GREENHOUSES.—The beauty of the show and fancy classes of Pelargoniums being now over, attention should be devoted to getting them well ripened preparatory to cutting them down, a condition that is best secured by standing them out in some open sunny spot where they can be sheltered from winds. Many defer their propagation till the general heading-back takes place, but it will be found, if cuttings are taken almost at once while the foliage is fresh and green, that they strike with considerably more freedom than they do later on. A half-spent hotbed suits these well, on which they may be dibbled in sandy soil, or the same outdoors on any shady border, where, syringed gently during the evening, they soon emit roots, and become ready for potting. To replace the above-named kinds in the greenhouse or conservatory, the double and single zonal varieties will now come in most valuable, and to render successional plants of these short-jointed and of floriferous habit, they must while growing be exposed to all the sun and light possible. Those required for autumn and winter blooming do best plunged out in the open air, as there the wood, instead of being sappy, hardens up as it forms. Fuchsias, too, that have made sufficient growth are all the better for an increase of light and air, the effect of which soon consolidates the young shoots, and causes them to become laden with blossoms. Liquid

manure is the one thing needful to have these and the foregoing in fine order, and enable them to retain that freshness of leaf which adds so much to their beauty. Soot-water if used clear imparts this in an eminent degree, and its fertilising properties may be added to by the drainings from the cattle-yard or the steeping of sheep-droppings, a store from one or the other of which is of great service in all gardens at this time of year. The gross-feeding nature of Chrysanthemums can only be satisfied with a diet such as is afforded by something of that kind, for although they may do without it just now, later on in the season, when the pots become full of roots, it is almost impossible to keep the foliage up to the standard unless they get a supply at least once a week. Plants of these will now require their final shift and last stopping, and to prevent the roots suffering from rapid drying the pots should be plunged in some loose, open, non-conducting material, such as old leaves or tan, making choice of a situation on a hard well-drained bottom, nicely open to the sun. *J. Sheppard.*

FLOWER GARDEN, ETC.

With such a late and cold season to contend against it is more than probable that many of the calculations of previous years will have been very much delayed, and work, which should in ordinary seasons have been fully completed a fortnight or three weeks ago, will still be in abeyance. This of course renders it necessary that by some means or other an extra force should be applied to this department in order to bring up arrears, so that the appearance of finish and good keeping which are so absolutely necessary to the thorough enjoyment of the lawns and flower garden during the summer months may be secured at once, and the after-work reduced to a minimum of routine arrangement. The borders of mixed herbaceous plants, annuals and Dahlias, Hollyhocks, &c., will now require a considerable amount of attention. Whatever planting of annuals remains ought to be finished off at once. Stakes of sufficient strength should be supplied to all plants requiring support, taking care when tying out the shoots to thin them out so as to allow room for a more free development than is generally accorded to them: nothing looks much worse than a close bunch of shoots fastened to a stake like a birch besom. Of course such strong growing plants as Hollyhocks and Dahlias must have stout stakes, which must be partly exposed for a time, but as a general rule all stakes should be kept out of sight as much as possible. In finishing off the borders by stirring and levelling the soil and otherwise ensuring a condition of neatness care must be taken to thin out all the patches of annuals which were sown early, as if left too thick they will flower earlier it is true, but they are soon over and do not attain that perfect development so necessary to a right appreciation of their beauty.

The beauty of the Rhododendrons and Azaleas has now passed, and the new growth, which forms the base of next year's bloom, is in the course of formation, and in order to strengthen it the plants should not be allowed to perfect their seed-pods, but have them removed at the first opportunity. It seems hardly necessary, in a season like the present, to recommend the application of water to the roots, yet should a dry time occur they will be very much benefited by it. The want of colour in the borders of these plants, after the blooming season is over, is often regretted, but may be partially relieved by planting in the open spaces, among the bushes, clumps of hardy Lilies, particularly auratum and tigrinum, also Gladiolus gandavensis and Brenchleyensis, which are very effective; here and there may be interspersed plants of free-flowering Dahlias, and for a background Hollyhocks are suitable, the spare pots of Chrysanthemum are also useful for this purpose, but more so for blank places in the shrubberies. Speaking of Lilies, the auratum appears to be quite hardy enough to be used for such purposes, as we have left it out all the past winter and it is throwing up strong flower-spikes. The fronts of the borders, near the edge, may be enlivened by the introduction, in a sparing manner, of hardy herbaceous plants, particularly Sedum spectabile, which is one of the most useful plants under the shade of trees with which I am acquainted; the colour of the foliage, without any flowers, is a nice contrast, and the soft pink flowers in the autumn are very pleasing. We have also used patches of the different sorts of Candytuft along these margins with very good effect, and no doubt several others will occur as suitable, but it must not be overdone, which without care it well may be, so as to interfere with the manipulations necessary to the well-doing of the Rhododendrons, &c. Attend specially to pegging down the shoots of all trailing plants, such as Verbena, Tropæolum, Phlox Drummondii, Clematis Jackmanni, which makes a glorious and lasting bed; Zinnias also should be pegged down in the early stages, as also should Salvias, where they are used as bedding plants. Trellises also must have immediate attention, as the growth has been very rapid lately, and the press of other work has prevented their having the necessary attention. *John Cox, Redleaf.*

THE Gardeners' Chronicle.

SATURDAY, JUNE 28, 1879.

APPOINTMENTS FOR THE ENSUING WEEK

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| MONDAY, | June 30 | Royal Agricultural Society's Show at Kilburn opens (seven days). Sale of Orchids, at Stevens' Rooms. Brentwood Horticultural Society's Show. Forquay Horticultural Society's Summer and Rose Show. |
| TUESDAY, | July 1 | Sale of Specimen Greenhouse Plants at Dagenstein (three days). Royal Botanic Society's Evening Fête. Gardeners' Royal Benevolent Institution, Annual Dinner at the Albion, Aldersgate Street. |
| WEDNESDAY, | July 2 | Reigate Rose Show. Twickenham Horticultural Society's Summer Show. Blackheath and Charlton Horticultural Society's Show (two days). Tiverton Horticultural Society's Show. Wanstead and Leytonstone Horticultural Society's Show. |
| THURSDAY, | July 3 | Royal Horticultural Society of Ireland's Summer Show. Canterbury Rose Society's Exhibition. Teddington Horticultural Society's show. Brockham Rose Show. |
| FRIDAY, | July 4 | Tunbridge Wells Horticultural Society's Show. |
| SATURDAY, | July 5 | Southgate Horticultural Society's Show. Alexandra Palace Rose Show. |

SELFISHNESS, moralists tell us, lies at the root of most human actions, and we do not demur to the proposition. But there is such a thing as enlightened selfishness—a selfishness which no moralist will object to, because it tends as much to the good of our neighbour as of ourselves, and this is the variety to be cultivated and propagated as rapidly as possible. Just now there is an excellent opportunity for gardeners to practise this virtue, and in so doing to help themselves. According to a recognised custom (against which we can say but little, seeing that the nett results are several hundreds of pounds per annum), the GARDENERS' ROYAL BENEVOLENT INSTITUTION holds high festival at the "Albion," Aldersgate Street, E.C., on Wednesday next, July 2. For five-and-thirty years the Institution has pursued its beneficent course, continually augmenting the number of its pensioners, and at the same time, thanks to the good management of its officers, consolidating its financial position. Between thirty and forty applicants are now claiming our assistance—a much larger number than usual—and shall we deny them? The answer to that lies in the result of the appeal now made. Here are between thirty and forty applicants, either gardeners or widows of gardeners, and they come to us for help now that age, infirmity, or misfortune have overtaken them.

The first question the rigid economist asks is, What right have these men to our aid? To this we reply, misfortune is, in the majority of cases, their most indefeasible claim; next to it is the fact that these men, or many of them at any rate, have done what they could to help themselves and others, by subscribing when times went better with them, to the funds of this or kindred institutions. Such men, then, are no more beggars than any other man who has laid by for a rainy day, but found, in the end, that he was flooded out by the downpour. They are not recipients of charity, they have honestly, of their own exertions, earned the aid of their fellows. As to those who make application for the benefits of this Society and who may not have earned a title to assistance by their own efforts in this particular way we may feel sure that the Committee will exercise care and discretion, so that while misfortune is, as far as possible, alleviated, improvidence shall not be encouraged. We earnestly appeal therefore for help for the provident, the needy, the sick, the old. We base our appeal on the fact that those who give will benefit themselves by the exercise of enlightened selfishness as much as they will their comrades, and moreover they may themselves be needy, sick, old, and require help in their turn.

Turning to the list of annual subscribers, and to the names of those who are to act as stewards on the festival day, we are struck, as often before, with the preponderance of outsiders, and by outsiders we mean those who cannot be reckoned as working gardeners—the very class whom the Institute is specially designed to benefit. Taking quite at random two hundred names from the list of subscribers, we find of these two hundred one hundred and twenty-seven are outsiders, and only seventy-three working gardeners. We do not suppose our calculations are rigidly accurate, but they are substantially true; and they give occasion to some who would otherwise be inclined to contribute, and whose names we should expect to see among the foremost in the list of subscribers, to withhold their names and their contributions. In the nature of things we should expect the contributions of wealthy and generous outsiders to outweigh in amount those of the working gardeners; but, on the other hand, we surely have a right to expect that the number of subscribers among practical gardeners would be ten or twenty times greater than that of the outsiders, instead of being, as it really is, much less. It is for the committee to devise means to remedy this. We believe indeed that much benefit has accrued from the recent visit of the Secretary to provincial gatherings of the craft. The results of these visits supply a hint for future development. In the meantime we do most earnestly beg the gardeners to give the lie to the reproach that they rely too much on the good-nature and generosity of others. We could wish that every one who reads these words would contribute his mite. "Even a penny is a large sum," as our contemporary, the *Gardeners' Magazine*, says, "to one whom misfortune has brought face to face with goggle-eyed want." Why not have a collection of pence, shillings, pounds, notes, cheques, anything in the way of convertible medium, in every bothy, every garden-office, every steward's room, every library in the country? Why do not the large employers of labour in our great national gardens and in our private establishments, impress on their gardeners and their foremen the desirability of contributing according to their means to the funds of this Institution? The greater part of the objections we have heard from time to time raised against the Institution arise solely from the fact that the gardeners themselves allow others to take an undue share of what should be their own work.

For our own parts we shall be pleased to receive any subscriptions that may be entrusted to us for the benefit of the Institution, and to acknowledge their receipt in our columns. We shall not scrutinise the amount from each individual, neither shall we inquire too particularly whether the donor is gardener or outsider, but to the gardeners in particular we cry—Help! Help!! Help yourselves.

— CALCEOLARIA CRYSTAL PALACE.—By the courtesy of Mr. FORD, gr. to J. G. MEGEAN, Esq., Windermere House, Church Road, Norwood, we are enabled to-day to place before our readers an illustration (fig. 117) of a truss of flowers, cut from the plant which created so much admiration at the late Crystal Palace Show, and which showed so marked an advance in size and form to anything shown before that the judges unanimously awarded it a First-class Certificate. We should state that the ground colour is yellow, and the blotches crimson; that the seed came from Mr. JAMES' strain; and that our artist has in no way exaggerated his drawing from Nature.

— METEOROLOGICAL ASPECTS.—When, a few years since, we had a cold summer, and with it Potato disease and other evils, there were not wanting clever writers who attributed all the mischief to spots on the sun. It was boldly announced as the "cosmical theory," and in certain quarters met with a ready acceptance. To some it appeared more "comical" than "cosmical." Some adventurous and daring disco-

verer had doubtless taken advantage of a cloudy day unseen to try the effect of a few dashes of his summer shading over the face of old Sol, and for the season, much to the surprise of the scientists, he went about his daily round with smudges of colour on his features. The winter's rain and frost, however, washed it off, and there was an end of it; but out of it grew a grand cosmical theory, nevertheless, and for the time spots on the sun formed the astronomical and meteorological sensation of the day. How is it we hear so little of this marvellous theory just now, when the miserably cold, wet, unseasonable season, presents such a favourable opportunity to revive it? Let the facts be told. The quick-witted Yankees—eternal foes to the proud Britisher—have proved modern Deliahs, and have shorn old Sol of his locks; his power for the moment is gone, and the American Meteorological Office now rules the roost. This is a bad look-out for old England, and the best thing we can do is to send to the sun a quantity of the newest hair-restorer, that it may soon regain its wonted power, and shine as has been its wont, for the warmth, comfort, and glory of old England. We commend these interesting observations to the attention of the cosmical theorists.

— WHAT ARE MEALIES?—This is a question frequently asked since the commencement of the war in South Africa. Maize or Indian Corn is the answer.

— A POLYPUS!—Our attention was the other day called to a label accompanying a specimen of a species of *Utricularia* in Kew Herbarium, or rather there are two labels, and these are the inscriptions:—"From a brook. A Polypus. The bud-like organs are shells; they smell like fish." "The smell is fish-like. This zoophyton was found on the side of a small mountain brook of Ootacamund, in the water, Nov., 1854. It covers whole patches of earth, is much entwined and thick. The flower-bud-like organisations seem to become snails." The idea seems to be an original one, if, fortunately for horticulturists, not very sound. Shall we record the name of the author of this (r)evolutionary idea? Well, it is SCHMIDT, the German equivalent of SMITH.

— BENTHAM AND HOOKER'S "GENERA PLANTARUM.—We understand that another important instalment of this useful work is completed, and in the hands of the printer. It embraces the whole of the remaining orders of Dicotyledons, that is to say, all the orders constituting the Incompletæ of the system of classification adopted by the authors of the work in question. This is indeed a noteworthy step in advance; and we may reasonably hope that the work, comprehensive as it is, will eventually be completed. Seeing that Mr. BENTHAM has happily completed his *Flora Australiensis*, and seeing that he is apparently as zealous and capable of work as he was twenty years ago, we think the prospects of the completion of the *Genera Plantarum* are good. Whatever differences of opinion may prevail as to the details of the work, all must agree that a uniform *Genera Plantarum*, including all flowering plants, conceived and carried out by the same authors, would be invaluable, and long remain the standard work, besides serving as the basis of future works.

— PROPOSED PRESENTATION TO MR. JOHN WILSON, OF YORK.—A subscription is being raised amongst the exhibitors and other attendants at the great Yorkshire Gala for the purpose of presenting a testimonial to Mr. JOHN WILSON, as a mark of their appreciation of his exertions in this field of horticulture. Mr. WILSON's secretarial duties commenced with the formation of the Society, twenty-one years ago, during which period he has made troops of friends by his excellent generalship, conciliatory disposition, and courteous behaviour to one and all.

— SYDNEY INTERNATIONAL EXHIBITION.—SPECIAL COLLECTION OF SANITARY APPLIANCES, BOOKS, &c.—We are requested to intimate that Mr. WAHAB, C.E., is about to proceed to Sydney for the purpose of forming a special collection of sanitary exhibits. Particulars may be learned at the office of the British Commissioners, 5, Westminster Chambers, S.W., or from ALEX. LAWRIE & Co., 14, St. Mary Axe, E.C.



FIG. 117.—CALCEOLARIA CRYSTAL PALACE. (SEE P. 816.)

— **ROSE CLUB AT ANTWERP.**—The "Cercle des Roséristes," or, as the Flemish call it, the "Roz-enkring," propose to hold a large Rose exhibition at Antwerp on July 6. Programmes may be had of M. P. B. LENAERTS, President, 82, Rue du Pelican, Antwerp. The co-operation of English rosarians is earnestly solicited, and every facility will be rendered to exhibitors. On the last occasion 62,000 Roses were shown.

— **THE POTATO DISEASE.**—Mr. SANDFORD, gardener to C. J. FLETCHER, Esq., Dale Park, Arundel, reports, under date of June 21, that the Potato disease has again made its appearance at that place on a large border of Early Rose, while the young Potatoes are no larger than Peas. The disease has also appeared in the parish of Bothenhampton, Dorset; at Sandown, in the Isle of Wight; and also in the north of London.

— **INTERNATIONAL AGRICULTURAL EXHIBITION AT KILBURN.**—Great interest is felt as to this exhibition, which opens on Monday next. The preparations have been sadly hampered by the weather; the soil, a stiff clay, being at present in a terrible condition. The show will, in any case, be on a gigantic scale, and will contain much of interest to the horticulturist as well as to the agriculturist. Fine weather alone is needed to render the show a great success. A train of trams, worked by steam, will run continually from end to end of the show-ground, so as to save visitors from fatigue as much as possible.

— **THE ANTHROPOLOGICAL INSTITUTE.**—At a meeting of the Anthropological Institute of Great Britain and Ireland, held on Tuesday evening last, our versatile artist and correspondent, Mr. WORTHINGTON G. SMITH, read a paper "On Paleolithic Implements from the Valley of the Brent."

— **THE EARLY VIOLET FIG.**—In one of the divisions forming the range of vineries and Peach-houses at Bearwood there is a remarkably fine tree of this fine Fig covering the whole of the interior of the roof. It has been described as "nicely-flavoured, very early, and remarkably prolific," and it fully bears out this fine character at Bearwood. Mr. TEGG states he never before had so many Figs as is supplied by this tree. He gathers the first crop in April, and picks fruit successively during the summer. Though small, it is yet a handsome Fig—handsome in appearance, deep violet in colour, and exquisitely flavoured, juicy and melting to the palate. It may be regarded as one of the best Figs for early forcing.

— **SPECIAL PRIZES.**—We are requested to state that the prizes offered for competition in Class G. at the next show of the Royal Horticultural Society, will be for 12 sorts of vegetables, instead of 13—omitting Globe Artichokes, which, as a consequence of the deplorable weather, will not generally be ready for that date.

— **DICTIONNAIRE DE POMOLOGIE.**—The second part of the sixth volume of this admirable work—fit monument of the labours of the late ANDRÉ LEROY—has lately been published. It contains the history of the Peach and Nectarine, with illustrative woodcuts and full description of 143 varieties, and a list of works on pomology and kindred subjects. We shall speak more fully of this volume on another occasion.

— **DWARF PLANTS OF LILIUM AURATUM.**—We saw in Mr. REEVES' nursery, at Acton, the other day, a few remarkably dwarf plants of *Lilium auratum*, one of which (and a fair sample) measured only 13 inches in height, yet bore five large flower-buds almost open. What would not Mr. REEVES, or any other market grower give for a houseful of such plants?

— **SAXIFRAGES AT CHISWICK.**—On the rock-work at Chiswick there are now to be seen several very charming examples of Saxifrages, forming a part of the somewhat varied collection found there. There is *S. lanboscana* (?), dwarf in growth, and with slightly pendent spikes of large white flowers—a rare gem for rockwork; *S. australis*, from the Carrara Mountains, obtained by Mr. GEORGE MAW in 1874, also of a nice tufted growth, and bearing white flowers; *S.*

aizoides, soft to the touch, like a *Sedum*, and bearing yellow flowers borne singly on the stems; *S. Maweania*, and *S. Wallacei*, the former a little dwarfier and with flowers scarcely so well formed as the latter; and *S. ceratophylla*, with a close spreading growth and white flowers, pure and freely produced. There are other interesting forms, but these were specially attractive a few days ago.

— **ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.**—At the annual meeting of this Society, held on the 18th inst., at Willis' Rooms, Mr. J. J. MECHI in the chair, the Council, in presenting their nineteenth annual report, referred to the satisfactory financial position of the Institution, and to the progress that had been achieved during the past twelve months, in spite of an alarming and almost unprecedented depression in agricultural and commercial affairs. The published account of receipts and expenditure shows that the donations amounted to £1091 3s. 2d., and the subscriptions to £7880 2s. 3d. [Ten times more than in the case of the Gardeners' Royal Benevolent Institution. Should this be?], being £256 4s. 2d. in excess of the previous year. In addition to the balance of £1700 12s. 9d. from last audit, £808 12s. 1d. have been received from dividends, £53 16s. 3d. on account of a legacy, and £2000, the remainder of an amount which had been left temporarily on deposit at the bank, has been transferred to the current account. The total receipts for the year, therefore, amount to £13,534 6s. 6d. On the expenditure side £9751 10s. have been devoted to pensions and school payments, £1345 18s. 5d. to general working expenses, £1000 have, in accordance with the terms of the late Mr. GEORGE MOORE'S will, been permanently invested, and £1350 3s. 3d. represents the credit balance at the bank. At the election that day fifty-five fresh annuitants were added to the list of pensioners, at a further annual charge of £1160. The Council also announced that the late Mr. EDWARD BOARDS, of Edmonton, had bequeathed to the Institution, subject to the life interest of his widow, an annuity of £400.

— **THE GREEN FRUIT TRADE IN THE CITY.**—Mr. RICHARD GRANT, a member of the firm of LIDDON, GRANT & Co., Green Fruit Merchants, of Pudding Lane, estimates the business done yearly in this trade in the port of London at about one million sterling; and Mr. EDWARD BROWN, a member of the firm of KEELING & HUNT, of Pudding Lane, has stated that of Oranges and Lemons about one and a quarter million packages are annually brought into the same port.

— **DANGSTEIN.**—We understand that Lady DOROTHY NEVILL has taken a property at Heathfield, in the Weald of Sussex, belonging to Dr. HOGG, and that Mr. VAIR still remains in her Ladyship's service.

— **OXFORD ROSE SOCIETY.**—In consequence of the lateness of the season, this show, fixed for July 3, has been postponed till Tuesday, July 15, and will be held in Merton College Cricket Ground, South Parks Road, Holywell, Oxford.

— **THE SALE OF MR. O. O. WRIGLEY'S ORCHIDS.**—The total amount realised at the recent sale of this important collection of Orchids at Stevens' Rooms was £2304 8s. The highest price obtained for a single specimen was 75s. for a plant of *Lycaste Skinneri alba*; the next highest sum obtained being 52s. for *Masdevallia Harryana sanguinea*. The prices realised for other lots were:—*Cypripedium Stonei*, 420s.; specimens of *Aerides roseum*, *A. Veitchii*, and *A. crassifolium*, 250s. for the three; *Calanthe veratrifolia*, 210s. and 220s. 6d.; *Cattleya aurea*, 252s.; *Vanda tricolor*, 336s.; *Cypripedium caudatum*, 178s. 6d.; *Odontoglossum vexillarium*, 270s.; *O. pulchellum*, 220s.; *Masdevallia Harryana atropurpurea*, 90s. and 126s.; *M. Harryana violacea*, 100s.; *Cypripedium Stonei*, 220s. 6d.; *C. Veitchii*, 315s.; *Dendrobium crepidatum*, 220s.; *Saccolabium premorsum*, 130s., 189s., and 252s.; *Aerides Fieldingii*, 189s.; *Anguloa Clowesii* (the plant which won the Veitch Memorial Medal at Manchester last year, and bearing fifty-three flower-buds at the sale), 462s.; *Cœlogyne cristata*, 168s.; another plant of the same species, 283s. 6d.; *Odontoglossum vexillarium roseum*, 167s. 6d.; *Cypripedium villosum*, 168s.; *C. lævigatum*, 210s.; *Lelia purpurata*, 178s. 6d.; *Vanda suavis*, 325s.

6d.; *Cœlogyne cristata*, 160s.; *Masdevallia vexillarium*, 304s. 6d.; *Odontoglossum crispum* (fine white var.), 84s.; a finely spotted var. of same species, 95s.; *Cattleya Warneri*, 130s.; *Dendrobium Schröderi*, 178s. 6d.; *Masdevallia tovarensis*, 199s. 6d.; *Odontoglossum Phalenopsis*, 199s. 6d.; *Lycaste Skinneri alba*, 357s.; *Masdevallia Harryana sanguinea*, 231s.; *M. Veitchiana*, 304s. 6d.; *Odontoglossum crispum*, 168s.; *Trichopilia lepida*, 336s.; and *Masdevallia tovarensis*, 140s. and 170s. A specimen plant of a fine broad-leaved variety of *Anthurium Scherzerianum* commanded 588s.

— **ROYAL HORTICULTURAL SOCIETY.**—Arrangements have been made for holding an Evening Fête in the gardens at South Kensington, on Wednesday, July 9 next. Upon this occasion various systems of electric lighting will be displayed. The conservatory and the flower show tents will also be illuminated. As the members of the International Telegraph Conference, now being held in London, will be present, every effort is being made to render this occasion one of the completest exhibitions of open-air electric lighting ever seen. The whole of the arcades, quadrants, and exhibition tents will be connected and lighted, so that in the event of wet weather it will be possible to walk entirely round the gardens under cover. There will be a large and interesting display of electrical, galvanic, and other scientific instruments, including Mr. EDISON'S loud-speaking telephone, phonographs, microscopes, &c., with demonstrations. The bands of the 1st Life Guards and of the Horse Guards (Blue) will perform selections of music; and at half-past 10 o'clock will be combined upon the upper terrace. The members of the Lombard Amateur Musical Society will sing glees, &c., in the open-air and in the conservatory.

— **MIGNONETTE FOR THE MILLION.**—If the question were asked of us, Who is the champion grower of Mignonette? we should unhesitatingly reply Mr. REEVES, of Acton; for in all our experience, largely as we know it is grown in the London district, we have never seen this fragrant annual grown so well, or in such enormous quantities, as it is in his nursery. About thirty years ago, when the place was started as a nursery, Mr. REEVES' father commenced to grow "Mignonette for the people" with one long pit, and its cultivation has been the speciality of father and son ever since; and the number of pots grown has been increased yearly until not one long pit, nor a dozen of such contrivances now hold the stock raised annually, which amounts to no less a total than 2000 dozens, or 24,000 pots. The walls of the pits are made of turf, and the bed of ashes, and when requiring the protection of glass the plants are placed as close to it as possible. The pot used is the 48, and the compost a liberal one, always fresh, and made tolerably firm before the seed is sown. By judicious sowing Mr. REEVES has marketable Mignonette all the year round, and some of it, the finest of a remarkably fine sample all round, is so robust that it more closely resembles Spinach than Mignonette, if such a comparison may be drawn.

— **THE WEATHER.**—The weather during the week ending with June 23 was (according to the report issued by the Meteorological Office) again generally cloudy, showery, and unsettled, but with occasional fine, warm intervals. Thunderstorms, with heavy rain, were experienced in the north of England on the 21st, and at Shrewsbury on the 17th and 23d. The temperature was still below the mean, the deficit varying from 1° in Scotland, to 2° or 3° in Ireland, and 4° in most of the English districts. The thermometer was slightly above 70° in many places on the 19th, and reaching 75° at Rothamstead, but at the end of the week the maxima were very little above 60° anywhere. No very low minima were reported. The rainfall was about the mean in the Midland Counties and "England, S.," and rather less in "England, E.," but more than the mean in all other districts. The excess was greatest in "Scotland, W." and "Ireland, S." and in the former district appears to have been due to the heavy showers which accompanied the thunderstorm of the 21st. The wind was generally southerly to south-westerly, but occasionally veering to the N.W. or N. for a time on our western and northern coasts. Moderate or fresh in force during the greater part of the week, but blowing a fresh gale in the S.W. and S. on the 21st, and a strong breeze in the same districts on the 22d.

Home Correspondence.

Gardeners' Royal Benevolent Institution.—

Under ordinary circumstances and in ordinary times I would not have ventured to address you: but these are no ordinary times, so, if you please, excuse me. The great depression in trade which has existed now for some very considerable time has told very materially upon persons with a limited income, and has caused a reduction in expenditure, and we know from sad experience that when reduction begins in a family the gardener is always as a rule the first to suffer. This fact, combined with the late severe winter, has been the cause of a large number of applications for the pension of this Society—a much larger number than ever I remember. I have now before me over thirty applications for assistance. We shall not make any addition to our pension list until next January, and then, so far as I can at present judge, we shall not be able to put on at the utmost more than ten, if so many, and this means distress and despair to the others. I know there are a great many gardeners in this country, and also know that very many of them receive very small salaries, and, as a consequence, are unable to assist their poorer brethren; but at the same time I know there are a great many gardeners holding first-class situations, and receiving good incomes, and to whom 21s. a year would not be much. It is to these that I venture to make an appeal through you to become subscribers to this Society, for by so doing they will be putting by a something for themselves or their widows in case of a rainy day—and rainy days do come very often—and they will be also assisting to relieve the cares and wants of their less fortunate brethren. Our thirty-sixth anniversary festival in aid of the funds takes place on Wednesday next, and I feel sure that either you, our treasurer Mr. Wrench, or any member of the committee, not excluding your humble servant, will be pleased and gratified to receive any subscriptions, which will be gratefully acknowledged and faithfully applied. *Edward W. Cutler, Secretary.* [We shall be pleased to receive subscriptions for this Institution. Eds.]

Wild Ducks Destroying Slugs.—The long damp spring has been most favourable to the increase and growth of the slug in gardens, and their destructiveness has been really wonderful. Everything has had its turn, the early Cauliflower suffered severely, the spring-planted Lettuces were eaten up in a night, rows of Peas were destroyed, or partially so, the beds of Carrots were getting thinner, the Beet was suffering diminution, and young seedling beds of the Brassica tribe were cropped off at a fearful rate. Cinders, fresh sawdust, quicklime, and soot, were all tried, but in vain. The tame emeus strutted about the kitchen garden occasionally to see how we were getting on, following the diggers, eating any quantity of worms, and occasionally varying their food by walking along the south wall to see if there were any fat flies abroad, but it was clearly evident their Australian forefathers and foremothers had not taught them to eat slugs, so I was in a fix. I had heard complaints of the domestic duck eating growing crops which took their fancy, and all at once I thought, why not the wild duck? I knew their eggs were regularly gathered (to save the foxes doing so), and hundreds reared to stock the lake in the park, so I borrowed two dozen half-grown birds and turned them into the garden. It was soon evident that at last I was master of the situation, for they set to work with a will that showed they were in earnest, up one part of the garden and down the other, taking it quite methodically, all the while calling to one another—wink, wink, wink—and picking up the slugs like fun. Never did glutton rejoice over his dead duck and Peas more than I did over my living ones. As soon as it is daylight they are off after their food. "Ah! my boy," said a father to his lie-a-bed son, "it's the early bird that catches the early worm." "Serve the worm right for getting up so early," was the young Hopeful's reply; and so say I in the case of the slugs. *J. Rust, Erudge Castle.*

Paulownia imperialis.—I see from yesterday's *Times* (June 18), that Mr. Lawrence Peel has correctly named the tree which was so absurdly called the Vanilla-tree a few weeks ago. The real reason why the Paulownia tree is preferred to the Catalpa and Tulip is, that it has that delicious smell which probably has procured it the name of Vanilla in Paris. At Nismes, in April, it is almost oppressive in odour; the purple of its flowers is much more effective than the pale lilac of the Catalpa, or the yellowish green of the Tulip-tree. *East Somerset, June 19.*

Plants with the Flavour of Oysters.—A few days ago Mr. Green, of Pendell Court, was paying us a visit, and during a most delightful ramble round the garden this great enthusiast made a discovery which may not be very generally known. We have fine beds here of *Pulmonaria maritima*, with its extra-

ordinary flavour of oysters. These plants Mr. Green greatly admired, and they made such an impression upon his mind that on visiting the herbaceous garden, a little later on, he immediately spied out and pounced upon a relative in the shape of *Mertensia paniculata*. To his intense delight the victim was found to contain a more pronounced flavour of oysters even than *maritima*, and *paniculata* being so much easier to cultivate than *maritima* it is well to know that it possesses just the same kind of flavour. *L. J. Vair, Dangstein, June 18.*

A Ladder for the Orchard.—In the course of years we have published many styles of fruit or orchard ladders; some of these were for the conversion of an ordinary ladder into one suited for orchard work, and others have been special contrivances, useful for fruit-picking, and for scarcely anything else. We now give one for which a very neat sketch and the measurements were sent by a correspondent in Illinois. The engraving (fig. 118) plainly shows the affair—a ladder mounted upon a two-wheeled wheelbarrow. The brief directions give out the following points to be observed in building it. The axle for the wheels, in order to give as broad a base as possible, and avoid the danger of its tipping sideways, should be as long as will allow it to pass through the gates upon the farm. To avoid tipping forward, it should be so built that a plumb-line dropped from the top of the ladder will strike the axle. The shafts (c) should hinge under the axle, near to the wheels; where they are bolted to the ladder the holes should be large, to give some play, and they should extend far enough back to afford convenient handles. The standards,

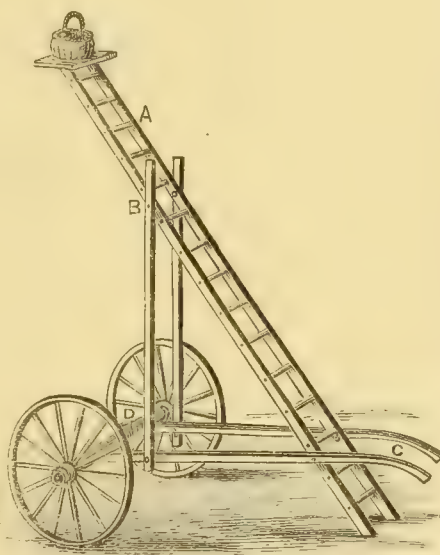


FIG. 118.—ORCHARD LADDER.

B, are bolted to the shafts, C, at a point one-third the distance from the axle to the foot of the ladder, and are attached to the ladder at a point three-fourths of its length from the base. Our correspondent writes that if one has a pair of wheels, such a ladder will cost from 2 dols. to 3 dols. more than a common one, and gives it as his experience that "it beats the world in an orchard or a stack-yard." *American Agriculturist.*

Show Pelargoniums.—We have lately raised numerous seedlings of this class, some of which have received honours already, and figure on Mr. C. Turner's list; but, if not accused of partiality, is it the experience or not among other cultivators that Pelargoniums with aromatic foliage, like our own Bridal, which is the only pure white of its class, are nearly, if not quite, free from attacks of greenfly? This is no mean advantage, if it should prove to be really the case; and is this true, or not, of other plants? *T. C. Bréhaute.*

The Museums at Kew.—I can scarcely agree with your correspondent "Visitor" as to the general improvement at present apparent in Museum No. 1 at Kew. No doubt a large quantity of duplicate specimens has been withdrawn from the cases, and the rearrangement on the most modern scientific plan is to botanists a good one; but these alterations should be made during the interval between the death of the old edition of the *Guide* and the birth of a new one. Since the alteration the *Guide* now in circulation is of no use whatever, for but few of the numbered objects are in the cases indicated. While advocating scientific accuracy and utility I think public convenience should also be considered when

a new edition of the *Museum Guide* makes its appearance, and the specimens are rearranged and relabelled, a work upon which I found the Curator engaged during recent visits to Kew. There is no doubt the value of the collection for reference will be enhanced, and thus popularity, it is hoped, not decreased. I therefore think it right on behalf of the public to ask for an early issue of a new *Guide*. *Another Visitor.*

The Apple Crop.—Mr. Radclyffe is doubtless to some extent right when he says that the heavy rains have induced the barren condition of our Apple trees. Such very heavy rainstorms have been very unusual in May, still the frost must bear some of the blame. I saw large quantities of Apple blossom in which the centre was as black as night, the frost having killed the style whilst the petals were yet unexpanded. This has proved that the Apple blossom is not generally hardy. It will yet be of interest to learn, first, what sorts are proving most productive, and reared under what system of culture—whether growing naturally or whether close pruned. One result is inevitable: certain knowing people will presently exclaim, We don't grow half enough fruit for our own wants, therefore plant railway banks and roadside hedges. Alas! if we could but get crops of fruit commensurate with our fruit trees, we should have enough and to spare. *A. D.*

Gold-laced Polyanthus.—I am surprised that "X." should ask why so many seedlings from thrum-eyed flowers show the pin. I fear he has not read Darwin's remarks on the genus *Primula*; but if he does he will find that it is not a case of throwing back to an evil habit, but rather a sexual one and peculiar to the genus *Primula*. He will also find, on looking into any hedge-bottom, pin-eyed *Primroses* of as fine form as thrum. In the North *farinosa* the same; the foreign *japonica* also the same; *Auriculas* ditto. I would suggest that as pin and thrum-eyed flowers are equally good in form and colour, that two classes should be made for them at the shows; the pin representing female, the thrum the male, as the sexes in dogs at shows are classed. I find my gold-laced plants bred on this system produce plants as hardy as Rhubarb, and though not prize sorts they are much handsomer than border varieties of the ordinary kind. They improve every generation, as I use only the original type, Cheshire Favourite, or one nearly as good, on my pins, thus restricting the tendency to deterioration which would arise from breeding from my own thrums raised, however good, as they would be brothers, and the good and bad properties equally transmitted to the pins their sisters. *F. M. K.*

Strawberries in Pots.—The writer of the Calendar on Strawberries in pots appears to have gone out of his way to remark that he would like to point out to Strawberry forcers what a fallacy it is to suppose that the earliest runners are to be obtained from forced plants that have been planted out, as a writer in last week's *Gardeners' Chronicle* would have us believe. He then goes on to state that his own practice has for years been to make a fresh plantation every season, for the express purpose of yielding runners, which he says they do at least a fortnight before forced plants; but surely that must depend much on the time these latter are turned out, for if planted early in April they emit runners at once. To prove that this is so, I send you some from plants so treated, that you may see how forward they are, and if Mr. Hinds had been longer at Canford Manor I should have asked for some of his that they might be compared. I am at a loss, however, to understand why we should go to the trouble of planting specially to obtain early layers, when directly after making the statement he says the general custom of hastening on plants that are grown in 5-inch pots for early forcing is not the best one, for the reason which he gives, that, the roots being restricted, the balls of earth become literally matted with roots long before the growing season is over. Now I venture to say that this root-bound condition, ensuring as it does early maturity of the crowns, is just what all good cultivators of the Strawberry aim at, and I am much mistaken if Mr. Hinds is not alone in the singular opinion he has formed of such plants. To make an effort to get early runners when he appears to prefer late ones, and to be satisfied if they are ready for potting at the end of July, is incomprehensible, and a thing "no fellow can understand." *J. S.*

The Culture of Roses.—At p. 792 you give some "brief hints on the culture of Roses," as issued by the National Rose Society, and under the heading of "stocks" it is stated that the seedling Brier does not throw up suckers. Now it happens that my hedges are very full of Briers, and they certainly increase by suckers, and as certainly they grew from seed, for no one ever planted them. Then, as seedling Briers in the wild state have suckers, it would be interesting to know what change in root-

growth is induced by cultivation. Again, under the head of "planting," we are told to place the point of junction, in budded plants, below the soil, so that the Rose may form roots. In the previous paragraph it is stated that only some Roses do well on their own roots, and the Brier is strongly recommended as a stock. The uninitiated would have thought to persuade the Rose to throw out roots would be rather injurious than otherwise, presuming, that is, that on their own roots they did not succeed—so I would humbly suggest that, perhaps after all, the budding and grafting is more advantageous to the propagator than to the Rose tree—at least, that is my experience. *H. L., June 24.*

Strawberry Cultivation.—I think it right to inform "Cultivator" that the Strawberry hills (cultivated by me and planted out last autumn) are nearly 3 feet in diameter, and that it has been necessary to prop up the fruit all round with wire to expose it to the sun and air, for although the hills were planted 3 feet apart every way the plants were so crowded as to hide the fruit. Although "Cultivator" imagines he has arrived at the top of the tree, I think he will find he has still something to learn in Strawberry cultivation. *Observer.*

The Slaughter of the Apricots.—Mr. Fish describes the slaughter of the Apricots in a manner which is calculated to drive terror into the hearts of many an ardent cultivator. It is no doubt a melancholy fact that the mortality among Apricots has been unusually large this season, but have not the winter and spring been both unusual and unprecedented? The Apricot trees here are dying outright, and the mortality is general in this neighbourhood; but I am not alarmed at so many coincidences cropping up at the same time—I rather regard it as proof of the real cause of the malady. Mr. Fish admits that the disease is prevalent in the Eastern Counties, as it appears to be here, and I can see no cause for alarm if the death-rate among trees should be in proportion to the severity or sudden changes of the weather. Stone fruits are rather precarious subjects to deal with at the best, and are more prone to die off in certain soils, situations, and localities where the conditions under which they are cultivated are not suitable; especially is this the case if the temperature varies to great extremes of heat and cold, which is, in my opinion, the prolific source of many of these evils. The fact of the past month of May not being so cold as some that Mr. Fish can remember is not the question. It is not the duration of cold that kills the trees—it is the sudden atmospheric changes. I don't think I ever remember a time when there have been greater fluctuations of temperature in such an incredibly short time as I have observed during the past month, and it is a notorious fact that after every sudden change one can notice the leaves of an arm or branch curling up, which denotes the first external symptoms of decay. And again, why is it that Apricots on west walls do not suffer to the same extent as those on south walls? Simply because there is not the same disparity between the day and night temperatures. The disease is a temporary paralysis of proper action between root and branch. Regulate the temperature by a readjustment of our present system of wall planting, and you will minimise the disease. Will no one propose a cheap remedy in the shape of covering for valuable walls? If not, sure living Pear trees are more profitable than dead Apricots. What say some of your practical correspondents? *W. Hinds.*

Hardy Dianthus.—The most popular of all this useful family, the Sweet William, stood the winter remarkably well. A large bed of hundreds of plants, fully exposed, had not at the close of the hard weather a brown leaf upon them. Another kind, evidently a garden hybrid, and known, I think, as *Dianthus floribundus*, just now in bloom, has also proved literally as hard as a brick. It is now in bloom, the flowers are borne on stalks singly, are of a rosy-pink colour and double. It looks like a cross between the Indian Pink and the garden Pink. Whatever its origin, it is a capital border flower. *A. D.*

Apricots Dying Off.—Like Mr. D. T. Fish I reside in East Anglia, and if there is any comfort to be derived in looking at Apricot trees that are mere wrecks, it is in the knowledge that others have fared no better, which after all is only a grim kind of satisfaction, and yet till one hears of such cases we are apt to think there is no one so hardly used by the weather as ourselves, or that we might have done something to prevent the calamity, and therefore feel an inward reproach. That some gardens have escaped better than others in the same district is certain, a striking proof of which occurs with a near neighbour of mine on the other side of the river, where a lot of young Apricots are full of fruit, and looking as healthy and well as can be desired. The aspect of the wall on which these are growing is just the same as our own, but immediately at the back a

high hill rises, and the winds from the east are shut out by a wood, and these with the aids Mr. Wallis afforded by way of protection have saved the trees and a crop. Nectarines in the same garden are abundant, and yet, strange to say, Gooseberries and Currants in some parts of it, where more exposed, are much cut. Taking our own trees throughout, I do not remember during the last twenty years to have seen them so much cut and crippled as they are this season, for, bad as last spring was, they did not suffer in anything like the same degree. The frost was sharp then, but we did occasionally get fitful bursts of sun and warm weather, things almost unseen or felt during the present spring, and now we have June 21, and the day almost as cold and wet as at midwinter. No doubt but we shall hear of good crops in places, but I fear they will be exceptional, as they can only occur in situations favoured in some way so as to take the sting out of the wind. *J. S.*

The Automatic Rose Budder.—I know some professionals and amateurs who whip out the buds and whip them in and fix them there in the best position before the novice or the bungler has cleared his stocks of Thorns for a start. For the skilled budder is a sort of automaton; he never misses his mark—hardly ever fails to insert his buds in the best possible manner, and to make them grow. But how few reach this high state of perfection. It seems a simple matter, but it isn't, to bud Roses expertly and well. The raiser of John Hopper and other Roses of merit, one of the most expert budders himself, has for years been anxious to invent some mechanical aid to budding that would enable others to equal or excel his best performances. Calling in to his aid the mechanical ingenuity of Mr. Garrard, and advising with horticultural fervour, the two between them have brought out an automatic budder, which, after most careful inspection, I have great pleasure in introducing and recommending to your readers. Perhaps I can hardly do better than allow the inventors to speak for themselves in the following modest estimate of its merits:—

"The object of this invention is to facilitate the art of budding. Notwithstanding all the instructions that have been given, budding is still a somewhat difficult and delicate operation. However handy the budding-knife is at present in the hands of practical experts, it is at best ill adapted for the purpose, and difficult to handle, especially by amateurs. The operation of budding often proves a failure by the bark being improperly raised, and by the danger to the bud by insertion. All these risks and difficulties are avoided by the use of the new patent budder. The transverse cut, so injurious to successful budding, is by its use dispensed with. The operation is of a very simple description—the bud being cut in the ordinary way is at once placed on the needle point, being then ready for the next operation of insertion; press the cutting edge of the patent budder on the bark, moving it gently along a sufficient distance to receive the bud. The bark will then be cleanly cut and opened, the cambium uninjured. By touching a small spring with the finger, the bud is pushed from the base of the budder, and left in the best position for speedy and healthy growth. It has been carefully tested during the last budding season, and after many expensive and exhaustive experiments, the art of budding is successfully placed within the reach of all, and in the hands of professional budders the result is being able to accomplish this operation six times quicker than by the ordinary method. It is confidently anticipated that a complete revolution will be effected in the budding of Roses and fruit trees by so simplifying the process, and to bring the fascinating and delightful art of budding within easy reach of all."

Having tested the budder in various ways I endorse this statement with pleasure, and consider that the budder will prove a most welcome boon to ladies, amateurs, and even professional budders. *D. T. Fish.* [We shall give a figure of this implement, and shall hope to test its merits for ourselves. *EDS.*]

Tuberoses.—Will Tuberoses flower the second year? was a question asked by one of your correspondents—Mr. Barr I think—last year, and subsequently it was suggested that the question be submitted to a practical test, and the result recorded in the pages of this journal. Having complied with the former suggestion, I hasten to lay before your readers the result of my experience: the facts are briefly these. Last year, instead of throwing away all our plants when they had done flowering, as I believe is customary, I saved back twelve plants, not picked ones, which were placed under a stage in a late vinery, where they remained until the end of April, without receiving any water to the roots other than what they derived from the moisture of the house, by which time most of them had thrown up their flower-spikes, which proceeded from young tubers, formed immediately upon the top or crown of the old ones, and from the union of which—when the plants had received a thorough watering and otherwise were subject to a growing temperature—a profusion of roots emanated, after which the plants received a suitable shift to a small 24. The spikes of these plants, although not so strong or fine as those produced by tubers imported last autumn, are never-

theless good, both in spike and each individual flower, which, moreover, expanded in the most satisfactory manner possible—so much so, that this and other seasons I intend to save all my Tuberoses for flowering the second year, and perhaps the third year. I may here remark, for the information of the uninitiated in Tuberose culture, that in potting the tubers all little bulblets or offsets should be rubbed off, and subsequently any suckers which may appear should be removed forthwith, otherwise failure to flower these most beautifully scented flowers in all probability will be the result. The plant is of comparatively easy and simple culture, and considering the value of the Tuberose while in flower, and its great suitability for bouquet making, &c., the wonder is that it is not more extensively cultivated in private establishments. The flowers wire well. *H. W. Ward, Longford Castle.*

Whitethorns in the Phoenix Park.—The Whitethorn blossom is this year in finer condition than has been seen for many years. The trees look as if covered with snow, and when it is remembered that there are thousands of old trees, your readers will to some extent imagine what a fine sight the park now presents. The valley to the left of the Magazine Fort, with the declivity on either side densely clothed with trees for a distance of half-a-mile, is perhaps the locality where the largest extent of blossom can be seen at one time, the view being unbroken by other trees. But the Knockmaroon district is by far the most picturesque, the Thorns being interspersed with masses of Furze. Sunday last, the 15th, was the finest day of the whole year as yet, and full advantage was taken by the inhabitants of Dublin to visit the park and Thorns; fully 1000 cars entered the park on that day, loaded with visitors, and at the Dublin entrance the crush of pedestrians was extreme—it was like a Derby Day on the road to Epsom; and although there are only five constables in livery to maintain order in the park, and the temptation to carry away the Thorn blossom was very great, there was comparatively no damage done to the trees, and perfect order prevailed. *W. D., Dublin.*

Insects and Orchids.—I have read with pleasure the criticism from Mr. F. W. Burbidge on what I had written on this subject, and written, too, without the slightest intention of hurting the feelings or of disparaging the ability of a gentleman whom I do not know. As Milton said, long ago, "Let truth and falsehood grapple," let every man record his results freely, fully, and hold them and stand by them until he finds something still better, for his own guidance and the benefit of his brothers. If I have said one word likely to misrepresent Mr. Spyers I have done so unintentionally, and I sincerely regret it; but let any man read Mr. Spyers' notes, and he must, I think, come to the same conclusion that I have done. My method of fumigation is not imaginative or theoretical: it is a fact. I do not put it forth as a theory, but knowing from experience its efficiency, and hating as I do the horrible stench of tobacco-smoke, I felt and feel I have but done my duty in giving my experience to fumigators, and fearlessly assert that there is no use whatever in remaining within any house during the process. I do not wish to go into details about words. I am particularly pleased to find Mr. Spyers was not describing his own practice, and I rejoice to see by his brilliant achievement at the Regent's Park show that he is a master of his profession. I am proud to see Mr. Burbidge stand up in defence of his friend, I wish we had more of this in the profession; and I also trust Mr. Spyers will write continuously. I read his instructions and advice with pleasure, and hope long to see him in print, and some day to meet him in the flesh. *William Payne, Belmont, Taunton.*

Reports of Societies.

Royal Horticultural: June 23.

SCIENTIFIC COMMITTEE.—Arthur Grote, Esq., in the chair.

Fungus on Lily.—Rev. M. J. Berkeley reported that the fungus growing on *Lilium columbianum*, in Mr. Elwes' garden, was *Uredo Prostii*: a nearly allied, if not identical form, grows upon the Onion, and is very destructive. The remedy is to burn the affected plant.

History of the Genus Tulipa.—Mr. Elwes communicated an elaborate paper on this subject, which will be printed in full in the Society's *Journal*. The characters afforded by the bulb tunics and the pubescence of the stem were found to be unsatisfactory.

Diffusion of Coloured Liquids in Flowers.—A pamphlet on this subject, by Dr. Saccardo, was laid on the table.

Cucumber Disease.—Messrs. Smith, of Dulwich sent clubbed roots of Cucumber, the swelling being apparently due to the presence of vibrios, as so often illustrated in these pages.

Lilies Injured by Insects.—Mr. Jennings showed specimens, which were referred to Mr. McLachlan for report.

Monstrous Pyrethrum and Primrose.—Dr. Masters showed, from Mr. Parker, a flower-head of a *Pyrethrum*, the florets on one half of which were long and strap-shaped, while on the other half they were tubular, as in the *Anemone*-flowered race. Dr. Masters also showed, from Mr. Douglas, a remarkable form of the common *Primrose*, which will be examined and reported on at a future time.

Plants Exhibited.—By the Rev. Harpur-Crewe: *Vicia armena*, a charming hardy Vetch with large lilac flowers. By G. F. Wilson, Esq., a cut spike of *Xerophyllum asphodeloides*. By Dr. Masters: a spray of cut-leaved Hornbeam, from Mr. Morrell, Oxford; and a bloom of *Cereus*, referred to Mr. Croucher. From Messrs. Veitch: *Cyrtopodium* sp., curious for the circumstance that each flower was subtended by a bract marked with bars and spots like the sepals; also a hybrid *Dendrobium* between *D. Huttoni* and *D. sanguinolentum*; and *Ledebouria pendula*, a *Eucomis*-like plant, with greenish flowers.

FLORAL COMMITTEE.—Dr. Denny in the chair. First-class Certificates were awarded at this meeting to Mr. James Chambers, Westlake Nursery, Isleworth, for *Begonia* Royal Standard, an exceedingly fine new tuberous-rooted variety, with large, finely-formed crimson flowers, the shade of crimson nearly approaching in depth to the popular cardinal. To Messrs. James Veitch & Sons, for *Davallia fijiensis* major. To Mr. James King, gr. to G. Simpson, Esq., Wray Park, Reigate, for *Coleus* Eva, a new variety, with leaves of a warm crimson ground colour, heavily blotched with yellow, and in general appearance not unlike one of Mr. Bull's novelties called *Harlequin*, but less varied in colouring. To G. F. Wilson, Esq., Heatherbank, Weybridge, for *Xerophyllum asphodeloides*, a rare North American Melanthaceous plant, with white flowers produced on a tall stem in the form of a raceme; and which appears to grow freely enough in the rock bed at Heatherbank. Mr. A. Boxall, gr., Claybury Hall, Chigwell, Essex, received a Cultural Commendation for a well-flowered specimen (not a bedded-out one) of *Cypripedium barbatum superbum*, a large and highly coloured variety, in fact about as fine a form as we remember to have seen. From Messrs. James Veitch & Sons also came, amongst other new plants, one of *Croton Brageanus*, a long, narrow pendent-leaved form, boldly variegated with rosy-crimson and creamy-yellow; a flowering plant of a *Cyrtopodium* sp., alluded to elsewhere; and *Rhododendron Duke of Edinburgh*, one of the new race of hybrids with dull salmon-coloured flowers. Mr. Speed sent from Chatsworth a showy *Amaryllis*, named *Beauty of Chesterfield*, with bold well reflexed flowers, bright crimson-scarlet in colour, with a white bar up the segments. Mr. C. Noble, Bagshot, showed a pale rose-coloured variety of *Azalea amena*, named *lateritia*; and Mr. Wills contributed specimens of one of his fine strains of *Gloxinias*, a large erect-flowered variety, named Mrs. Causton, greyish-white, with purplish-violet throat. From Mr. Watson, St. Albans, came a neat habited scarlet-flowered *Begonia*, called *Victor Emanuel*; and Messrs. Cripps & Son, Tunbridge Wells, sent a well-flowered plant of *Clematis lanuginosa*, *Souvenir du Prince Imperial*, a large, broad, pale blush, six-petalled flower, with pink bars, occasionally semi-double. Mr. B. Johnson, gr. to J. T. Clarke, Esq., Swakeley, Uxbridge, distinguished himself by exhibiting cut blooms of a pretty white-flowered *Columbine*, with corulean-blue sepals and spurs, under the name of *Aquilegia Swakeleyi*, a misleading and absurd name, which should not have been allowed to pass by the Committee. From Chiswick Mr. Barron sent up a collection of *Begonias*, mostly seedlings, but including a strong plant of that charming pink-flowered variety, *Nellie May*. Mr. Cannell's exhibition of cut blooms of *Zonal Pelargoniums* was again the admiration of all, and Messrs. Barr & Sugden added interest to the meeting by the exhibition of a collection of cut blooms of German *Irises* and double *Pyrethrums*.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. H. J. Hardy, Stour Valley Seed Grounds, Bures, submitted several samples of a large *Cos* Lettuce named *Eastern King*, and obtained from autumn-sown seeds. Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, showed a dish of fruit, handsome in appearance, but belying their looks as regards flavour, of the *Duc de Magenta* Strawberry, which he has proved to be a very free bearer. Mr. Gilbert, gr. to the Marquis of Exeter, received a Cultural Commendation for excellent dishes of *Acme* and *Criterion* Tomatoes, and an artificially netted fruit of the *Victory of Bath* Melon.

York Horticultural: June 18, 19, and 20.—This Society on the present occasion may be said to have attained its majority, as it is now twenty-one years since the committee first held an exhibition on an extensive scale, but if we compare the various produc-

tions shown during the first years of the Society's existence, with what are now forthcoming, the latter contrast most favourably, as those who recollect the first efforts can well remember. The committee have from the first had a double object in view, to make their displays so far attractive as to draw the public in sufficient numbers to make them not only self-supporting, and also to accumulate a fund that would place the Society out of danger from bad weather. This has been attained, for we understand that after at different times being able to give handsome sums to the local charities, the committee had before their present successful exhibition some £1300 with their bankers.

With the exception of cut *Roses* and fruit, the show was above the average of those held here. In the open class of fifteen stove and greenhouse plants, ten in flower, and five fine-leaved, there were three competitors. Mr. Tudgey, gr. to J. F. G. Williams, Esq., Worcester, took the lead, staging amongst others some very fine *Heaths*, particularly the varieties of *ventricosa*, *magnifica*, and *coccinea minor*; a large and particularly well bloomed *Dracophyllum gracile*, and an immense bush of *Pimelea decussata*. Messrs. Cole, Withington, Manchester, were 2d, their best examples being of the blue-flowered *Statice profusa*, 4½ feet through, bright, fresh, and densely bloomed; and *Gleichenia Spelunce*, not less than 8 feet through. In the amateurs' classes for six and also for three blooming plants the competition was close. *Heaths* large and finely flowered, *Stephanotis*, *Trachelospermum jasminoides*, *Bougainvillea glabra*, *Clerodendrons*, the everlastings *Aphelaxis* and *Phenocoma prolifera*, well managed, were the principal subjects exhibited. Mr. Tudgey scored 1st in both, and Mr. Noble, gr. to T. Fry, Esq., was 2d in each. For *Heaths* it was so close a run betwixt Messrs. Cole and Mr. Tudgey that equal 1st prizes were awarded them. If these once favourite subjects—then, as now, no bad test of the plant grower's abilities—are less seen at the metropolitan shows than they used to be, they are still to be met with in the provinces, well-grown and profusely flowered. For four *Azaleas*, Messrs. Cole were 1st with smaller examples than their opponents, but the flowers on their plants were very much larger, so as to fully exemplify the respective varieties—a condition frequently absent in the plants now exhibited not only in the provinces but at the London shows as well. Messrs. Cole had in their group a comparatively little known white variety, *Beauty of Surrey*, one of the best formed flowers we have seen. For three *Azaleas*, Mr. Berry, gr. to W. Dove, Esq., was 1st, having the double white *Flag of Truce* and *Souvenir de Prince Albert*, which, despite its defective form, is very attractive.

Orchids were well shown. Mr. Mitchell, gr. to Dr. Ainsworth, Manchester, came in 1st in both the classes of six and three, having amongst others *Vanda suavis*, bearing six good spikes; *Cypripedium Parishii* with nine, four to five flowers on each; *Saccolabium premorsum*, six fine racemes; and his well-known plant of *Aerides maculosum*, var. *Schröderii*, which goes on yearly getting larger and stronger, carrying its old leaves remarkably well on this occasion it bore five spikes, four of them with from two to four lateral branches; Mr. Hayward, gr. to — Hincks, Esq., was 2d for both six and three, with small but beautifully flowered plants, including *Odontoglossum vexillarium*, the chastely delicate-tinted *Lælia majalis*, and *Epidendrum vitellinum*, bearing ten bright orange-red spikes; Mr. Mitchell also exhibited a fine plant of *Vanda Denisoniana*, having a couple of spikes of its white green-tinted flowers, and to which an extra prize was awarded.

Fine-foliage plants were forthcoming in quantity and in excellent condition, particularly in the open class of eight, where the competition was keen. The 1st prize was won by Mr. Wood, gr. to A. Wilson, Esq., in whose collection was a grand plant of *Geonoma Seemanni*, one of the very best dwarf Palms, and an equally good *Cordylina indivisa*, a plant which few succeed in keeping long in good condition. Mr. Lazenby, gr. to Mrs. Pease, and Mr. Noble, came in equal 2d, both staging not very large but beautifully grown plants. In the amateurs' division for similar plants Mr. Tudgey was easily 1st, with a very clean handsome lot of young specimens, amongst which were *Croton Veitchii*, and the very large-leaved *C. Andreanus*, the latter remarkably high coloured; and a beautiful example of *Gleichenia Mendelii*. Mr. Wood, who was 2d, had a fine plant of *Anthurium crystallinum*, and the singular *Oreopanax dactylifolium*. There were several exhibitors of *Ferns*, some having all tree species, others all low spreading kinds: Mr. Tudgey took the 1st prize with a nice even lot, containing a very fine *Adiantum tenerum*, still one of the best. *Pelargoniums* are now shown in Yorkshire in a condition not equalled by any other place in the kingdom: the examples of both the large varieties, and also *fancies*, reminded us of the days when Turner, Bailey, and later on Ward, used to astonish visitors to the London shows by the immense marvellously bloomed specimens they exhibited. In

the class of twelve show varieties Mr. C. Rylance, Ormskirk, near Liverpool, was well to the front with an admirable dozen, so far as we can recollect not surpassed by any the veteran grower has previously shown: amongst them *Queen Bess*, *Brigantine*, *Belle of the Ball*, *Duchesse de Morny*, *Mary Hoyle*, and *Claribel*, were remarkably fine. Messrs. Lazenby & Sons, of York, were 2d, with a well managed collection; Mr. May, Bedale, 3d—his plants being scarcely at their best. For six large varieties, Mr. Winterburn, gr. to T. Simpson, Esq., was 1st; Mr. Eastwood, gr. to F. W. Tetley, Esq., 2d. The *fancies* were in no way behind the large kinds, big with a profusion of finely coloured flowers, and good in foliage. Here Mr. Eastwood took 1st, with one of the best exhibits we have ever seen; the sorts were *Ellen Beck*, *Exquisite*, *Marguerite*, *Lucy*, *Roi des Fantaisies*, and *Mrs. Hart*: from the well-known character of these it will be seen that not much in the shape of improved new varieties has recently made its appearance. Mr. Rylance was 2d. The zonal and nosegay varieties were equally well done, and, like the already mentioned kinds, were present in immense quantities. Mr. Macintosh, gr. to J. T. Hingston, Esq., bore the palm with exceptionally fine examples, the most telling of which were *Rose Bradwardine* and *Triomphe*; Mr. Eastwood was a good 2d. Six zonal: Mr. Stephenson, gr. to Alderman Weatherly, was 1st; in his half-dozen *Corsair* and *White Clipper* were splendidly flowered.

Pot Roses.—There was a quantity of these, well-grown and equally well-bloomed, the late season having been especially favourable to keeping them back, but, although collectively very meritorious, they looked small in the absence of the immense plants the eye gets accustomed to see exhibited by Messrs. Turner and Paul. For six in unlimited-sized pots Mr. J. Pybus stood 1st, with medium-sized examples, of which *Madame Caillat*, rose-colour, full and even in petal, and *Centifolia rosea*, blush, were the best; Mr. Eastwood was 2d, having bushy plants well clothed with foliage. For fifteen in 8-inch pots, Messrs. Jackson & Co. were 1st with a nice even lot, the best of which were *Madame Caillat*, *Marquise de Castellane*, *Niphetos*, *Louise Wood*, and *Souvenir d'un Ami*; Mr. Pybus 2d, and Mr. May 3d. For nine in 8-inch pots the same exhibitors filled the same positions. In the amateurs' class for six *Roses*, pots not limited to size, as also for six in 8-inch pots, Mr. Eastwood and Mr. Macintosh stood 1st and 2d. The display of these plants altogether, for so late in the season, was very creditable.

Mr. Berrie was 1st with *Calceolarias*, staging well-flowered plants of a very good dwarf strain remarkable for their stout healthy foliage.

Hardy Ferns, as usual here, were in great force, large, and in fine condition; but some of the exhibitors, as often occurs with these plants, confined their collections so much to two or three of the easiest grown genera, as to much reduce the interest attached to them. Mr. Scott, gr. to J. Buckle, Esq., of York, was 1st, showing a grand lot; Mr. W. R. Robinson 2d, with a smaller but beautiful dozen. In the class for thirty-six British Ferns, in 6-inch pots, Mr. Robinson was 1st, Mr. Rodwell 2d.

Alpine and herbaceous plants were well represented, Mr. Rodwell took 1st for twenty, Mr. R. Simpson 2d. The display of cut *Roses*, as might be expected from the absence of outdoor flowers, was both limited in extent and only moderate in quality. For forty-eight Mr. May held the post of honour, Mr. Tetley 2d, the flowers in the case of both being uneven. Thirty-six: Messrs. Jackson & Co. were here a good 1st, staging a neat lot, the most noticeable being *Emilie Hausburg*, *Fisher Holmes*, and *Louis Van Houtte*; Mr. May 2d. Twelve *Tea-scented Roses*: These were better shown; E. R. Whitwell, Esq., who was 1st, had in his box a very pretty *Belle Lyonnaise*. For twelve white or yellow *Roses* Mr. Whitwell was also 1st.

There was a fine lot of cut flowers shown in *epergnes*, boxes, and bouquets. For twelve varieties, shown similarly to *Roses*, Messrs. Cole were, as they generally are, 1st, with enormous bunches of the usual kinds, comprising *Ixoras*, *Allamandas*, the beautiful bluish-purple *Franciscas*, *Bougainvillea glabra*, *Anthuriums*, *Heaths*, *Hoyas*, &c. Mr. McIndoe, gr. to J. W. Pease, Esq., was 2d, showing smaller bunches, but a beautiful group.

Bouquets in pairs, two for a bride and two ordinary, were well done. Mr. Wright, gr. to G. Talbot, Esq., was 1st in both, his flowers being lightly and artistically put together; Mr. Ryland 2d, with good examples.

For the first time the committee offered prizes for groups of plants arranged for effect, occupying a space of not more than 200 feet. It is wise to confine exhibitions of these to a moderate extent of space, as otherwise distant exhibitors are deterred from competing on account of the carriage of so many plants. There were five competitors. The plants stood on the ground, excepting such as each exhibitor saw fit to raise. Each group occupied a position down the centre of a large tent, which they

quite filled, and made up one of the most attractive features of the show. The prizes offered were £12, £6, and £3, but so well pleased were the committee with the response of the exhibitors to this, their first offer, that they did not content themselves with offering more another year, but at once made the prizes £12, £9, £7, and £5—a liberality both creditable to the committee and calculated to secure the kindly feeling and presence of exhibitors in time to come. Mr. Berrie took 1st with an effective group, the centre occupied by a large Palm surrounded with other large fine-leaved plants, amongst which were introduced flowering subjects, gradually sloping down to the ground-level. For a first attempt it was very meritorious, the only fault being that the descent was too even and wanting in a few light feathery plants to stand out from the surface. Messrs. Cole were 2d. The centre of their group was most artistically put together, but fell off through an insufficiency of small plants at and near the margin. The best feature in all the exhibits competing was moderation as to colour. Mr. Tudgey was 3d, and Mr. House, Peterborough, 4th.

FRUIT was shown in considerable quantities, but with few exceptions wanting in the colour that is so effective; neither is this to be wondered at when we take into account what the season has been. For ten dishes there were four exhibitors, Mr. McIndoe coming in an easy 1st, having Muscat and Black Hamburgh Grapes, a good Queen Pine, nicely coloured Royal George and Barrington Peaches, as also Lord Napier and Violette Hâtive Nectarines, a couple of nice Melons, and a very fine dish of James Veitch Strawberries—an even collection. Mr. Bannerman, gr. to Lord Bagot, was 2d. In his ten were Foster's Seedling and Black Hamburgh Grapes, a good dish of Violette Hâtive Peaches, Brown Turkey Figs, and a very fine Golden Perfection Melon. Mr. Miles, gr. to Lord Carington, was 3d; extra, Mr. Pratt, gr. to Viscount Hill. In the class for six dishes, Mr. McIndoe was also 1st, Mr. Bannerman 2d, Mr. Wallis, gr. to Sir H. M. Thompson, 3d. For four dishes Mr. McIndoe was still to the fore, thus making a sweep of 1st in all three classes with fruit similar in character all through; 2d, Mr. Mann, gr. to R. Hornsby, Esq.; 3d, Mr. Pratt. Pine, any variety: 1st, Mr. J. Miller; 2d, Mr. Clayton, gr. to J. Fielden, Esq.

In Grapes most shown were deficient in colour. For Black (single dish) Mr. Wallis was 1st, Mr. Noble 2d, with smaller but blacker bunches. White Grapes: Mr. Bannerman 1st, with Buckland Sweetwater in nice condition; Mr. McIndoe 2d. Any new variety of Grapes: 1st, Mr. Chuck, gr. to S. A. Thelluson, Esq., with Duke of Buccleuch, compact bunches and very large berries; 2d, Mr. Watson, gr. to Colonel Harcourt.

Peaches, single dish.—1st, Mr. McIndoe, with nice examples of Grosse Mignonne; 2d, Mr. Wallis. Nectarines, single dish.—1st, Mr. Miles; 2d, Mr. McIndoe.

Melon (scarlet-fleshed).—1st, Mr. Clarke, gr. to The Marquis of Ripon; 2d, Mr. Doe, gr. to H. Savill, Esq. Melon (green-fleshed).—1st, Mr. McIndoe; 2d, Mr. Mann.

Figs, single dish.—1st, Mr. Bannerman.

Cherries, single dish.—1st, Mr. Miles.

Mr. B. S. Williams, Holloway, had a good selection of new and rare plants, to which an extra prize was awarded. Messrs. J. Laing & Co., Forest Hill, showed cut flowers of several of the leading varieties of tuberous-rooted Begonias, as also beautiful flowering examples of some new varieties, amongst which Sir T. Lawrence, Dr. Duke, and Col. Pearson were awarded First-class Certificates.

This, as we have said, is the twenty-first year of the York show, the unflagging interest the public still take in it is the best evidence of its success, but success is not to be had without good management. The committee and their most assiduous Secretary leave nothing undone to make their exhibitions successful. The receipts were, on the first day, £272 14s.; second day, £817 5s.; third day, £327 2s.; making a total of £1417 1s.

Pelargonium Society.—A small display of large-flowered and fancy Pelargoniums was held on the same day in the large conservatory, under the auspices of this Society. Mr. Turner was the only exhibitor, contributing an exceedingly fine bank of specimen plants, large, healthy, well grown, and superbly flowered examples of some of the most perfect varieties in cultivation, and a large collection of seedlings, the productions of Mr. Foster, Mr. Bréhat, and Mr. Matthews. The latter were carefully examined by a committee of the Society, and First-class Certificates were awarded to Joe (Matthews), a flower of excellent form, with rose lower and dark maroon upper petals—a fine decorative variety, and as such certificated. To Emperor William (Foster), a painted flower, much in the same style as the last, but not of so dark a shade; and to Invincible (Foster), a very showy flower, with salmon lower petals, and the upper ones

of dark maroon. The group of specimen plants contained many fine varieties, so well known now as hardly to require mentioning again; but it also contained several specimens of a new variety, which is certain to become a great favourite with gardeners, so excellent is its habit, and so striking is the colour of the flowers. This is Illuminator (Foster), scarlet, with a white eye and a dark blotch on each upper petal. The Council of the Royal Horticultural Society awarded the exhibitor a Gold Medal. To add to the interest of the show Mr. Barron sent from Chiswick a large collection of species of Pelargonium, and some well-flowered plants of various double-flowered Ivy-leaved varieties. The postponed show will be held on July 8.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JUNE 25, 1879.

| MONTH AND DAY. | BAROMETER | | TEMPERATURE OF THE AIR. | | | | HYGROMETRICAL DEDUCTIONS FROM GLAISHER'S TABLES, 6th Edition. | | WIND. | | RAINFALL. |
|----------------|-----------------------------------|-------------------------------------|-------------------------|---------|--------|---------------|---|------------|------------------|--------------------|-----------|
| | Mean Reading Reduced to 32° Fahr. | Departure from Average of 18 years. | Highest. | Lowest. | Range. | Mean for Day. | Departure from Average of 18 years. | Dew Point. | Bearing of Wind. | Average Direction. | |
| June | In. | In. | In. | In. | In. | In. | In. | In. | | | In. |
| 19 | 29.71 | -0.08 | 68.4 | 48.6 | 19.8 | 50.1 | -3.6 | 51.1 | 83 | WNW | 0.00 |
| 20 | 29.67 | -0.12 | 69.1 | 54.1 | 15.0 | 50.0 | -0.9 | 53.3 | 82 | N.W. | 0.15 |
| 21 | 29.57 | -0.23 | 58.9 | 51.0 | 7.9 | 54.3 | -5.8 | 53.5 | 97 | NNW | 0.26 |
| 22 | 29.72 | -0.08 | 65.5 | 52.0 | 13.5 | 56.7 | -3.7 | 47.1 | 79 | S.W. | 0.00 |
| 23 | 29.65 | -0.15 | 65.5 | 54.5 | 11.0 | 53.7 | -7.0 | 46.4 | 76 | W.N.W. | 0.00 |
| 24 | 29.45 | -0.36 | 63.0 | 45.5 | 17.5 | 51.8 | -9.1 | 48.4 | 88 | N.W. | 0.44 |
| 25 | 29.48 | -0.34 | 62.5 | 47.5 | 15.0 | 52.7 | -8.4 | 47.5 | 83 | WSW | 0.83 |
| Mean | 29.61 | -0.19 | 64.6 | 49.3 | 15.3 | 51.9 | -5.5 | 49.9 | 84 | WNW | sum 0.68 |

June 19.—A fine day, but generally cloudy. Overcast and slight rain at night.

— 20.—Fine, but very cloudy at times. Rain in early morning. Slight showers at 4 P.M.

— 21.—A very dull bad day, overcast throughout. Cold. Rain fell continuously till 3 P.M.

— 22.—Generally dull and cloudy till evening, then clear. Windy. Cold.

— 23.—Fine, but dull and cloudy. Overcast at night. Few drops of rain at 10 P.M.

— 24.—Generally dull, but fine and bright at intervals. Frequent heavy showers of rain. Heavy hail-storm at 2.45 P.M., accompanied by slight thunderstorm, hailstones of unusual size. A cold day. Overcast at night.

— 25.—Very fine and bright between the showers. Heavy rain in early morning, and at 1 P.M. Thunder heard at 5.30 P.M. Cloudless at night. Cold day.

LONDON: Barometer.—During the week ending Saturday, June 21, in the vicinity of London the reading of the barometer at the level of the sea decreased from 30.06 inches at the beginning of the week to 29.50 inches by the afternoon of the 16th, increased to 29.94 inches by the morning of the 19th, decreased to 29.79 inches by the morning of the 20th, increased to 29.92 inches by the evening of the same day, and decreased to 29.70 inches by the end of the week. The mean reading for the week at sea level was 29.75 inches, being 0.21 inch below that of the preceding week, and 0.22 inch below the average.

Temperature.—The highest temperatures of the air observed by day varied from 69° on the 17th and 20th, to 59° on the 21st; the mean value for the week was 66½°. The lowest temperatures of the air observed by night varied from 48½° on the 19th, to 57° on the 15th; the mean value for the week was 52°. The mean daily range of temperature in the week was 14½°, the greatest range in the day being 19½°, on the 19th, and the least 6½°, on the 15th.

The mean daily temperatures of the air and the departures from their respective averages were as follows:—15th, 58° 7', -0° 3'; 16th, 57° 9', -1° 2'; 17th, 57° 3', -2°; 18th, 57° 8', -1° 7'; 19th, 56° 1', -3° 6'; 20th, 59°, -0° 9'; 21st, 54° 3', -5° 8'. The mean temperature of the air for the week was 57° 3', being 2° 2' below the average of observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed in sun's rays, were 148½° on the 17th, 138° on the 16th, and 120° on the 18th; on the 15th the reading did not rise above 76°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 43½° on the 19th and 47° on the 18th. The mean of the seven lowest readings was 49°.

Wind.—The direction of the wind was S.W., and its strength gentle, except on the 21st, when it was very strong.

The weather during the week was generally dull and cool, though very fine at times. The 21st was miserably cold and wet.

Rain fell on four days during the week, the amount measured was 0.81 inch.

ENGLAND: Temperature.—During the week ending Saturday, June 21, the highest temperatures of the air observed by day were 75° at Sunderland, 74½° at Nottingham, 73° at Hull, and 72½° at Cambridge; the highest temperature at Truro and Plymouth was 67°, and at Liverpool was 68°; the mean value from all places was 70½°. The lowest temperatures of the air observed by night were 44° at Sheffield, 44½° at Nottingham, 45° at Hull, 46° at both Leicester and Leeds, and 46½° at Wolverhampton; the lowest temperature at Plymouth was 54°, and at Truro was 53°; the general mean from all stations was 48°. The extreme range of temperature in the week was the greatest at Nottingham, 29½°, and the least at Plymouth, 13°; the mean range from all places was 22½°.

The mean of the seven high day temperatures was the highest at Nottingham, 71°, Cambridge 69°, and Leicester 67½°; and the lowest at Plymouth, 63½°, and Truro and Sunderland, both 63½°; the mean from all places was 66½°. The mean of the seven low night temperatures was the lowest at Wolverhampton, 49½°, Nottingham, 50°, Sheffield, 50½°, and Leicester, 51½°; and the highest at Plymouth, 54½°, and Truro, 54°; the mean from all stations was 52°. The mean daily range of temperature in the week was the least at Plymouth, 9°, and the greatest at Nottingham, 21°; the mean daily range from all places was 14½°.

The mean temperature of the air for the week from all stations was 57½°, being 1° higher than the value for the corresponding week in 1878. The mean temperature was the highest at Cambridge, 59°, Nottingham, 58½°, and Brighton and Norwich, 58½°; and the lowest at both Wolverhampton and Sunderland, 56°, and Liverpool, 56½°.

Rain.—Rain fell on every day in the week at Plymouth, Cambridge, Nottingham and Bradford, and on five days at most other places. The amounts measured varied from 2.50 inches at Plymouth, 1.46 inch at Truro, 1.06 inch at Leicester, and 1 inch at Brighton, to 0.17 inch at Norwich; the average fall over the country was 0.85 inch.

The weather during the week was generally fine but cool and showery. The sky was cloudy.

SCOTLAND: Temperature.—During the week ending Saturday, June 21, the highest temperatures of the air observed by day varied from 72½° at Leith, to 65½° at Greenock, and 65½° at Aberdeen; the mean from all places was 67½°. The lowest temperatures of the air observed by night varied from 44° at Perth and 44½° at Edinburgh, to 49½° at Glasgow; the general mean from all stations was 46°. The mean range of temperature in the week from all places was 21½°.

The mean temperature of the air for the week from all stations was 56°, being ½° lower than the value for the corresponding week in 1878. The highest was 57° at both Glasgow and Perth; and the lowest were 53½° at Aberdeen, and 54½° at Edinburgh.

Rain.—The heaviest falls were 2 inches at Edinburgh, and 1½ inch at Leith; and the least fall was 0.32 inch at Aberdeen; the average fall over the country was 1.08 inch.

DUBLIN: The highest temperature was 71°, the lowest 44½°, the extreme range 26½°, the mean 58°; and the fall of rain 1.16 inch.

JAMES GLAISHER, F.R.S.

Answers to Correspondents.

ADIANTUM: W. W. A. The fronds appear to have been caught by a gleam of sunshine. The other Fern is *Pteris hastata*. We do not recognise No. 2, nor is it practicable to name plants from leaves only. We should certainly recommend trying it in a cooler house. The Vine-leaf is not sufficient to name the variety by—possibly it is Black Morocco, which has a similar kind of lobing.

ASPARAGUS: W. W. A. A sprinkling of salt, repeating it in the course of a few weeks, will probably be beneficial, so would a mulching of good rotten manure, or occasional applications of home-made liquid manure. We have no experience of the nitrate, but should recommend caution in using it. Why not try it on a small portion of one of the beds, varying the strength?

PEAS: H. H. Haxell. Bolls and tubers kept a season out of the ground certainly sustain damage; some things which are very tenacious of life may endure it and survive, but the majority will not. The decay of the fibre might be hastened by the use of a little quicklime.

DISEASED ASPARAGUS: G. K. I suspect that the roots of the Asparagus are attacked by *Rhizoctonia*, which used to be very destructive at Ely. It attacks also Mint, Potatos, and is known by gardeners under the name of the Copper Web. If you do not find the

fungus you will probably see that the roots of the diseased plants are in bad condition. *M. J. B.*

FLOWERS BY POST: *J. S. S.* If you only want to send a few, the best plan is to wrap them in thin paper, place them in a tin box, and fill up with damp moss; or, if there is not room in the box for any moss, line it with well-damped blotting-paper; and if possible lay a damped sheet or two between the flowers. Ferns and mosses may be sent in the same way, but if only sending a frond to be named, and it is not too large, all that is necessary is to place it between sheets of damp paper, protected by card-board, and sent in an ordinary envelope.

GLAZING: *P. T.* It will depend a good deal on the workmanship, but the plan is scarcely trustworthy. A good plan is to lay the glass on putty, and clean it off level with the surface of the glass. Rendle's system might suit you; it has stood well in some houses we have seen.

GRAPES: *E., Camberwell.* There is no mildew on the berries, but they have been badly scalded. Give a little air early in the morning, to dry up the condensed moisture on the leaves and berries, before the sun becomes too powerful. *J. Cole.* The backs of the leaves are disfigured with warty excrescences, the result generally of maintaining too close and too moist an atmosphere. More air and less moisture is the antidote.

GYNERIUM: *A. E. R.* Remove all the dead parts, carefully but thoroughly, and then give the living portion a good dressing of fresh healthy soil.

INSECT ON STRAWBERRY: *J. Price.* We do not find any insect on the specimen, and therefore cannot tell you what it is.

NAMES OF PLANTS: *Dennis.* 1, Vinca major, variegated form; 2, Phalangium Lilago; 3, Limnanthes Douglasii; 4, Helianthemum vulgare; 5, Diervilla (Weigela) rosea; 6, Euonymus europæus; 7, Phalaris arundinacea variegata; 8, one of the shrubby Veronicas, we cannot tell which without flowers. *J. T.* One of the Mouse-ear Chickweeds—probably Cerastium vulgatum, but the plant is not in bloom. *X. X.* 1, Anthyllis vulneraria; 2, Hedysarum Onobrychis (common Saintfoin); 3, Polygala vulgaris; 4, Parietaria officinalis; 5, no flowers—apparently Euonymus europæus; 6, Viburnum Awa-Furka. *E. Straker.* Saccolabium densiflorum—common in Assam. *T. D. M.* Phalænopsis grandiflora, no doubt. *C. J. B.* As near as we can tell, the shoot sent is the young growth of the Blue Gum tree, Eucalyptus globulus. *W. P.* Probably Crinum Macowani; but Crinums cannot be named specifically from single flowers; a knowledge of the bulbs, leaves, and inflorescence is also required. *J. G. B.—R. S. H.* Probably one of the American Asches. *W. T.* Lepidium Draba. *Ciren.* Habenaria, or Platanthera chlorantha. *B. M.* We do not undertake to name florists' varieties, which require materials for comparison such as we cannot have at hand. You could get your Azaleas named at any nursery where a collection is grown. *W. D.* Why give us the trouble to tie and unroll your labels before we could see the numbers? Could you not have written them on the outer side?

1, Lastrea Filix-mas cristata; 2, L. Filix-mas; 3, Polystichum acrostichoides; 4, Onoclea sensibilis; 5, Athyrium Filix-femina, a variety near depauperatum; 6, Calycanthus floridus; 7, Philadelphus coronarius. *F. B. F.* 1, Cheiranthus ochroleucus; 3, Polystichum angulare; 2, 4, and probably 5, Asplenium Adiantum-nigrum, but they are wretched scraps. *India.* 1, a Selaginella, not recognisable; 2, Acrophorus pulcher alias Davallia pulchra; 3, Lastrea, near Filix-mas, but immature; 4, Goniophlebium amœnum, apparently; 6, Pleopeltis, quite indeterminate in the state sent; 7, probably young growth of Syngnema vestita. They are all very imperfect, and sent loose so as to be shrivelled when they came to hand. You had better send again when the plants are more matured, and we recommend you to read the reply to *J. S. S.* printed above.

PANSIES: *W. Caudwell.* A very good strain of fancy varieties, without any special peculiarity. *J. B. R.* Of the show Pansies Nos. 1 and 7, which are rich in colour and clear in the marking, appear to be the best. Of the others Harlequin is curious, but rather washy in colour; the other comes near lilacina. Flowers sent so as to be delivered here on Tuesday morning, reach us at the most convenient time, but we cannot undertake, in all cases, to report on plants sent to us till the week after we receive them.

PLUM DISEASE: *N. S. S.* The cause of the disease is not known. In our experience the trees generally recover in a year or two.

ROYAL BOTANIC SOCIETY: ERRATUM.—In the report of this society's last show, at p. 797, it is stated in error that in the class for six Ferns, amateurs, Mr. Rann, gr. to J. Warren, Esq., Handcross Park, was 2d. The winner of this prize was Mr. J. Child, gr. to Mrs. Torr, Garbrand Hall, Ewell, Surrey; and Mr. D. Donald and Mr. Rann were placed equal 3d. We should also state that Mr. Walter Hills, gr. to Mr. J. S. Wells, Brookdean, Pulborough, was 1st with Muscat Hamburg in the class for any black Grape other than Black Hamburg, and 3d in the class for the latter.

* Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being sent as early in the week as possible. Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see. Letters relating to ADVERTISEMENTS, or to the supply of the Paper, should be addressed to the Publisher, and not to the Editors.

COMMUNICATIONS RECEIVED.—W. C.—J. D.—D. T. F.—E. H.—H. B. M.—W. T.—J. S. C.—A. E. R.—J. C. & Co. W. P. R.—D. C. P. (many thanks: we shall have the photograph engraved).—W. P. (the flowers were shrivelled when they reached us).—J. B.—J. H. M.—J. R. J.—W. H. D.—J. G. & Co.—G. S.—J. P.—J. Procter (we do not undertake to publish all communications that are sent to us, neither can we undertake to return MSS., except where specially requested so to do).—H. A. B. (please send specimen).—E. A.—Dr. Henriquez, Coimbra.—Baron Todaro.—W. R.—E. R. C.—Andie Leroy et Cie. (with thanks).—E. B.—T. H.

Markets.

COVENT GARDEN, June 26.

The long-continued inclement weather is telling upon almost all classes of goods reaching our market; we never remember such an absence of first-rate stuff at this time of the year. Business brisk. *James Webber, Wholesale Apple Market.*

FRUIT.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Apples, ½-basket | 1 6-5 0 | Melons, each | 3 0-6 0 |
| Cobs and Filberts, lb. | 0 9-1 0 | Oranges, per doz. | 6 0-12 0 |
| Figs, per doz. | 10 0-15 0 | Peaches, per dozen | 12 0-30 0 |
| Grapes, per lb. | 3 0-6 0 | Pine-apples, per lb. | 2 0-4 0 |
| Lemons, per 100 | 3 0-10 0 | Strawberries, per lb. | 2 0-10 0 |

VEGETABLES.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|------------------------|-------------|
| Artichokes, English | | Herbs, per bunch | 0 2-0 4 |
| Globe, doz. | 2 0-4 0 | Horse Radish, p. bun. | 4 0-.. |
| Asparagus, sprue, | | Lettuces, Cabbage, | |
| per bundle | 2 6-.. | per doz. | 1 6-.. |
| — Eng. per bundle | 5 0-6 0 | Mint, green, bunch.. | 0 4-.. |
| Beans, French, p. lb. | 1 6-.. | Onions, new, p. bun. | 1 0-.. |
| — broad, per lb. | 1 0-.. | Parsley, per lb. | 1 0-.. |
| Beet, per doz. | 1 0-2 0 | Peas, per quart | 2 0-.. |
| Cabbages, per doz. | 1 0-2 0 | Potatoes, new, per lb. | 0 6-0 9 |
| Carrots, new French, | | Radishes, English | |
| per bunch | 1 0-.. | Turnip, per 12 bun. | 1 6-.. |
| Cauliflowers, per doz. | 2 0-5 0 | Rhubarb, doz. | 6 0-8 0 |
| Celery, per bundle | 1 6-2 0 | Shallots, per lb. | 0 6-.. |
| Chilis, per dozen | 1 0-.. | Spinach, per bushel | 2 0-.. |
| Cucumbers, each | 0 9-1 6 | Tomatos, per dozen | 2 6-3 0 |
| Endive, per dozen | 2 6-.. | Turnips, new, bunch. | 1 0-1 6 |
| Garlic, per lb. | 0 6-.. | Veg. Marrows, each | 1 0-.. |

POTATOES:—Old Potatoes getting scarce, and best samples advanced in price. Best, 16s. to 18s.; Champions, 10s. to 11s.; Rocks, 9s. to 10s. New stuff from Malta, 12s. to 14s.; Lisbons, 10s. to 12s.; Jersey Kidneys, 14s. to 15s.; and Jersey Rounds, 10s. to 14s. per cwt.

CUT FLOWERS.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Abutilon, 12 blooms | 0 4-1 0 | Mignonette, 12 bun. | 6 0-12 0 |
| Anemone, 12 bunch. | 2 0-6 0 | Pæony, 12 bunches.. | 6 0-24 0 |
| Arum Lilies, 12 blms. | 4 0-12 0 | Pansy, 12 bunches.. | 2 0-6 0 |
| Azaleas, 12 sprays | 4 0-1 0 | Pelargoniums, 12 spr. | 0 9-1 6 |
| Bouvardias, per bun. | 1 0-4 0 | — zonal, 12 sprays | 0 4-1 0 |
| Cactus blms., 12 bun. | 2 0-6 0 | Pinks, 12 bunches.. | 3 0-12 0 |
| Carnations, per dozen | 1 0-3 0 | Polyanthus, 12 bunch. | 3 0-9 0 |
| Daisies, 12 bun. | 3 0-0 0 | Primula, double, per | |
| Day Lily, 12 bun. | 12 0-18 0 | bunch | 0 9-1 6 |
| Deutzia, 12 bunches | 4 0-12 0 | Pyræthrum, 12 bun. | 3 0-6 0 |
| Esch-choltzia, 12 bun. | 4 0-12 0 | Ranunculus, 12 bun. | 3 0-9 0 |
| Eucharis, per doz. | 4 0-12 0 | Rose de Muis, 12 bun. | 4 0-12 0 |
| Forget-me-not, 12 bs. | 3 0-9 0 | Roses (indoor), doz. | 1 0-9 0 |
| Gardenias, 12 blms. | 2 0-12 0 | — (outdoor), 12 bun. | 6 0-18 0 |
| Guelder Roses, 12 | | Stephanotis, 12 sprs. | 2 6-9 0 |
| bunches | 3 0-9 0 | Tropeolum, 12 bun. | 1 0-3 0 |
| Heliotropes, 12 sp. | 0 6-1 0 | Tuberoses, per dozen | 1 6-6 0 |
| Iris, 12 bunches | 4 0-12 0 | Wallflowers, 12 bun. | 4 0-6 0 |
| Isia, 12 bunches | 6 0-18 0 | | |

PLANTS IN POTS.

| | s. d. s. d. | | s. d. s. d. |
|------------------------|-------------|-----------------------|-------------|
| Arum Lily, or Rich- | | Fuchsias, per dozen | 6 0-18 0 |
| ardia aethiop., doz. | 6 0-12 0 | Genista, per dozen.. | 6 0-24 0 |
| Begonias, per doz. | 6 0-18 0 | Hydrangeas | 12 0-24 0 |
| Bouvardias, per doz. | 12 0-24 0 | Lilium elium, doz. | 18 0-48 0 |
| Calceolarias, per | | Lobelias, per dozen. | 4 0-9 0 |
| dozen | 6 0-18 0 | Mignonette, per doz. | 4 0-9 0 |
| Coleus, per dozen | 4 0-12 0 | Musk, per dozen | 3 0-9 0 |
| Cyperus, per dozen | 6 0-12 0 | Myrtles, per doz. | 6 0-12 0 |
| Dracena terminalis | 30 0-60 0 | Palms in variety, | |
| — viridis, per doz. | 18 0-24 0 | each | 2 6-21 0 |
| Erica, per dozen | 9 0-30 0 | Pelargoniums, doz. | 12 0-24 0 |
| — ventricosa, doz. | 15 0-42 0 | — scarlets, zonal, p. | |
| — perspicua, nana, | | dozen | 4 0-12 0 |
| per dozen | 18 0-42 0 | Rhodanthes, per doz. | 6 0-12 0 |
| Euonymus, var., doz. | 6 0-18 0 | Roses, per dozen | 12 0-42 0 |
| Ferns, in variety, per | | Saxifraga pyramid- | |
| dozen | 4 0-18 0 | alis, per dozen | 18 0-30 0 |
| Ficus elastica, each | 2 6-15 0 | Spiræa, per dozen | 6 0-24 0 |
| Foliage Plants, vari- | | — palmata, per doz | 18 0-48 0 |
| ous, each | 2 0-10 6 | Stocks, per dozen | 4 0-9 0 |

Bedding-out Plants, per dozen, from 1s. 6d. to 3s.

SEEDS.

LONDON: June 25.—Our market continues in a most inactive state, and transactions are very limited both in number and extent. There is no change in the value of any kind of Clover seed, nor is there at present any enquiry whatever. Mustard and Rape seed are in good demand, and it is now certain that the stocks of the latter are getting extremely light. Hemp and Canary seeds continue very slow of sale, though quotations from the Continent would seem to indicate a firmer feeling for the first-named. Blue Peas now find a brisk sale, and fine samples, which are scarce, command higher prices. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

Government Stock.—For Consols the closing prices on Monday were, for delivery, 97 to 97½, and for the account 97½ to 97¾. Tuesday's prices were 97½ to 97¾ for both account and delivery, and the same figures were quoted at the close of Wednesday's business. For both delivery and account the closing prices of Thursday were 97½ to 97¾.

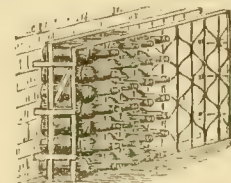
IRON WINE BINS.

FARROW & JACKSON,

18, GREAT TOWER STREET, E.C.;
8, HAYMARKET, S.W.

EXHIBIT BINS,

Displaying Seals and Capsules of Bottles.
"THE NEW 'EXHIBIT' BINS."



So arranged that the necks of the bottles are placed outwards, convenient to the grasp, displaying the seals, capsules, or tickets on the corks, and which obviates the difficulty in distinguishing the different sorts of wine. This is the only form of bin which offers this advantage, and renders it an almost perfect mode of storing Wine.

FRENCH BINS. SODA-WATER RACKS.

NEW PATENT DOUBLE BINS,

With same advantage.

CELLULAR BINS,

With separate rest for each bottle.

FARROW'S PATENT NEW BOTTLE CLIP FOR CHAMPAGNE and OTHER WINES.

Illustrated Priced CATALOGUE on application.

ANDERSON, ABBOTT, AND ANDERSON,

India Rubber Manufacturers,

37, QUEEN VICTORIA STREET,
London, E.C.

GARDEN HOSE and FITTINGS;

60 feet of Garden Hose and Fittings, complete, £1 1s.

HOSE REELS,

From £1 1s.

EMPRESS OF INDIA GARDEN TENT,

To seat thirty persons when closed and forty-five when open. Circumference, 27 feet. Price, complete, £6 10s. Patterns of material and illustrations free.

LAWN TENNIS SHOES,

From 12s 6d.

LAWN TENNIS BATS,

From 7s 6d.

LAWN TENNIS BALLS,

Regulation size and weight.

HUNTING, SHOOTING, and FISHING BOOTS.

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LEVE ANTI-PLUVIUM WATERPROOF SUIT,

Consisting of Coat, Hat, and Leggings, weighing 12 oz. Price £1 1s.

All descriptions of

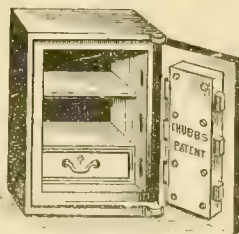
INDIA RUBBER GOODS,

For Sporting, Domestic, Surgical, and Mechanical purposes

ANDERSON, ABBOTT, & ANDERSON,

37, QUEEN VICTORIA STREET, E.C.

CHUBB'S



Fire and Thief
Resisting
SAFES.

THREE PRIZE MEDALS,

INCLUDING THE

ONLY MEDAL FOR ENGLISH LOCKS,

Paris Exhibition, 1878.

Patent Detector Locks and Latches.

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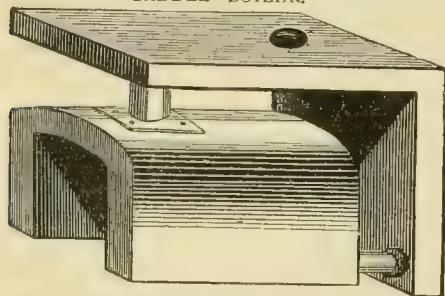
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TEBBS'S UNIVERSAL FUMIGATOR
 for Greenhouses, &c., has proved to be the best yet introduced. No one cultivating plants under glass should be without one; they are cheap, durable, and thoroughly effective. 35s., 45s. 6d., and 75s. 6d. each; and Small Size for Frames, 35s. each.
 Wholesale—CARRY AND SOPER, Shad Thames, E.C.; and FLANAGAN AND SON, 98, Cheapside, London, E.C.; and retail of all Nurserymen and Seedsmen.
 N.B. When you ask for this article (to prevent disappointment) see that you get it.

THE "STANLEY" GARDEN ENGINE.

Simple, Effective, Durable; Easy to Work; Cheap.
 Prices—12 Gallons, £3 15s.; 30 Gallons, £6 10s.
Carriage Paid.
 CATALOGUE ON APPLICATION.

HYDES & WIGFULL, Limited, Sheffield.
JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought-iron are not liable to crack. They are made of the following sizes:—

| Sizes. | | | To heat of | Price. | |
|--------|--------|--------|-------------|--------|-------|
| High. | Wide. | Long. | 4-in. Pipe. | £ | s. d. |
| 20 in. | 18 in. | 18 in. | 300 | 7 | 0 0 |
| 20 " | 18 " | 24 " | 400 | 8 | 0 0 |
| 20 " | 18 " | 30 " | 500 | 9 | 0 0 |
| 24 " | 24 " | 24 " | 700 | 12 | 0 0 |
| 24 " | 24 " | 30 " | 850 | 14 | 0 0 |
| 24 " | 24 " | 36 " | 1000 | 16 | 0 0 |
| 24 " | 24 " | 48 " | 1400 | 20 | 0 0 |
| 28 " | 28 " | 60 " | 1800 | 25 | 0 0 |

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseryman, Batham Hill, S.W., May 29, 1873.*

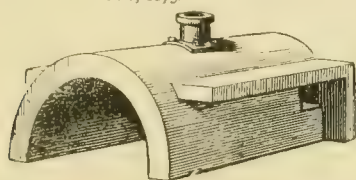
"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say that they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

PRICE LISTS OF HOT-WATER PIPES AND CONNECTIONS, with Boilers, of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.
 When ordering Boilers please refer to the above advertisement.

Silver Medal, 1874.

THE TERMINAL SADDLE BOILER.—First-class Certificate, 1867; Highly Commended, 1873; and First-class Certificate, 1875.



"This boiler possesses the rare merit of sucking all the heat from the fire."—*Gardeners' Magazine*, p. 254

"I have no doubt the Best Boiler, that will burn any kind of fuel, is the Terminal Saddle."—*Journal of Horticulture*, p. 327.

"For moderate cost and real efficiency the Terminal Saddle is one of the very best."—*The Garden*, p. 95

Prospectus post-free.

T. JONES, Temple Street, Manchester.

X PIPES. PIPES.—PIPES. X

The Cheapest House in the Trade for HOT-WATER PIPES AND CONNECTIONS. 4-inch Pipes, 1s. 8d. per yard. Other sizes equally low.

F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

PRICE LIST] **LUNN'S** [POST-FREE.
"HORNCastle" LAWN TENNIS.
TANNED NETS, RACQUETS.

35 per Cent. below usual prices.
 SETS, complete with Racquets, Balls, Poles, Net, &c., in boxes, 14s., 21s., 31s. 6d., 42s., 63s., and 84s.
 The *Exchange and Mart* writes:—"From a comparison which we have made between a £3 3s. set which Mr. Lunn has submitted to us, and sets at £3 10s. to £4 4s. at some of the principal retailers in London, we can confirm the claim that, price for price, his set is vastly superior." Price List, with Opinions of the Press, post-free.

H. S. LUNN,

3 and 5, BRIDGE STREET, HORNCastle.

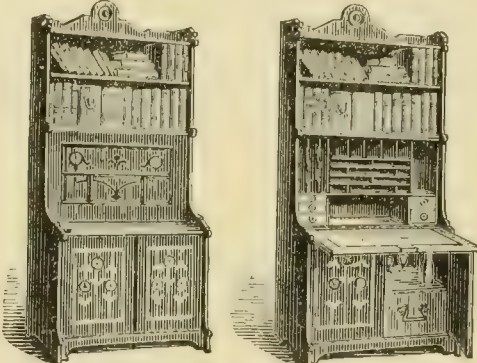
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All the usual kinds at reduced rates. SACKS and SEED BAGS, new and second-hand, of every description. RAFFIA FIBRE, NETTING and TIFFANY. TARPAULINS, RICK COVERS, HORSE-CLOTHS, ROPES, LINES and TWINES. Price LIST on application to J. BLACKBURN AND SONS, 4 and 5, Wormwood Street, London, E.C.

ANDERSON'S RUSSIA MATS.

For COVERING, TYING, and PACKING, are highly recommended for durability and cheapness. Descriptive Catalogue sent post-free on application. SACKS and BAGS of every description. TARPAULINS, HORSE-CLOTHS, ROPES, LINES, and TWINES.—JAMES T. ANDERSON, 149, Commercial Street, Shoreditch, London, E.

THE Salisbury Combination Secretaires. FOLEY'S PATENT.



No. 2 D. 6 ft. 9 in. by 3 ft. 3 in.

THE SALISBURY COMBINATION SECRETAIRES are adapted to all purposes and classes of society.

Combine the uses of Bookcases, Bureaus, China Cabinets, Cellaret, Sideboards, Escritoirs, Secretaires, &c.

Every part is utilised, the floor space is the same, whether open or closed.

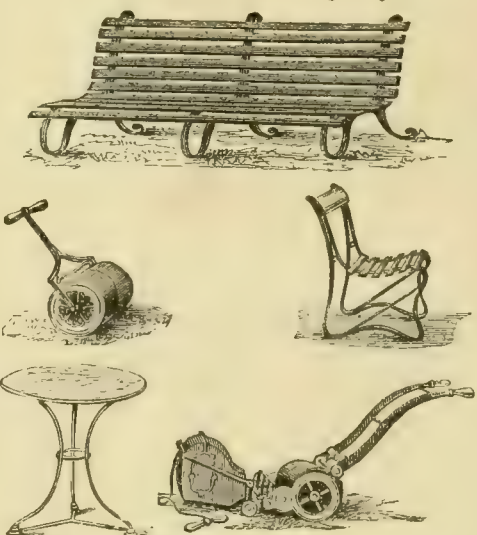
These Secretaires are elegant and original in design and construction, and destined to become the Cabinet of the age.

List of Prices and Illustrations of other Combinations can be obtained of the Patentee and Manufacturer.

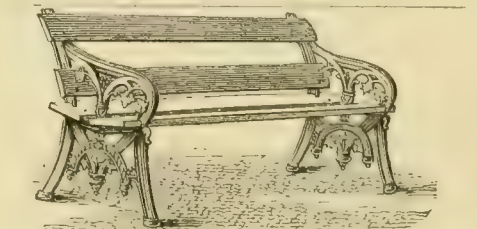
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FISHERTON MACHINE CABINET WORKS, SALISBURY.

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Rustic Garden Furniture in great variety.

Garden Seats, Awnings and Tents, Rustic Tables, Chairs, and Flower Stands, Lawn Mowers, Garden Rollers, Water Barrows, Wheelbarrows, Garden Tools, Fancy Wirework, Birdcages, Hammocks, and all kinds of Garden Furniture at lowest marked prices. Catalogues post-free. 5 per Cent. for Cash.

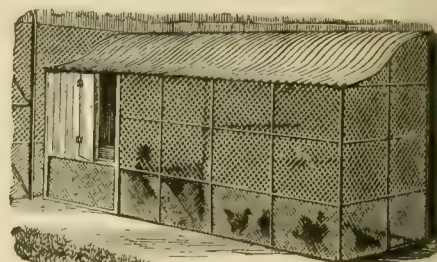
THE PANKLIBANON, 56, BAKER STREET, W.

Protect your Fruit Trees and Seed Beds.

TANNED NETTING, sent to any part of the Kingdom—50 yards by 4 yards wide, 10s. 6d.; 100 yards by 2 yards wide, 10s. 6d. Post-office Order or Cheque to accompany Order, made payable to L. WREN, 193, High Street, Lowestoft.

BOULTON & PAUL, NORWICH.

NEW PORTABLE LEAN-TO POULTRY HOUSE.



The Night House is made of wood, painted green outside and lime-whited inside, with run underneath for shade and shelter; new O.G.-shaped galvanised roof, which is very ornamental, and affords good ventilation; fitted with shifting perches, sliding window, large door and lock for attendant, small door for fowls, and hen ladder, no nest boxes. Strong galvanised Wire Run, with corrugated iron roof, door, and lock, and all necessary bolts and nuts complete.

Prices—Carriage paid to any railway station in England:

| | |
|--|--------|
| 1st size, No 7, with run complete, 12 feet long, 4 feet wide | £1 5 0 |
| 2d size, No. 8, with run complete, 12 feet long, 5 feet wide | 8 10 0 |
| 3d size, No. 9, with run complete, 16 feet long, 6 feet wide | 12 0 0 |

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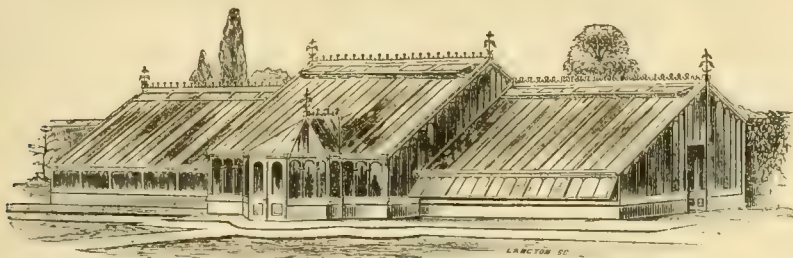
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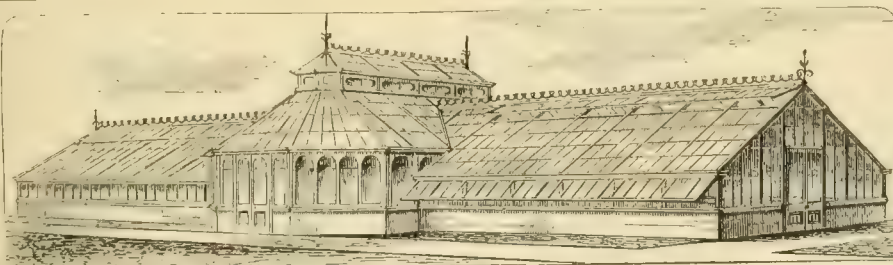
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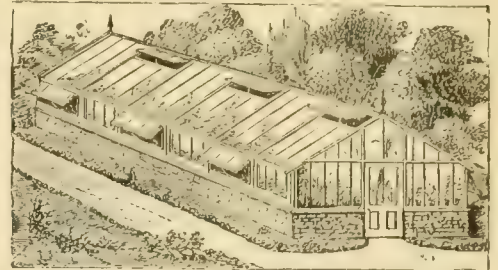
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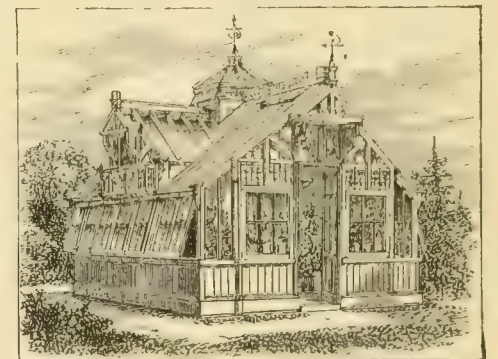


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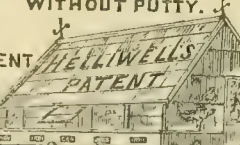
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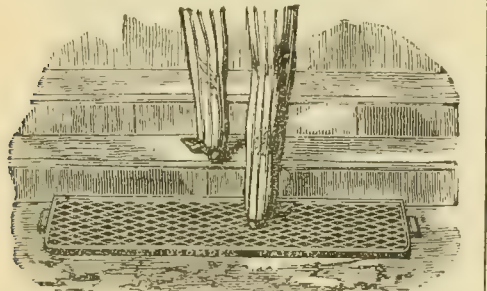


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WANTED, IMMEDIATELY, a good PACKER. Must have had experience. One who can paint and glaze, &c., preferred.—Apply to OSBORN AND SONS, Fulham Nurseries, London, S.W.

WANT PLACES.

GARDENER (HEAD).—Thirty years' experience in all branches.—L. E., Post-office, Dartmouth, Devon.

GARDENER (HEAD).—Married; thorough knowledge of Orchids, Stove and Greenhouse Plants, Forcing of Melons and Vines, and the General Routine of Gardening.—E. KENWOOD, 3, Park Road, Chislehurst.

GARDENER (HEAD), where one or two are kept, or SINGLE-HANDED.—Married. Four years Head Gardener to Lord Frederick Fitzroy. Good character.—T. DENCH, Balcombe, Hayward's Heath.

GARDENER (HEAD); age 38, married, no young family.—A GENTLEMAN wishes to recommend a respectable trustworthy man, with long and varied experience.—Mr. MACDOUGALL, 2, Leverton Place, Kentish Town Road, N.W.

GARDENER (HEAD).—Age 34; understands the general Management of a good garden establishment. Three years and eleven months good character from present employer.—J. WILSON, The Gardens, Brookman's Park, near Hatfield, Herts.

GARDENER (HEAD).—Mr. TEGG, The Gardens, Bearwood, Wokingham, Berks, will be pleased to recommend his Foreman (John Davis), who has been with him five years, to any Lady or Gentleman requiring the services of a thorough practical man.

GARDENER (HEAD).—Age 36, married, one child; practical experience in all branches, especially Orchids. Has lived in present situation over three years, and given every satisfaction, Satisfactory reasons for leaving.—WM. FISHER, Woodlands, Nightingale Lane, Balham.

GARDENER (HEAD).—Age 34, married, one child; understands Vines, Pines, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Good references.—J. M., The Gardens, North Hall, Worthington, near Wigan.

GARDENER (HEAD), where two or more are kept.—Age 30; thoroughly understands the forcing of Fruit, Flowers and Vegetables, Flower and Kitchen Gardening; experienced in all branches of the profession.—J. M., 38, Exeter Road, Northampton.

GARDENER (HEAD); age 40, married.—J. BRYAN, for many years Gardener to the Right Hon. Lord Braybrooke, Audley End, being now disengaged, begs to offer his services to any Nobleman or Gentleman requiring a thoroughly practical Man, well versed in all branches of Gardening.—Newport, Bishop's Stortford, Essex.

GARDENER (HEAD); age 31, married.—A GENTLEMAN, who has broken up his establishment, wishes to recommend his Gardener to any Lady or Gentleman requiring a first-class man. Well up in the Management of a good place. Highest recommendations.—H. F., The Hall Gardens, Bushey, near Watford, Herts.

To Noblemen and Gentlemen.
GARDENER (HEAD).—Age 31, married; well up in the requirements of Gentlemen's Gardens, Early and Late Forcing, Flower and Kitchen Gardening, &c. Sixteen years' practical experience. Leaving through breaking up of establishment. First-class references and testimonials. No Single-handed place accepted.—Mr. J. YOUNG, Gardener, Right Hon. Earl Fitzwilliam, Wentworth, Rotherham.

GARDENER (HEAD, WORKING).—Age 30; understands Gardening in all its branches. Fifteen years' experience. Good character from present and previous employers.—T. H., Shardeoles Gardens, Amersham, Bucks.

GARDENER (HEAD, WORKING).—Age 30, married; thoroughly experienced in all branches. Nearly three years' character from present place.—S. COOK, Mr. Godfrey, 2, Perry's Cottages, Crouch Hill, Hornsey, N.

GARDENER (HEAD, WORKING).—Age 36; married, one child; eighteen years' experience in all branches of the profession. Good character and testimonials.—S. L., 6, Summer House Terrace, Church Street, Stoke Newington, London, N.

GARDENER (HEAD, WORKING).—Age 40, married, no family; understands Orchids, Ferns, Vines, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Wife could Cook or take charge of House or do Dairy. Good characters.—N. S., 1, Alma Cottages, Leigham Lane, Streatham.

GARDENER (HEAD, WORKING), where two or three are kept.—Married, no encumbrance; twelve years' experience in various branches of the profession. Live in lodge if required. State wages.—W. H. DALE, 20, Guy Street, Leamington.

GARDENER (HEAD, WORKING).—WILLIAM BROWN begs to state his Foreman, age 28, is still open to engagement; he is a good practical man, of tested ability, serving here with credit and satisfaction.—W. D., Merivale Garden, Atherstone.

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GARDENER (HEAD, WORKING).—Age 40, married; thorough practical knowledge of the profession in all its branches. Land and Stock if required. Eight years' good character from his late employer. Wife good Cook, or assist otherwise.—H. D., 2, Heneker Terrace, Brockley Road, Forest Hill, Kent.

GARDENER (HEAD, WORKING).—Age 34, married, three children; thoroughly understands Vines, Stove and Greenhouse Plants, Flower and Kitchen Gardening; first-class Rose Grower. Total abstainer. Can undertake Planting if required. Good references.—GARDENER, Dolforgan, Newtown, Montgomeryshire.

GARDENER.—Thoroughly experienced and practical in all branches. First-class reference.—J. D., near Post-office, Ashton-on-Clun, Shropshire.

GARDENER.—A. DOUGLAS, Superintendent of Jephson Gardens, Leamington, can with confidence recommend a thorough practical gardener to any Nobleman or Gentleman in want of such. Particulars on application.

GARDENER.—Age 34, married; thoroughly understands Cultivation and Forcing of all kinds of Fruit, Flowers, and Vegetables. Eighteen years' experience. Well recommended, being practical, competent, and trustworthy. Christian principles.—A., 55, Warren Road, Croydon.

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GARDENER (SECOND, or good THIRD), in a Gentleman's Garden.—Age 23; eight years' experience. Good references.—J. D., Camden Nursery, Sissinghurst, Staplehurst, Kent.

GARDENER (UNDER).—Age 22. Can also do Rough Carpentering.—A. A., Mr. Thompson, Moneypot Hill, Redgrave, Suffolk.

GARDENER (UNDER), Outdoor.—Age 21; good character. State full particulars.—W. NUNN, Royd's Wood, Huddersfield, Yorkshire.

GARDENER (UNDER).—Age 21; good character.—H. H., Royal Farm, Pepperharrow, near Godalming, Surrey.

GARDENER (UNDER).—Age 22. Good character. Total abstainer.—C. W. S., 21, Newington Green Road, London, N.

GARDENER (UNDER), where three or more are kept, or as JOURNEYMAN in the Houses in a Gentleman's Garden.—Age 21. Good character.—R. WHITTLE, Downing Hall, Holywell, North Wales.

GARDENER (UNDER).—Age 22; good experience in Flower and Kitchen Gardening, Stove and Greenhouse Plants. First-class references and character from present employer.—F. A., Mr. J. Tubbs, Roehampton, Surrey.

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FOREMAN, in a Nobleman's or Gentleman's garden.—W. BAKEWELL, Gardener to the Right Hon. the Earl of Denbigh, Downing Gardens, Holywell, North Wales, would be pleased to recommend a young man to any Gardener, as above.

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JOURNEYMAN, in the Houses, under a Foreman.—Age 20; good references.—G. N., 27, Springfield Road, Southborough, Tunbridge Wells, Kent.

JOURNEYMAN, in the Houses.—Age 20; two years in last situation, amongst Fruit and Stove Plants. Good character if required. Kent preferred.—K. H. M., Badzell Park Farm, Brenchley, Kent.

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| All Saints' Church, St. John's Wood, N.W. .. | 1,760 " | Hesslewood, Hull .. | 1,500 " | Ridding's House, Alfreton .. | 5,600 " |
| All Saints' Church, Upper Clapton, N.E. .. | 1,100 " | H.M. Convict Prison, Chatham .. | Infirmaries and Cells. | Royal Botanic Gardens, London, S.W. .. | 3,500 " |
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| Arlington, Court Barnstable .. | 1,580 " | H.M. Convict Prison, Parkhurst .. | Infirmaries and Cells. | Royal Naval Asylum, Yarmouth .. | Officers' Quarters. |
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| Greenlands, Henley-on-Thames .. | 4,500 " | Oakwood Hall, Cheshire .. | 1,150 " | Wesleyan College, Battersea, S.W. .. | 1,460 " |
| Grittleton, Chippenham .. | 3,400 " | Old Sneed Park, Bristol .. | 5,800 " | West Lavant House, Chichester .. | 1,000 " |
| Grosvenor Hotel, Chester .. | 1,067 feet. | Ottershaw Park, Chertsey .. | 1,200 " | Whitechapel Union, E. .. | 6,000 " |
| Hall Place, Canterbury .. | 1,036 " | Otterhead, Taunton .. | 2,000 " | Witley Hall, Boreley .. | 2,800 " |
| Hall Place, Maidenhead .. | 3,500 " | Oulton Hall, Leeds .. | 2,800 " | Wilton House, Salisbury .. | 6,920 " |
| Hall Place, Tonbridge .. | 1,500 " | Pale Hall, Corwen, North Wales .. | 1,937 " | Witherslack Hall, Lancashire .. | 2,500 " |
| Hampthwaite Hollings, Ripley .. | 5,300 " | Park Hill, Manchester .. | 1,550 " | Wimpole Hall, Royston .. | 2,185 " |
| Hampton Court House, Middlesex .. | 2,500 " | Park Hill, Streatham .. | 3,400 " | Woburn Park, Beds .. | 5,000 " |
| Hanger Hill House, Middlesex .. | 2,300 " | Park Place, Henley-on-Thames .. | 7,000 " | Wood Hall, Downham, Norfolk .. | 2,800 " |
| Hanworth Park, Middlesex .. | 1,100 " | Penbedw Hall, Mold .. | 1,670 " | Woodseat, Ashbourne .. | 2,900 " |
| Haverholme Priory, Sleaford .. | 3,000 " | Pendley Manor, Tring .. | 2,800 " | Woolley Hall, Wakefield .. | 1,200 " |
| Hawkesyard Park, Rugeley .. | 2,254 " | Pine Apple Nursery, London .. | 8,000 " | Worcester Infirmary .. | 1,800 " |
| Henbury Church .. | 2,100 " | Pine Apple Lodge, Peckham, S.E. .. | 5,560 " | Wrexham Bank .. | 1,180 " |
| Henham Hall, Suffolk .. | 2,020 " | Plas Dinas, Dinas Mawddwy, North Wales .. | 3,000 " | Wyberton Villa, Lewisham .. | 1,960 " |
| Herne Park, Kent .. | 2,020 " | Preston Bank, Lancashire .. | 1,100 " | Yateley Hall, Farnborough, Hants .. | 1,600 " |
| | | | | Zoological Gardens, Regent's Park, N.W. .. | 6,500 " |

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